american aircraft MODELER

SEPTEMBER 1969 60c 7/-

FULL-COLOR CENTERSPREAD WW-2 GRUMMAN HELLCAT

For the Tenderfoot: FLASHBY 1-- A jet-age rubber job!

For the Rocketeer: EGG-LOFTING ROCKET

Radio Control: BUILD NICK ZIROLI'S FOUGA CYCLONE
Power-assisted scale sailplane

Supertigre's New...

SATURN 60

So, what is the new Saturn 60 from Supertigre? The Saturn 60 is a new engine which has been designed specifically for good idling characteristics and to accept the throttle that will permit good top end performance. An engine with the capability has to have exceptional fuel draw engineered into its basic design. Basically, the Saturn 60 started where the ST 60 left off. Some of the parts are interchangeable. In order to give the engine better fuel draw we eliminated sub-piston induction. Many parts have changed – piston, ring, sleeve, backplate. Incidentally, the Saturn 60 will boast a Dyke's ring. Also, for those people who want extremely low speed – under 2000 rpms – we are including with the engine an extra head gasket for low compression operation. We do not recommend lowering the compression for overall engine performance but it does help for extremely low speed.

Also, the Saturn 60 will boast the new MAG throttle.

This new MAG throttle is described in the lower left hand corner of this advertisement.

Our tests on this engine show the low speed capability to be just under 2000 rpms using a wood 11/6 prop with a plastic spinner. Frankly, we would recommend setting up this trottle to idle at about 2600 rpms thereby giving the user of the engine about 600 rpms insurance against engine failure on a landing approach or in a tail slide. The top end performance of this engine under these circumstances is approximately 12000 rpms using 15% nitro fuel.Our tests were with 15% RoGo. These figures were taken with the low compression gasket in place. We estimate the top end performance at about 13000 rpms running a high compression configuration. The real pay-off with the Saturn 60 is that it is lightweight only 15.5 oz. and the price at least for the time being will remain a modest $39.98.

MAG MAG

The first MAG throttles that will be released will fit the ST 51/56 and 60 Series Supertigres. It will also fit the new Saturn 60. It will fit the G.60 and G.71 Series. In a very short time a smaller MAG throttle will be released for the G.21 Series engines which range from 29 to 46. And, at a still later date, a MAG throttle will be released for the small series Supertigres, essentially the G.20/23. This is an all metal throttle. The high speed needle valve adjustment is completely independent of the low speed operation. With this throttle the drum operates on a cam which moves from right to left approximately .080" as the drum closes. This drum cam will also support the idle needle valve which has a blunt piston shape operating end. As the cam moves in the .080" the idle needle valve reduces the orifice by this amount thereby leaning out the feel that the carburetor can distribute into the airstream. This sounds very simple but in actual testing many things were found to be critical and were designed to optimum during the testing period. The diameter of the idle needle valve – the size of the orifice – the position of the orifice in the venturi of the throttle, all of these were improved by constant testing. Price: $9.98. This standard MAG throttle is for pattern work and does not require pressure. We also offer a MAG pylon pressure throttle which is a bored-out version of this throttle for $14.98.

G-21/40 R/C

Bill Bertrand of Detroit set a new distance record. This will give Maynard Hill something to shoot at. Bill flew a model from Windsor to the other side of Toronto using one of our G.21/40 front valve engines and one of our competitors sets of R/C equipment. Bill used needle valve adjust on the model and occasionally stopped his convertible to get out and bring the plane down to where he could hear the engine running so that he could reset the needle valve. Actually, this really added some distance to the flight. Bill started this flight at about 7:30 in the morning and landed in Toronto at about 11:30 establishing a highway speed of from 60 to 70 mph. This is interesting in that his automobile was not acting as a road block out on the freeway. We want to congratulate Bill on his record and we are happy that he was so confident of our product so as to use a Supertigre engine on this record. Price – G.21/40 R/C . . . $23.98.

GOODYEAR THROTTLE

$14.98

WORLD ENGINES

INCORPORATED

8960 ROSSASH AVE. CINCINNATI, OHIO 45236

the hot ones in R/C

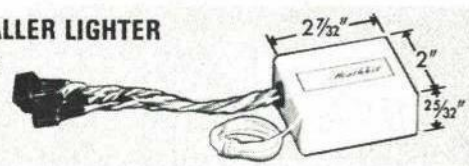
NEW Heathkit® GD-19 5-Ch. Proportional System

Same Low Price
Only $219.95* with 4 Servos

New — smaller, lighter Receiver
New — Kraft Control Sticks
New — 3 choices of bands — 27, 53 or 72 MHz

• Powerful transmitter has preassembled, prealigned RF circuitry • New 2.3 oz. miniature receiver features space-age ceramic filters in the IF for high selectivity, extra reliability and no IF alignment ever • Unaffected by noise or temperature variation • New Kraft control sticks with thumb lever coarse adjustment plus Trim Controls that Do Not change stick centering • Switch-locked transmitter prevents accidental turn-on • Collapsible antenna • New flat-pack rechargeable nickel-cadmium transmitter and receiver batteries • Exclusive Heath space and weight-saving military-type terminal blocks • High reliability variable-capacitor servos for extended life • Two linear outputs (one with vertical tabs) plus rotary • Easily reversed servo travel • Flight weight only 16 ozs. • Choice of five operating frequencies in each of three bands — 27, 53 or 72 MHz • Buy the complete system kit (supplied with soldering iron) . . . easy to build and great savings over assembled gear . . . or buy components separately — new receiver is fully compatible with previous Heathkit GD-47 R/C System

NEW SMALLER LIGHTER RECEIVER



The new Heathkit GDA-19-2 receiver combines Heath engineering with extremely small size & weight to deliver unmatched performance and reliability. Ceramic filters for increased selectivity, extra reliability and elimination of alignment forever. Miniature size . . . you can put this receiver places others won't fit. Light in weight . . . flying weight of receiver and new flat-pack battery is only 6.2 oz. Highly sensitive, immune to noise, unaffected by temperature . . . and available on five frequencies in any one of three different bands.

System Kit GD-19, all system parts; specify freq. desired; 11 lbs. . . **$219.95***
Kit GDA-19-1, transmitter, battery, charging cord; specify freq., 5 lbs. . . **$86.50***
Kit GDA-19-2, receiver only; specify freq., 1 lb. **$49.95***
Kit GDA-19-3, receiver battery pack only, 1 lb. **$9.95***
Kit GDA-19-4, one servo only, 1 lb. **$21.50***
Kit GDA-47-6, plug conversion kit for using new GDA-19-2 receiver with previous GD-47 R/C System, 1 lb. **$2.95***

Complete Airborne System Weight: 16 oz. (1 receiver, 1 receiver battery, 1 switch, and 4 servos). **Total Flying Time:** Four hours minimum (with batteries fully charged). **Operating Frequencies:** 27 MHz (11 meters) — 26.995, 27.045, 27.095, 27.145 & 27.195 MHz; 53 MHz (6 meters . . . Amateur Radio operator's license required) — 53.100, 53.200, 53.300, 53.400 & 53.500 MHz; 72 MHz (4 meters) — 72.080, 72.240, 72.400, 72.960 & 75.640 MHz.

NEW Heathkit® GD-69 "Thumb-Tach"

NEW Kit GD-69 $19.95*

At Last An Accurate, Easy-To-Use Tachometer To Measure RPM's On Any Model Engine

The new Heathkit GD-69 "Thumb-Tach" Tachometer features all solid-state design and battery operation for long life reliability. And the "Thumb-Tach" is so low in cost, so functional, no modeler can afford to be without it. Can be used on model planes, boats, and cars.

Accurate . . . Doesn't Load Engine. There's no mechanical or electrical connection between your engine and the GD-69 . . . it measures RPM directly using reflected ambient light from the propeller or flywheel of your model . . . operates even from several feet away.

Simple To Use. Just set the handy slide switch to the meter scale you want to use . . . Low (0-5000 RPM) for idle adjustments or High (0-25,000 RPM) for top end RPM readings . . . and aim the lens at the propeller or flywheel. The meter reads directly in RPM. Easily calibrated for single pulse inputs (marked flywheels) and two and three pulse inputs (two & three bladed propellers). A handy pull-out stand lets you use both hands for making engine adjustments too.

Dozens Of Uses: • needle valve adjustments • difference in performance from one fuel to another • difference in glow plug performance • adjust engines to manufacturer's RPM • select gear trains and props • indicates power loss due to aging or worn engine parts • shows changes in peak RPM that you can't hear • especially useful for free-flighters, where a few more RPM can be the difference between winning or losing. And the GD-69 is easy to build too . . . just 2-3 hours assembly on one circuit board. Raise your engine performance now . . . with the new Heathkit GD-69.

Kit GD-69, 1 lb. **$19.95***

GD-69 SPECIFICATIONS — Range: 0-500 RPM & 0-25,000 RPM. **Light intensity:** Dusk to bright sunlight. **Pulse ratio:** 1, 2, or 3 input pulses per RPM. **Battery requirements:** 9 V. NEDA #1604 (not supplied). **Finish:** Blue wrinkle. **Accuracy:** 3%. **Dimensions:** 1 17/32" H x 2½" W x 5¾" L. **Temperature range:** 0° to 160° F. **Net weight:** 10 oz. less battery.

FREE! Heathkit Catalog

Now with more kits, more color. Fully describes these along with over 300 kits for stereo/hi-fi, color TV, electronic organs, guitar amplifiers, amateur radio, marine, educational, CB, home & hobby. Mail coupon or write Heath Company, Benton Harbor, Michigan 49022.

HEATHKIT
a Schlumberger subsidiary

HEATH COMPANY, Dept. 80-19
Benton Harbor, Michigan 49022

☐ Enclosed is $_____, plus shipping.

Please send model (s)_____
☐ Please send FREE Heathkit Catalog.
☐ Please send Credit Application.

Name_____

Address_____

City_____ State_____ Zip_____

*Mail order prices; F.O.B. factory. Prices & specifications subject to change without notice. GX-183R

american aircraft MODELER

VOLUME 69, NUMBER 3 SEPTEMBER 1969

COVER PHOTO: Photog Bill Taylor took this shot of his wife Carrie Mae holding a Hegi SB-7 sailplane on the rim of the Canyonlands of Utah. Updrafts give out-of-sight flights of paper gliders — retrieved by jeeps!

WILLIAM J. WINTER — PUBLISHER

Edward C. Sweeney, Jr., Editor Sally Barry, Managing Editor

Articles:

Features:

Academy of Model Aeronautics:

Departments:

Published monthly by Potomac Aviation Publications, Inc., 733 Fifteenth Street, N. W., Washington, D. C. 20005. William J. Winter, Publisher; Edward C. Sweeney, Jr., Secretary; American Aircraft Modeler Business Manager, Harvey E. Cantrell.

ADVERTISING DEPARTMENT

733 15th St., N. W., Washington, D. C. 20005 (202) 737-4288

Midwest Advertising Representative: G. S. Anderson & Associates, 4621 Grand Ave., Western Springs, Illinois 60558. Tel: (312) 246-0837

Western Advertising Representative: Aaron D. Viller & Associates, 5311 Venice Blvd., Los Angeles, California 90019. Tel: (213) 939-1161

Subscription Rates: In U. S., Possessions and Canada, 1 Year, $6.00; 2 Years, $11.00; 3 Years, $15.00. Elsewhere, $8 for one year. Payable in advance. Single copies, 60 cents. Six weeks are required for change of address. In ordering a change, write to American Aircraft Modeler, 733 Fifteenth Street, N. W., Washington, D. C. 20005. Give both new and old address as printed on last label.

We cannot accept responsibility for unsolicited manuscripts or artwork. Any material submitted must include return postage. When writing the editors address letters: Editorial Office, American Aircraft Modeler, 733 Fifteenth Street, N. W., Washington, D. C. 20005.

Second class postage paid at Washington, D. C. and at additional mailing offices.

Postmaster: Send Form 3579 to American Aircraft Modeler, 733 Fifteenth St., N. W., Washington, D. C. 20005.

NEW ORBIT '69
A BIG DIFFERENCE

AVAILABLE NOW
SEE YOUR DEALER

Orbit digital proportional 4-8 IC MK II and 6-12IC MK II systems were designed for you. Flyability, reliability and price are right. Compare performance when you buy.

XMTR New super-smooth action gimbal for positive control. New case is light-weight and comfortable to hold. Buys you beautiful control, less fatigue.

RCVR Reliable IC circuitry buys you light-weight, miniature size and the highest performance.

SERVOS New PS-3D MK II or high torque PS-4D buy you incomparable resolution (stick and control surfaces are practically locked together like the steering mechanism of a fine sports car) combined with exact neutral centering for absolute control.

COMPLETE ORBIT SYSTEM: Transmitter, receiver, airborne power-pack, transmitter power-pack, charger, 4 PS-4D servos (rotary output) or 4 PS-3D MK II servos (dual rack and wheel output), cables and connectors, switch installation and operation manual. **Single-stick or two-stick, 27 or 72 MHz bands. 4-8IC MK II $399.95, 6-12IC MK II $449.95**

Orbit Electronics

11601 Anabel Ave., Garden Grove, Calif. 92640

MP69427

STRAIGHT AND LEVEL

A many-splendored thing–that's a free-flight. It's got character–what you need to fly it successfully.

TO the writer a free-flight model is always a gas-engined design, either for sport or for competition, never a rubber-powered model, or even a glider. A tow-liner and hand-launched glider are, in fact, free-flight models. By rules, it is generally understood that anything that is not tied to control-lines running to a handle, or not tied by invisible radio impulses, is free-flight. But if you broke in during the great expansion of the 1930's when everyone wanted one of those beautiful little engines, and before Jim Walker launched the U-control age, free-flight meant just that — a gas job. Nothing else.

Free-flights had, and still have, wonderful things going for them. They offer unique experiences which are not to be found in any other form of modeling. They have character. Individuality. They are as alike, and unalike, as people, in unimagined variety, and in endless combinations. They have a way of teaching aerodynamics and the theory of flight, unmatched by any teacher or text book. They can successfully force-feed the facts of flight to the most inept, or to the most experienced and expert. They offer a challenge which some people cannot resist, and most fear. You've got to program them to fly — the fine art of adjusting, that is — and they are by far the most intimate kind of flying machine you can imagine. They offer the jackpot in sublime flying experiences, but they also penalize the careless by committing instant and spectacular suicide. You've got to live on terms with 'em, and, if you can't, then take up something more predictable — like radio control.

A free-flight is a born wanderer. Oh, you can use an engine-run control device which chops the power after, say, ten seconds. And you can use a dethermalizer, which pops up the tail to bring the crate down at a steep angle. The sharp contest modeler handles these things as carefully as a pistol or shot-gun, but the darn things do sometimes get up and away. Especially those innocent sport jobs which no one suspects of wanderlust — until a flirting thermal comes swishing by. So there's the chase. Even a professionally controlled free-flight really eats up the ground on a windy day — if you want to rack up a winning flight time. Kind of keeps the waist-line down. It ain't for the flabby.

And it is a bomb. It is light. And it is powerful. Man, how powerful. Stand there with this roaring thing in your hand and turn it loose into, you hope, its natural pattern, and you know why some guys fight bulls. Or climb mountains. The darn thing is there, so to speak. And you've got to find out. Too often you do. The suspense is like sending men to the moon. Hit it right and your heart pounds in unimaginable ecstasy. Rack it up and you know what frustration really means. If it is in your blood, you come back for another bout like the KOed prize fighter who "knows" he can take that hard-punching other guy. Maybe.

You just can't launch this bomb any old way. It is designed to produce a pattern to make it flyable. You enhance or fortify this pattern by careful adjustments, and sneaking-up-on-it test flights which gradually add power and engine run. A slip anywhere along the line, over-confidence, too-much hurry-up, a let-down of caution, and you come unstuck — as does the crate despite all the glue in the world.

Done right, the ship keeps its nose up, and bores into the sky. If it isn't right, that nose may drop, bit by bit, and the circle tightens into a dance of death. You have no buttons to push. You push your feet through the ground. And if it bores on up, it must not swoop into a crazy stall when that powerhouse stops pulling. It should slip smoothly into its gliding circle — for which you have adjusted separately from the power-on flight. And you hope you haven't fouled up one at the other's expense. Make it right, and you are rewarded with the best of the sport of kings — if free-flight is your thing.

There was this Half-A pylon job we flew in a pasture evening after evening. Now they say some jobs won't go left — like a Powerhouse, Zeke, or Hogan, if you remember the names. If the nose faded left in the climb — look out! Probably the best power-control device ever invented was the pylon — Goldberg had that on his Zipper, and he got the idea from watching indoor mike jobs with two-stick pylons with covering between. The slipstream hits the pylon and, despite torque, the ship leans over to the right. The more prop blast, the more right.

You'd start off with a fast-revving, tiny one-blader, and the ship would rack over hard left, but go up. Gradually add diameter or pitch through a dozen props, and you could go from hard left to hard right, almost picking out the degrees on the compass. Of course, you had to match rudder trim as you went. The pylon kept you from winding in to the left, and as you swung over the right side on power, a bit of left trim added notch by notch, kept the nose from dropping. You can really play a wide, high pylon. The best control device ever cooked up!

A hot free-flight can actually be kept in a small area, once you get the upper hand. We used to watch Val Luce, Pete Andrews and Johnny Zaic fly all day, flight after flight, tail popping up right after the engine chopped, and DT'ing down for the next quick flight. Over and over. These were thin-winged Half-A's with a high climb rate. So you don't need a prairie when you fly for fun.

Why not try a free-flight? Maybe you are missing something great. It ain't a pylon, but start with a Midwest Sniffer, say. . . .

— *The Publisher*

CARL GOLDBERG

New! RANGER 42

The Versatile *Almost-Ready-To-Fly* Fun Model

For Single or Multi-Channel Radio Control; Also Free-Flight

Span 42"
Length 31"
Area 240 sq. in.
Weight 26-36 oz.

For .049 to .10 Engines

Only $14.95 PRC1

Can be flown 6 ways:

1. Single Channel Radio, Rudder Only
2. Single Channel Radio, Galloping Ghost
3. Two Channels, Rudder and Elevator
4. Three Channels; Rudder, Elevator, Engine Throttle
5. Four Channels; Rudder, Elevator, Engine Throttle, and Ailerons
6. Free Flight

Full explanation of each method given on plan.

FEATURES:

- One-piece molded Wing, high-lift
- One-piece molded Stabilizer
- One-piece molded Vertical Fin
- Molded Fuselage, completely assembled with firewall, nose gear, plywood floor, side rails, and main landing gear block already installed
- Complete fittings — nylon links, horns and keepers; nylon hinge material, screws, blind nuts, washers, eyelets, retaining springs, etc.
- Complete plans, with step-by-step illustrations
- Instructions on Operating Radio Control Models

Radio Control Flying is Fun! You can actually feel the thrill of controlling an airplane in flight — doing stunts, loops and rolls — and making it come back to you and land where you want. And the shortest way to success is with the unique new RANGER 42. This model has been carefully engineered, leaving only the simplest final assembly steps, all clearly illustrated. Flight stability is exceptional, as well as response to control. **All you have to do is add your engine, wheels, and radio control — only 6 to 8 hours work — and you're ready to go FLYING!** Just ask your hobby dealer — he'll be glad to show you the features.

SKYLANE 62

Semi-Scale Beauty in A Great Flying Model!

DELUXE — Includes New Fittings

$29.95

Tough, roomy cabin and front end, takes single to 10 channels or proportional. Steerable nose gear.

SPAN 62" AREA 540 sq. in.
LENGTH 50" WEIGHT 4½-5 lbs.
FOR ENGINES FROM .19 to .35

½A SKYLANE $8.95

For Single Channel — Escapement, Servo or Pulse
Span 42" Area 244 sq. in.
Length 35" Weight 22 oz.
For .049 Engines

The Design That Makes The Simplest, Sound, Attractive Airplane

THE FAMOUS FALCON

Sr. Falcon Shown

SR. FALCON $29.95

DELUXE — Includes New Fittings. For 10 Channels or Proportional
Span 69" Area 810 Sq. In.
Length 53" Weight 6¼ Lbs.
For .35 to .45 Engines

FALCON 56 $16.50

DELUXE — Includes New Fittings. Takes Single to 10 Channels or Proportional
Rudder-Only or Multi-Training
Span 56" Area 558 sq. in.
Length 43" Weight 3½ lbs.
For .09-.15-.19 Engines

Junior FALCON $5.95

DELUXE — Includes New Fittings. For Single Channel — Escapement, Servo or Pulse
Span 37" Area 250 sq. in.
Length 28" Weight 16 oz.
For .049 Engines

The Goodyear Racer with Enough Wing Area and Stability so YOU Can Fly It!

Shoestring

$24.95

DELUXE — Includes New Fittings

FOR 6, 8, 10 CHANNELS OR PROPORTIONAL

SPAN 54" AREA 540 Sq. In.
LENGTH 44" WEIGHT 4½ - 5 Lbs.
FOR .19-.40 ENGINES

Most Beautiful R/C Ever Kitted!

World's FIRST Single or Twin Engine R/C Models

SKYLARK

Skylark 56 Shown

DELUXE — Includes New Fittings

SKYLARK 56 $18.95

Takes Single to 10 Channels or Proportional
Span 56" Area 528 sq. in.
Length 44" Weight 3½ - 4½ lbs.
For Single Eng. .09, .15, or .19
For Twin Eng. Use Two .09's or .15's

JR. SKYLARK $6.95

For Single Channel — Escapement, Servo or Pulse
Span 37" Area 235 sq. in.
Length 29" Weight 18 oz.
For Single Engine Use .049
For Twin Eng. Use Two .01's or .02's

● P.S. For best service, see your dealer for kits you want. If not available, write direct; add 35c per kit in U.S., 75c outside U.S. Minimum order $1.

● Send 10c for 4 pg. Illustrated Catalog with "Recommendations on Starting in R/C," Basic Explanation of R/C Equipment, and Radio Control Definitions.

CARL GOLDBERG MODELS INC.
2545 WEST CERMAK ROAD • CHICAGO, ILLINOIS 60608

A Dyna-jet?

Your May '69 issue was great. However, in all the issues I have (about 2½ years worth), I have not yet seen one article on jets. The only time they are even mentioned is when you print the results of the control-line jet speed event at the AMA Nats.

In the "You Said It" column for the May issue, a Mr. Bob Strobel complained about no jets for models. You mentioned ducted fans and electric models, but failed to mention the Dyna-jet. Recently, I was given a Dyna-jet and a Eureka F-100 Super Sabre control-line scale model. I have almost completed the model and I have test run the engine. I found it easy to start and maintain. I use white gas for fuel, which is pretty cheap compared to five bucks for a gallon of glow fuel. Why don't you give the Dyna-jet a little publicity? They are loads of fun.

Jay Coward, Winchendon, Mass.

The pulse-jet type of engine is as noisy as 10,000 mooing cows. And it gets hotter than a soldering iron, which poses weighty problems, and we do mean weighty — in terms of pounds, in insulation for enclosed installations. Ed.

Tenderfoot contest in school

When my son Richard took a copy of AAM to school and showed the article on the Flying Funtique Tenderfoot Contest, it was an immediate hit and they decided to build, although none of them had built a box fuselage of any kind, or anything as complicated. Of the four started, one was not finished today when Willy's Dad took the pictures.

Your whole Tenderfoot series has been tops, and it gets top billing from these boys. Richard also wants me to tell you he likes the centerpiece color drawings. The only problem is we will shortly run out of space on his walls. Congratulations on your contest, and to Bill Hannan on his interesting and easy-to-build design. Richard and Garrick have had success with Dave Linstrum's Rapid R.O.G.ER . . . although without landing gears.

Many thanks for your efforts on the beginners' behalf.

Ed Whitten, New York, N. Y.

Club solved the problem

About five years ago I started modeling, and unfortunately my first plane was plastic. It ended up in pieces. I had worked hard selling Christmas cards to earn it, so this was discouraging. Gradually I saved enough money to buy a Guillow's trainer No. 1. I had saved the engine off of my plastic plane so I was all set. There was only one problem. I was scared to death of the motor. Gradually I overcame my fear and really learned how to fly. Soon the friend who helped me get started and I had all our friends flying. They all had planes, and we really kept the place buzzing. Before I knew it I was up with the bigger engines. I loved it, but the neighbors hated it. Many a time I was chased out of a field.

They started to build a park down the street, so I thought "oh boy," I'll be able to have them put in a runway for us. After all, we had loads of kids who would use it. They turned us down. So I went down to fly anyway. I had just gotten one flight in when a police car pulled up. "Sorry Sonny." He had received a complaint. The people just don't want anything to do with modeling. This stuff really sickens you.

The thing to do was to join a club. My friend was in one but he was older, had more money, and a way to get there. So last August '68, I met a man who was willing to help me. If it wasn't for him I would have never gotten into the Circle Burners, which is a control-line club. When you have a problem there is always someone to ask who has the answer, and they are always willing to help. They have contests (annuals) which really are fun.

Last September I entered high school as a freshman. I had always wanted to start a model airplane club, and this is where I found help. For a sponsor at high school, we got a teacher who was a bomber pilot during WW II. At our meetings we get to see movies of real airplanes. I borrow these from a man who runs a ground school at night at the high school. I wonder if you could send me any information on how to make our club a better one.

Currently I am an AMA member that is mainly interested in C/L stunt. I am 14 years old, a junior, and I belong to the Garden State Circle Burners, which is AMA chartered. I subscribe to AAM.

Frank Deming, Pequannock, N. J.

Frank, sure don't know how to tell you how to make a better club. Perhaps some club secretaries, or leaders, will write you in our care. You should ask AMA. Ed.

Designing simplified

The other day I saw your magazine for the first time, and being a model airplane nut I picked it up. After reading it I thought AAM was great, and I decided to design and build my first radio-control plane.

Since all the previous planes I built, have been from kits, when it came to designing one, I had a lot of questions such as: how big a wing will I need, and what is the best airfoil curve for the wing? The answers to my questions, and I am sure other modelers' questions, were very clear in articles such as "Aerodynamics Simplified" in your May '69 issue.

These are the kind of articles I like to see.

Ken Krause, Scotch Plains, N. J.

Construct and create

I subscribe regularly to AAM (regardless of New York dock strikes) and find the latest format excellent, especially the scale sections on which I am particularly hooked. The advertisements contained in each copy really make my mouth water, and my eyes green with envy at the vast amount of materials available to the modeler in the States.

As you probably know, we now have a 10% tax on our goods, above our purchase tax. I often wonder how many cases of juvenile crime could have been averted, had the youngsters concerned been able to afford the materials at a reasonable price in order to construct and create from basic materials, instead of wrecking, and causing untold damage around the country.

More power to your most excellent magazine. I have two sons, and they are catching on to this modeling kick but fast.

Ernest R. Billiald, Nottinghamshire, England

Old-timers remembered

I was very pleased to see your fine editorial on behalf of Gustave Whitehead and his early flying efforts. Your comment was a fine piece of writing and I know the CAHA will be more than pleased to know of your interest in Whitehead.

We have a parallel situation here in California. Professor Montgomery was ridi-

"GESUNDHEIT!"

culed for his gliding experiments by such noted authors as Charles Gibbs-Smith and the late Professor Pearl Young. Montgomery never developed anything in powered aircraft but he performed many controlled gliding flights in his aircraft and the proof is available. Long before the Wrights flew!

So keep up the good work. These old-timers deserve a break. Without their foresight such things as the Boeing 747 would not have been possible.

Willis L. Nye, Castro Valley, Calif.

Sticks and stones . . .

Your editorial in the June '69 issue almost restores confidence in the purportedly innate fairness of the average American. You have stated the Whitehead case as it is, without bias. Naturally, I am prejudiced now, although not so in the beginning of my research.

Like Whitehead, I've had for more than 30 years some quite plain and fancy names bestowed upon me. Nothing changes a neutral viewpoint so radically as discovering that self-styled authorities have nothing but name-calling and arm-chair opinion to offer in response to honest reporting. A little sincere genuine study could merit some respect.

Stella Randolph, Rockville, Md.

Open letter to plastic companies

I am submitting this model kit campaign letter with the hopes that you will print it.

For many years I have been an active model-building fan of American early 20's aircraft, building them from kits and from scratch, in 1/72 scale. Presently, I am conducting a vigorous campaign on behalf of our society to promote the production of model plastic corporations of the following most neglected, but well known American aircraft: Curtiss J.N.-4 series, Lincoln Standard J-1, Thomas Morse MB-3, Douglas -02 series, Boeing PW-9, Fokker T-2, Consolidated PT-1, OX-5 Travel Air, Waco 9 (and 10), Long-wing Eaglerock OX-5, and many others that played a great part in our country's heritage of the air.

Why must these wonderful forgotten birds be skeletons in the closet while too much emphasis is being put on foreign and U. S. aircraft of the World War II era? I am willing to wager that a great number of 1/72 aircraft buffs would welcome the production of the forgotten American airplanes that I have mentioned in this open letter.

I am willing to wager that the sales would soar with the production of these well-known neglected American planes and that nationwide buffs would flock to the hobby shops to purchase a batch for their show cases. I for one would purchase ten Curtiss Jenny kits in 1/72 scale, if they were available now. How about it, plastic companies? Take off those blindfolds, get your heads out the hole and start waking up. Give the World War II and foreign aircraft a rest. Give the rocket age a little rest.

Start taking the neglected birds out of the dusty closet and putting them in 1/72 scale kits for us to build up for our show cases. You will not go broke by giving it a try. Why not start out with the Curtiss Jenny and the famous OX-5 Travel Air? You will be doing a great service to the nation's early 20's aviation buffs, and profit by it. The time is now.

Philip J. Da Costa, American Early 20's Aviation Society, Van Nuys, Calif.

They would appreciate

I have been reading your magazine for a good many months. I've been in R/C modeling about two years, and learned how to fly with a Testor's Skyhawk.

I live near an orphanage and handicapped childrens' home, and I have been teaching

most of them how to build and fly gliders and U-control planes which I've bought for them.

I would like for you to ask some of your readers if they have a set, or sets of American Aircraft Modeler, that they would give to these boys and girls, and maybe they might have an old plane and unused radio-control system that they might not want, escapement type or other. I would pay all shipping costs.

I hope you can help me. Thank you very much.

Gary Moore, 729 Pearl St., Neosho, Mo. 64850

Aeronca Champ

I recently received my copy of "Getting Started in R/C." In addition to a very well written booklet, I was also pleased with the picture of the Aeronca "Champ" on the inside cover. Since no mention of this model appears in the text, perhaps some information would be of interest to owners of this booklet.

The model is a 1/5-size Aeronca 7AC "Champion" scaled from the full-sized job I helped restore and owned until recently. The wingspan is 7' 2½", weighs 10½ lbs., is powered by Enya 60 with F & M digital radio. Although I logged 150 hours in the full-sized version, the model is every bit as much fun to fly.

The picture was taken by Jerry Nelson in Oct. '68, during a Pioneer R/C club "Fly in" at the Nelson ranch in Livermore, Calif.

Floyd E. Carter, Pioneer R/C Club, Inc.
Mountain View, Calif.

Found in school library

I have just picked up your magazine for the first time in our school library. Though I know only a little about model airplane flying, I would like to compliment you on your Tenderfoot series. I have read your article in the May '69 issue and I'm sold on R/C.

Bob Nelson, Cedar Rapids, Iowa

Enjoyed Collectors' Journal

I would like to take this opportunity to thank you for running my letter (re: missing parts) in your publication. You have made it possible for me to contact other modelers. Without their help, it would have been next to impossible to go on with my restoration project. I would advise anyone else finding themselves "in the same boat" to let you know.

In addition, I would like to "put in a plug" for Mr. Timothy J. Dannels, editor and publisher of the Engine Collectors' Journal, out of Denver, Colo. This seemingly little known publication is "worth its weight in gold" for those who are interested in the historical sides of modeling. I don't imagine researching information, particularly technical articles, is any easy task. After reading several back issues (having classified sections), I had an acute attack of "nostalgia." In short, this publication is to be commended.

James D. Moffat, Fair Oaks, Calif.

Might help hesitant newcomers

My compliments to an excellent staff. I have just finished thumbing the May '69 copy of AAM with a great deal of satisfaction. Any article picked at random is written to maintain the reader's interest, which I might add, is not an easy task. Keep up the good work.

For personal reasons I have been unable to really sink my teeth into this fascinating hobby, but things are looking good now, and I would like to know how to obtain literature on Slope and Thermal models. This facet of modeling has always been of great interest to me. More articles in your

Continued on page 63

RED HOT SPECIALS

FOKKER D-7 by Sterling — 38" span .45 to .65 Eng. Reg. $39.95 — Prefab kit. Plastic engine and machine guns included — **25.95**

KWIK-FLI III by Topflite No. R/C 12 — Reg. $39.95 — 60" Span for .45-.60 Multi R/C World and National Champ — **25.95** — True alignment construction wing jig. Full 11¼" wide wing planking. Pre-fab Kit.

SAVE A BUNDLE ON THESE FREIGHT COLLECT SPECIALS! NOT POST PAID. Items On This Pg. Only Shipped Freight Collect

SKYLANE 62 For .19 to .35 Engines — 62" Wingspan by C.G. Models — Reg. $29.95 — **19.95**

AERO COMMANDER 49" Wingspan by DuBro — For .15 to .19 Engine From Galloping Ghost to Full House! — Reg. $34.95 — **24.95**

STINGER II 67" Wingspan by Dee Bee — Ready-to-Fly — .45 to .61 Engines — Reg. $55.95 — **38.95**

AMBASSADOR 70" Wingspan by Dee Bee — Ready-to Fly — .35 to .61 Engines — **38.95** Reg. $55.95

FUELS GALLONS ONLY (Shipped Freight Collect)

WRITE US FOR OUR SPECIAL PRICES ON GALLONS OF FUEL, BY THE CASE. Please Specify Brand of Fuel.

ELECTRON 70" Wingspan by Dee Bee — Ready-to Fly — .35 to .61 Engines — Reg. $55.95 — **38.95**

SHOESTRING For .19 to .40 Engines — 54" Wingspan by C.G. Models — **16.95** Reg. $24.95

F-51 MUSTANG by Sterling — FS-10 — 66" Wingspan For .36 to .60 Engine — Reg. $32.50 — **21.99**

KING COBRA by Sterling — 70" Wingspan For .35-.60 Engines FS-13 — Reg. $32.50 — **21.99**

SUPERMARINE SPITFIRE by Sterling — FS-16 — 64" Wingspan For .35-.60 Engines — Reg. $32.50 — **21.99**

the CADET R/C by Sturdi-Built — Reg. 34.95 Trainer — 56" Span For 29 to .35 Engines. Formed plastic fuselage. Foam wings, molded wing tips & wheel pants. Formed L.G., etc. — **26.95**

NIEUPORT by VK — Reg. $44.95 — Scale 2" = 1" — 54" Wingspan For .45 to .51 Eng. — **30.95**

SPORTSMASTER by Lou Andrews — reg. $38.95 — For .45 to .61 Engines Box-Lok Construction — **25.95**

SAULNIER — Reg. $29.95 — 53" Span For .19 to .45 Engines — **19.95**

EINDECKER by Major Models — Reg. $35.95 — **17.95**

30" STAR Kit RS-30 by Dumas — Length 30" Beam 8" — Reg. $27.95 — Mahogany plywood frames, planking and deck 1/12" mahogany. Built-up spruce mast 44" high. Ballast and radio not included. — **19.95**

DENIGHT SPECIAL For .19 to .60 Engines — 50" Wingspan by Sterling — Reg. $22.95 — **15.95**

45" STAR Kit RS-45 — Reg. $52.50 — Length 45" Beam 12" — All 1/8" Birch plywood hull with mahogany deck. Built-up Spruce mast 66" high, brass turnbuckles, chain plates, ready made sails. Ballast and radio not included. by Dumas — **35.95**

DON'T BUY

UNTIL YOU GET OUR LOW PRICE ON THE R/C EQUIPMENT YOU WANT

MAIL THIS COUPON

Phone (212) 675-8922

Call or write for our PERSONAL Price Quotation: We stock all famous brands.

America's HOBBY CENTER, 146 West 22nd St., New York, N.Y. 10011

R/C PRICE QUOTATION REQUEST

Description	List Price	AHC Discount Price

PRINT NAME AND ADDRESS IN MARGIN BELOW

GREAT BUYS FOR MODEL BUILDERS

Order-By-Mail From America's HOBBY CENTER, 146T West 22nd St., New York, N.Y. 10011

U-C SPORT STUNT RINGMASTER Starling $5.95 — ORDER COMBO BV44B — VALUE $17.90 — **13.39**

FOX .35 STUNT Popular all around engine — Reg. $16.95 — **11.99 SALE**

FOX 36X **10.99** Reg. $14.95

TEE DEE .010 $11.98 — T.D. .09 $13.98 — Tee Dee .020, .049 and .051 $11.98 Each

Medallion .049 ..... $9.98 .09 ..... 11.98; .15 ..... 14.98; .020 Pee Wee ..... 6.98; .049 Babe Bee ..... 5.98; .049 Golden Bee ..... 6.98; .049 Q-Z ..... 6.98; .15 Mark II 17.98

FOX 15X Reg. $8.95 — **SALE 6.95** EA. — FOX 07RC Reg. $8.95

AYSC U-C SPORT MUSTANG F-51 S-2 — $5.95 — ORDER COMBO BV80 — **13.43** VALUE $17.90 — U-CONTROL MODEL .38 WINGSPAN... BUILT UP WING & PROFILE FUSELAGE — McCOY .35 CUSTOM $11.95 — RPM: 15,000 — HP: 1 1/2 — WT: 16 oz. — BEAM MOUNT

SPORTSMAN .15 BIG $10.00 VALUE — **5.99** Sale

42" wingspan, for .19-.35 engines pre fab. parts...profile fuse & built up wing---very popular... McCOY .35 CUSTOM $11.95 — RPM: 15,000 — BHP: 1 1/2 — WT: 16 oz. — BEAM MOUNT

COX BABE BEE .049 Reg. $5.98 — **4.49** Sale — DISP. .049 — RPM: 15,000 — RADIAL MTG.

McCOY .35 CUSTOM REG. $11.95 — **8.99 SALE**

Order-By-Mail From America's HOBBY CENTER, 146 West 22nd St., New York, N.Y.

SCIENTIFIC CONTROL-LINE For .020 to .074 Engines — **3.95** EACH — 18 to 24" Wingspan — Kit 82 P-40 Warhawk

No. 14 Piper Tri Pacer	3.95
No. 48 Golden Hawk	3.95
No. 54 Cessna 182	3.95
No. 59 P-40 Flying Tiger	3.95
No. 60 Stuka Dive Bomber	3.95
No. 74 Messerschmidt 109	3.95
No. 90 P-47 Thunderbolt	3.95
No. 92 P-40 Warhawk	3.95
No. 140 Bio Otto	3.95
No. 144 Sizzlin Lil Mustang	2.95
No. 148 Fokker D-7	2.95

JOURNEYMAN REG. $4.50 — 30" Wingspan .14 to .19 — by MONARCH — **3.89**

APPRENTICE 24" SPAN .074-.098 REG 5.95 — **2.79**

NAVIGATOR — Jetco **13.95** — 52" Wingspan For .074 to .10 Engine

WHIPSAW 31" Span — by AMBROID — For .09 to .19 Engine — **3.95** — Profile fuselage with built-up wing. Pre-fabricated kit.

STERLING RUBBER POWERED MODELS

A1	Fokker D-7 24"	3.98
A2	Stearman PT-17 20"	3.98
A3	Beech Bonanza 22"	2.98
A4	Thunderbolt P47 22"	2.49
A5	Nieuport 17 24"	3.98
A6	Stuka Bomber 20"	2.49
A7	Piper Super Cub 18"	1.49
A8	Messerschmitt 17"	1.98
A9	Texan AT-6 18"	1.98
A10	Curt. Hawk P-6 E 16"	1.98
A11	Cessna 180 17"	1.49
A12	Bird Dog L-19 17"	1.49
A13	P-51 Mustang 24"	3.98
A14	F4U-5 Corsair 24"	3.98
A15	Zero Fighter 24"	3.98
A16	Fokker D-8 21"	2.49
A17	S.E.5-A 22"	3.98
A18	Ansaldo SVA5 19"	2.98
A19	Spitfire Mk-I 24"	3.98
A20	Focke Wulfe 190 24"	3.98
A21	Spad XIII. C 24"	3.98
A22	Piper Cub J-3 30"	3.98
A23	Eindecker E-3 25"	2.98

Series 64 by K&B — 29R ..... 28.95; 35 R/C 24.95

Series 69 Front Rotor — 40 ..... 26.95 40 R/C. 30.95

Series 69 Rear Rotor — 40 ..... 28.95 40 R/C. 32.95

K&B 35 R/C ..... 22.95; K&B 45 R/C ..... 27.95 — K&B Engines

Model Aeronautics Year Books by Frank Zaic — 1932 Year Book — **2.50**

1938 Year Book ..... $3.00; 1955-56 Year Book ..... 3.00; 1957-58 Year Book ..... 3.00; Model Glider Design .. 3.00; Hoffman's Model Aeronautics 2.00

RINGMASTER 42½" span for 19-.35 — by Sterling — **5.95** — SPAN

Baby Ringmaster..... 21" $2.95; Ringmaster Jr..... 30" 3.95; Ringmaster Sportster 38" 9.95; Super Ringmaster..... 42" 8.95; Imperial Ringmaster 52" 11.95

Order-By-Mail From America's HOBBY CENTER, 146 West 22nd St., New York, N.Y.

CIRCULAR AIRFLOW by Frank Zaic — **3.00**

1964-65 Zaic Yearbook... 4.95; Model Aircraft Handbook. 6.95; Power Model Boats..... 2.95; Boat Modelling..... 1.19; Flying Scale Models..... 2.39; Model Plane Building A-Z 2.00; The Best of Wylam No. 1.. 2.00; The Best of Wylam No. 2.. 2.00; Decade of Design No. 2.... 2.00; Model Aero Engine Book. 3.00; Aircraft Annual..... 1.95; Warplanes of the World.... 1.95; Aircraft in Miniatures..... 3.00; Circular Airflow..... 3.00

ENGINE TRADE IN

We meet all COMPETITION !!! If any one Advertises a higher trade-in allowance in this mag. clip the Ad and send it to our N.Y. Office with your order.... Your old Engine is worth 25% of the amount of your purchase Only One Engine accepted per order.... (Sorry NO Trade-in's accepted on SALE Merchandise or R/C Equipment).. If in doubt send payment in full and we will Refund the balance.....

BEGINNERS MUSTANG 1.95 21" Wingspan For .049 Engine — by STERLING

PLASTIC HANDLES E-Z Just **1.25** EACH — 4" Hot Rock 5" Standard

PLANS We stock plans from all sources.

Write for complete list.. M-A-N Wylam plan sets: **1.00** Each

W1-Sopwith Camel, Wright model A&B, SE-5A.....
W2-Spad S-XI 11, C1 Spad S-V11, Curt. A & Wright flier.....
W3-Curt. P-1 hawks, F11C-2 Goshawks & Curt. P-6E.
W4-Rep. P-470, Spitfire 2, Mess. ME-109J, P40-D
W5-Grum. F6F-3, C-54, A-26 B-17, A-25, B-24 Liberator
W6-P-61, PBY, B-29, C-97&B-29
W7-Albatross D1-2-3-4-5&6
W8-Lockheed Hudson, Waco D-5, & C-6, F3F-1, 2& Bell Aircomet.....

ENGLISH BOOKS

Aeromodeller Data Bk...	1.00
Aero Annual 1967-68...	2.60
Control Line Manual....	3.50
Choosing Your Engine..	1.00
Flying Scale Models....	2.00
Model Engine Tests.....	.30
Multi Channel R/C....	3.00
Radio Control Manual II	3.25

Plan Books

No. 1(airplane).....	.60
No. 2(boats, cars).....	.60
No. 3(locos).....	.60

Dumas — **5.25** — F-2 Sioux

FREE FLIGHT Kits

F-1 Dakota .049..... 4.95; F-2 Sioux .049..... 5.25; F-10 Taylor Cub .049.. 5.50

YOU GET MORE FOR YOUR MONEY AT AHC

AMERICA'S HOBBY CENTER PLANS — YOUR CHOICE **50¢** EA.

Rubber Models
Stinson L5..33" Span.....
P-51 Mustang..25" Span.....
Western Lysander..18" Span.....
Stearman PT Trainer..18" Span...
Free Flight Models
Skipper Pylon..31½ Span.....
Super Simplex..51" Span .....
Scale U-Control Models
Midget Mustang..27½" Span.....
Art Chester Swee Pea..26" Span
Knight Twister..22¼" Span.....
Witmans Bonzo..24" Span.....
Leighnar Special..28" Span.....
Capt. Page Navy Racer..31½" Sp
Lockheed Orion..42½" Span.....

YOUR CHOICE **3 FOR 1.39**

FLY BY NIGHT KIT — 3 BULBS BATT. BOX HOOKUP WIRE SLIDE SWITCH — **98¢**

TATONE INSTRUMENTS **1.75** EACH — CONTAINS: 6 INST. CASES DIALS, GLASS & INSTRUMENTS. SIZES: 1/4", 5/16", 3/8", 7/16" & 1/2"

by RAND — Rand — Actuator Mounting Plates. — No. 7011 Single..... 75¢ — No. 7013 Double..... 95¢

HOBBYPOXY CEMENT SALE **79¢** REG. $1.00 — **2.29** REG. $3.00

NYLON HINGE — 6 for **1.10** — 15 for **2.50**

TEETER PROP by AUSTIN — **89¢** — PROP BALANCER

PICTURE DECAL DEAL — 15 COMPLETE SHEETS SIZE 2 1/4" X 2 1/2" — $1.00 VALUE — **98¢**

SMOKE TRAIL SMOKE-RITER **1.29** — CARTRIDGE HOLDER.... **1.95** — DENSE SMOKE. NON TOXIC NON EXPLOSIVE NO RESIDUE

WILLIAMS PILOT 1"..... 65¢ EA. 1-1/2"..85¢ EA. 2"..... 95¢ EA. IN 3 STYLES .STANDARD .MILITARY .RACING

BONNER SN $5.95 — **ESCAPEMENT** FOR SINGLE CHANNEL GIVES RIGHT & LEFT RUDDER

MOUNTING TAPE Qwik Mount Servo Tape. 36" Long ½ wide, double adhesive..... **79¢**

ROYAL PRODUCTS — NO. 7 RUDDER SERVO **13.45** EACH NO. 7A MOTOR SERVO — single channel servos

COVERING MATERIAL **98¢** Per Yard — Silkspan: White, Red, Yellow, Green, Blue, Pink, Turquoise, Orange, Blk, Green, Silver.

A. M. A. SAFETY PROP NUTS by Tatone — **95¢** EACH — PLEASE SPECIFY 1/4-28 & 3/16-24 THREAD

MINIATURE TOGGLE SWITCH DPDT **1.49** — SUBMINIATURE TOGGLE SWITCH..... Reg. $2.39

6 Pc. TWEEZER SET **98¢** #730 — ASSORTED SIZES AND SHAPES

SOLDERING IRONS 115-120 VOLTS...60 WATTS...FOR ALL MODEL WORK...REAL BUY — **1.29** — **1.69**

PRECISION SCREWDRIVER 5 PIECE SET #1-2-3-4-5 — **98¢**

ACCESSORY 99¢ 3 PIECE DRESS UP SET — WHAT A BARGAIN! PILOT HEADS, CANOPYS, 1 1/4" PLASTIC SPINNER, INSTRUMENT PANNEL DECALS PLUS INSIGNIA DECALS, ETC.

BADGER AIR BRUSH REG. $5.95 — **4.49** — PROPEL $1.80

by AERO Models — Aero Star **7.77** 48" Span For .09 — Reg. $12.95 — **SALE** — All R/C Models — Aero 9 48" Span .09 to .15 **7.77** Reg. $12.95 — Aero 7 41½" Span .049 to .09 **4.89** Reg. $6.95 — Aero Dynamic 48" Span .09 to .15 **7.77** Reg. $12.95 — Aero Flash 40" Span .020-.049 **4.89** Reg. $12.95 — **3.29** Aero Lark 30" Span for .010-.020 Reg. $4.50 Reg. $6.50

THROTTLE EZE Fast & easy hook-up. Will fit any servo. by DuBro — **98¢**

BLIND MTG. NUTS by DuBRO — SPECIFY THREAD 2-56 3-48 4-40 — **20¢** PER PKG.

FLEXIBLE NYLON PUSH ROD — 30" Length .85 — 36" Length 1.00

NYLON GLUE GUN — ANC LIST-50¢ SALE PRICE- **29¢** EACH

3 BLADED NYLON Propeller (Tornado)

Dia.	Pitch	Each	3 for
7"	8	.85	1.99
8"	6,8	1.25	2.34
9"	6	1.50	3.79
10"	4,6	1.50	3.79

Safety EYE GUARD No. 2079 — **1.29** For home, workshop, factory, etc.

Walter 'UREELY' CONTROL HANDLE **7.50** WITH SAFETY LOCK AT YOUR CHOICE — ANC LIST $9.95 — L .015 CABLE; E .018 CABLE

NYLON PUSHROD EXIT GUIDE R-K — SHORT **50¢** PR. LONG **55¢** PR.

G-PAD RC Engineering **1.65** 12" x 7¼" — Protect your receiver with this truly shock-absorbing pad, buoyant, fuel resistant

RAZOR SAW Reg. $1.00 — **89¢** — **SALE** — Ideal for cutting metal, plastic, wood, etc.

PEACE PIPE Mufflers by Tatone — **4.95** EACH — No. 101 For .09 to .19; No. 102 For .29 to .40; No. 103 For .45 to .65

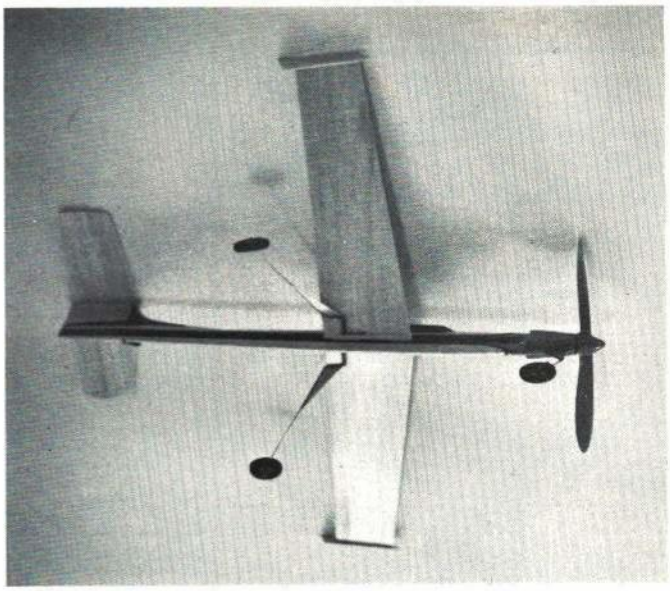
FOX GLO PLUGS 3 For **2.25** Reg. 98¢ — For R/C Short — For R/C Long

TEST STANDS — Mini mount for .020-.15 ea. **1.75** — E-Z test stand .15-.60 ea. **2.25**

STRIPING TAPE specify — **30¢** EA. — 1/32" & 1/16" wide: Red, Black, White, Silver, Blue, Gold, Green and Yellow...

Order-By-Mail From America's HOBBY CENTER, 146T West 22nd St., New York, N.Y. 10011

Fancy paint scheme is easily made with felt-tipped marking pens, available in many colors. Tricycle landing gear is functional, assures a safe takeoff every time.



Up-side-down view shows main gear reinforcement — advisable if you fly from rough ground. Use plenty of glue on such joints as rudder-fuselage, rudder-stabilizer, and wing-fuselage.

Flashby I

WAYNE BROWN

FLASHBY-1 is not difficult to construct, taking two or three short evenings to finish. It should cost the average modeler about $2.00 for materials. Some things, such as tools, should be available around the house.

This model is the product of a week in the bush in far-northern Alberta and, in particular, two days that it rained continuously! Having nothing to do but sit in a tent, I began to sketch, then to make a rough drawing. I stuck the drawing into my duffel bag. At home I began to wonder whether this thing might be a good subject for a beginner to start with. It turned out to be one of the best-performing, sport rubber-powered planes I've ever flown, a natural for a first model.

You need a place to build your model. A clean piece of cardboard about 18 by 24" is just about right. Spread the cardboard on an old table or a workbench. Make sure you have good light.

First, transfer the outlines of the body, wing, tail, and all other parts, to the sheets of balsa. Lay the plans on top of the sheets of wood, the right thickness of wood for the right parts, line up to match, then, using a straight pin, poke holes along the outline of the part into the paper plan and into the wood. Remove the plan and, with a soft lead pencil and a ruler as a guide, connect the pin holes. Carefully cut out the part from the sheet of wood with your knife or razor blade.

Here is the proper way to glue together two pieces of wood! This method greatly increases the strength of the joint. First, make certain the two pieces to be glued fit together as closely as you can make them. Next, spread a thin layer of glue on both pieces, then with your finger smear it evenly over the whole surface. Allow it to dry. Don't wipe the glue off your hand on your pants or shirt! It will never come off, and boy, will your mom be mad! Use an old rag or paper towel. Oldtimers chew the glue off their fingers with their teeth; it's a good time-filler while waiting for the model to dry!

When dried, spread a little more glue onto the two pieces to be joined, spreading evenly on the surface, then put the two pieces together. Use clamps, straight pins or even your mom's spring clothespins, to put pressure on the joint. Let the glue dry thoroughly.

Begin construction by cutting a groove in the nose just a little deeper than halfway through. (See plan.) This is for the piece of aluminum tubing. Glue it in place when you've got the notch the right depth. Glue the two nose cheeks on, one on each side. Make sure you have the wood grain running in alternate directions (like a sandwich). Clamp this assembly tight and then glue the two ribs onto each side of the body (fuselage), making sure that the curved ribs match the curve that you cut out on the fuselage where the wing goes. When the ribs are in the correct position, clamp them as you did the nose pieces; lay the fuselage aside to dry.

Turn to the tail assembly. Glue the two pieces of the vertical tail (fin and rudder) together, laying them on the flat workbench to dry. The horizontal tail (stabilizer) is ready the way it is.

Now that the fuselage is dry, remove the clamps and cut a shallow V-groove in the center of the rib-fuselage section, with the center being about 1/16" deep, and extend it out to the outside edge of the ribs. Get this as accurate as you can, because the wing now is glued to the sides of this groove, with the butt ends of the wings meeting in the bottom. Use straight pins and clamps to hold the wing to the curved surface of the ribs. If you cut this groove evenly and have the wings glued and pinned properly, there should be an equal amount of up-sweep (dihedral) in each one. This should be about 1½ to 2" at each tip. Put aside to dry. Now back to the tail.

From a scrap piece of 1/16" sheet balsa cut two strips 1/16" wide by 3" long. Use a ruler as a guide. These two strips are glued, one on each side, on the top of the rudder. This will form a platform on which you glue the stabilizer. Lay the stabilizer on the workbench, then glue the rudder to it by standing it on end. Try to get the angle between the two as close to 90 degrees as possible.

This completes the tail. When it has dried, glue the whole assembly onto the fuselage. Now the whole airframe is complete, requiring adding only the landing gear, prop, etc.

Now we can work at something different! With your pliers, bend the 1/32" wire into the desired shape for the nose landing gear. Next, try to make the main landing

Bill of Materials

1 Sheet 1/16 x 3 x 36" balsa
1 Sheet 3/16 x 3 x 36" balsa
1 1/32 x 36" music wire
1 7" rubber-powered propeller
1 Strip 3/16 x 52" rubber
1 1/32" inside-diameter aluminum tubing
1 3/32" hardwood dowel
3 3/4"-diameter light-weight wheels
2 Flat washers with 1/32" hole
1 Tube glue
1 Bottle clear dope
1 Sheet fine sandpaper
10 Straight pins
1 Sharp knife or single-edged razor blade
1 3/39" drill-bit and drill
1 ½"-wide paint brush
1 Felt-tipped marking pen (any color)

Author demonstrates correct follow-through hand-launch. Model has uncanny ability to fly safely from even bad launches.

An exciting-looking model, this rubber-powered job flies with the best of 'em. Uses plastic prop and wheels.

gear, but remember one is for the left side, and one is for the right, so they will be bent different. Now bend the propeller shaft and cut it off, leaving about 1" extra. Slip the shaft through the tubing in the nose, then put on the shaft the two washers and the propeller. Bend over the end so that it engages the propeller. Cut off the extra length. Next, cut a notch in the bottom of the nose, and also make a small hole for the wire to go into the wood. This will keep the wire from turning sideways. Use regular glue to hold the wire in the notch.

Mount the main landing gear (with glue) against the wing ribs and on the wing itself. Slip the wheels onto the landing gear and apply a drop of glue to the end of the wire to keep them in place. Add the wing tips and landing gear fairings. These last items are not necessary; however, they add a lot to the looks of the model.

To prepare for the paint (dope), sand all the corners round and smooth with fine sandpaper. Do a good job because it will make the difference between a really nice model and a rough mess. When sanded smooth, give it two coats of clear dope. If you have some thinner, or acetone, you can thin down the dope half and half. However, this is not absolutely necessary. Sandpaper the whole model between coats of dope so it is smooth for the last coat.

That fancy design I put on my Flashby was done with the felt-tipped marking pen, ruler and French curve (a draftsman's instrument). Use any design you wish. Make it a jet fighter, or a racer, or whatever you like. Do it carefully. You want something to be proud of.

Now sit back and admire it while you wait for a calm evening. Very nice and you did it all yourself! Calm weather is a must. Not even the hot-shot contest modeler test flies a new plane in the wind! First thing is to check the balance. This is done by sticking two pins, one in each wing tip, right in line with the balance point or CG (center of gravity). Suspend the model between two books on the pins. Does it sit level? If not, add weight to the high end. It might be the nose or the tail, depending which end you built the lightest. All set?

Now find a field that has tall grass and no trees. This grass acts as a cushion if the model happens to go the wrong way. From shoulder height, glide the model by gently throwing it at a spot on the ground about 30 feet away. Watch it closely and remember what it did. Did it glide fairly close to that spot? Or did it climb, then dive? Or just dive? Or turn sharply right or left? If it climbed, then dove, try it a couple of times again. This time throw it a little easier. If it continues to do this, add a little weight to the nose, then try it again. If it just dove to the ground about 10 feet away, it will need weight on the tail.

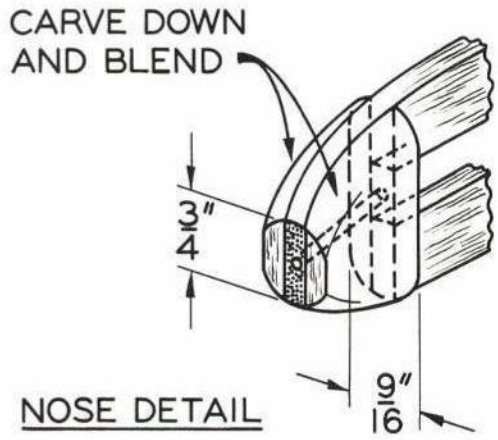
Should it have turned sharply right or left, check the wing for warps (a twist). If one wing has more twist than the other, the best thing to do is hold it over a boiling kettle and gently twist it the opposite direction and hold it for a minute while it cools. If the model still turns sharply, bend the rudder a little the opposite way. Now you have it gliding fairly close to that spot, or with a very gentle turn in the glide.

Wind the propeller clockwise about 50 to 75 turns and again aim the model at a spot on the ground a little farther away — 50 feet. Release the propeller, then gently launch the model at this spot which is directly upwind from you. It should climb a little way then glide down to the ground in a fairly fast glide. If it turned sharply or dove to the ground, refer to the test glides and correct it the same as you did before.

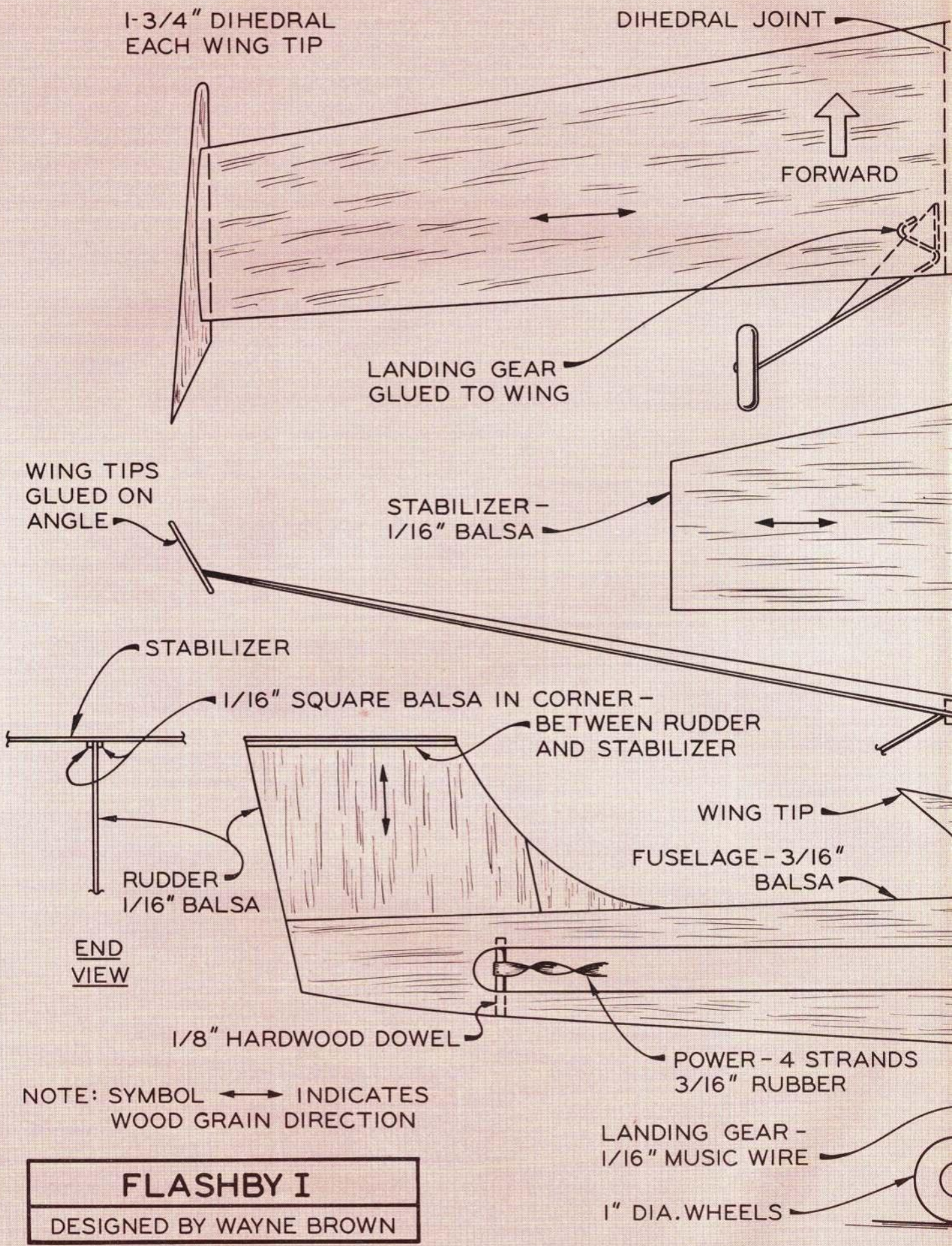
With each flight you can add a few winds to the rubber until you reach the maximum number of turns it will hold without breaking. This can be determined by feeling the rubber. If it feels sort of soft it can take a few more turns, but if the knots feel hard, don't wind any more because it will surely break. Fully wound, the model should climb up about 60 feet high, then glide to the ground again, with flight duration depending on the individual model and the amount of rubber used in the plane.

Launching the Flashby from the ground is no different. Just let go and the model will scoot along the ground a short distance, then lift into the air and climb just as it does in a hand-launch — only it won't climb quite so high, since it used up some of its power to take off.

So you are on your own! If you fly it during the afternoon when there are lots of updrafts (thermals) be careful — it could hit one and head for the clouds! It's happened!



Be sure to have correct down-thrust on propshaft bushing. Angle controls prop thrust.

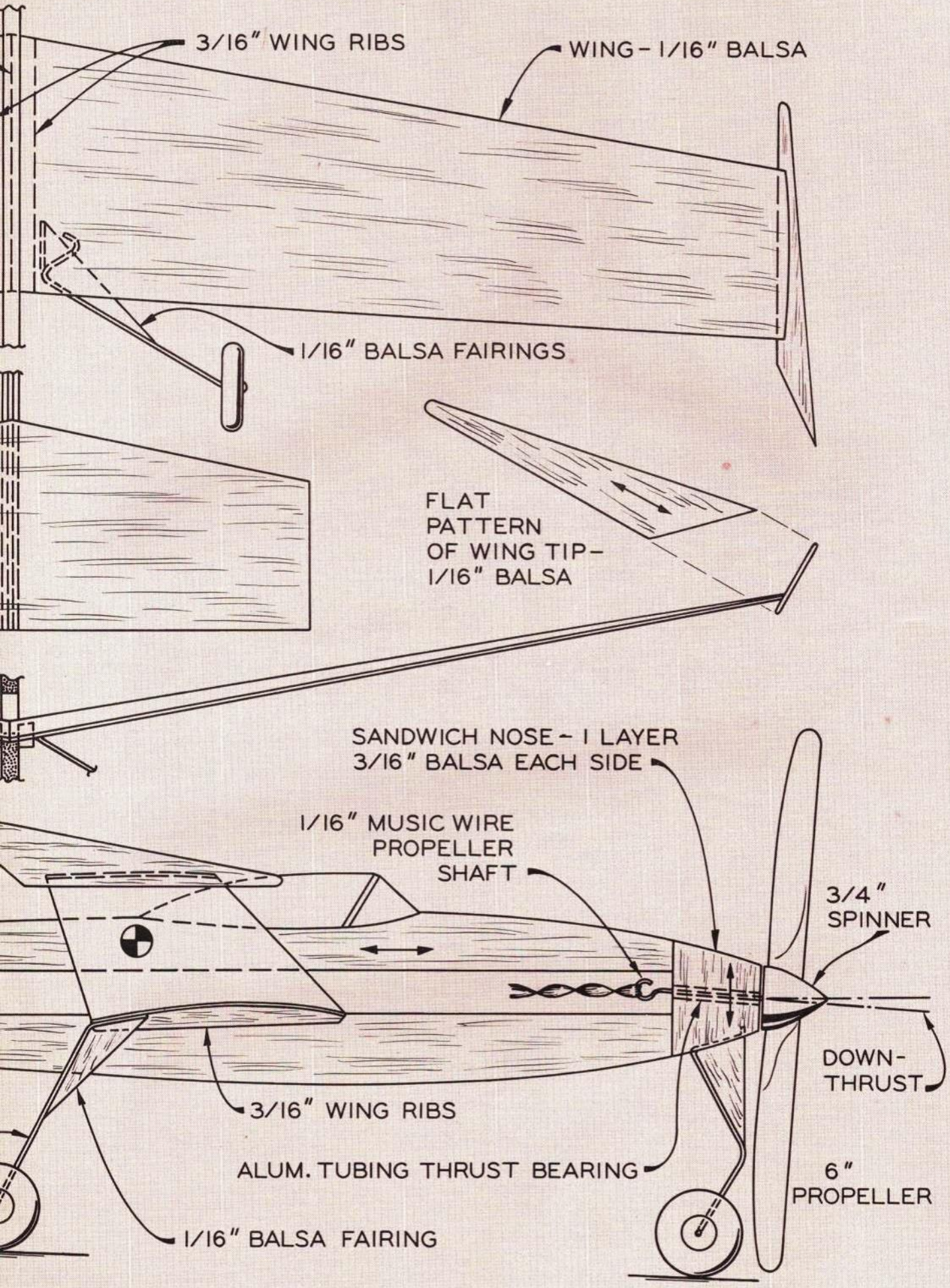


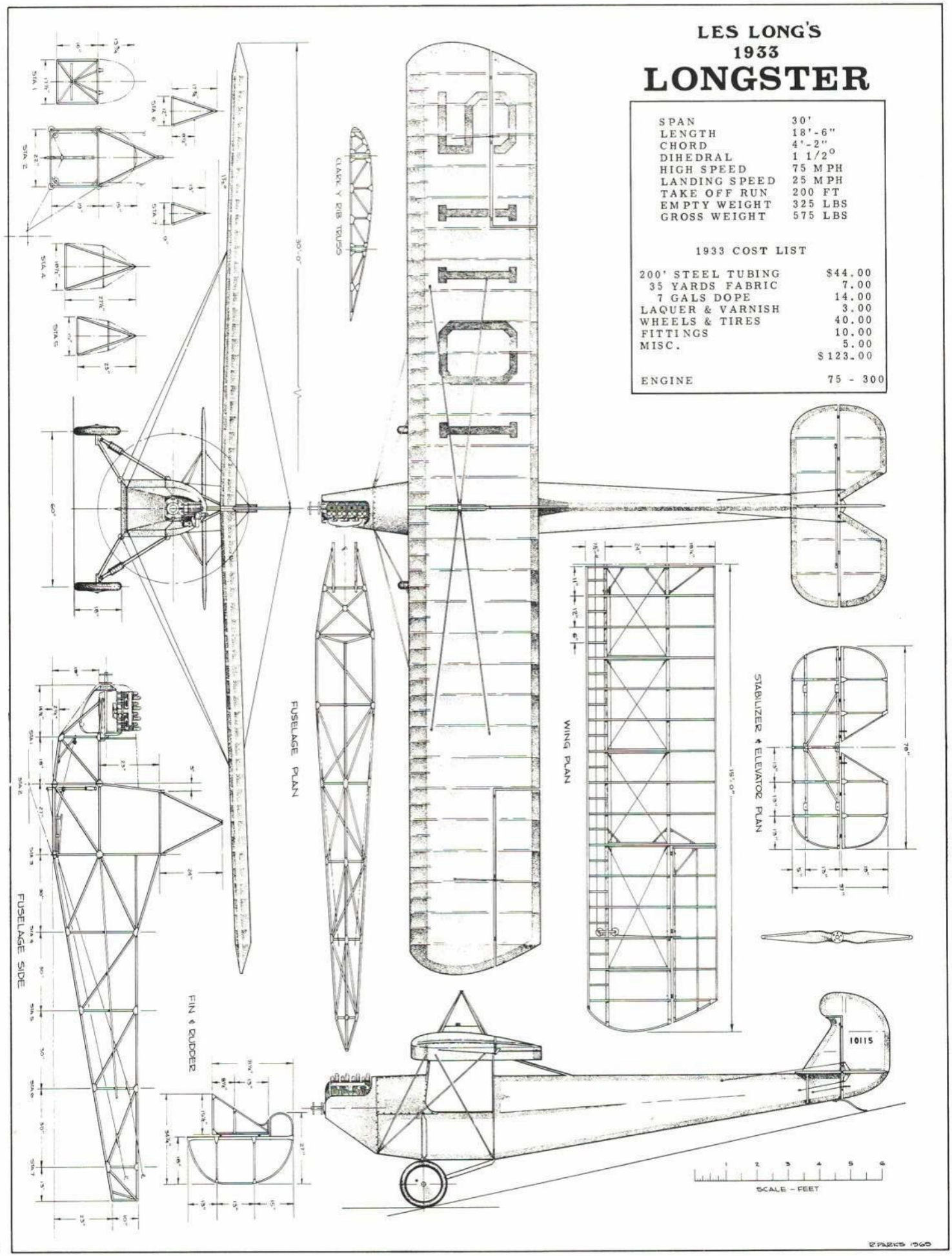
NOTE: SYMBOL ⟷ INDICATES
WOOD GRAIN DIRECTION

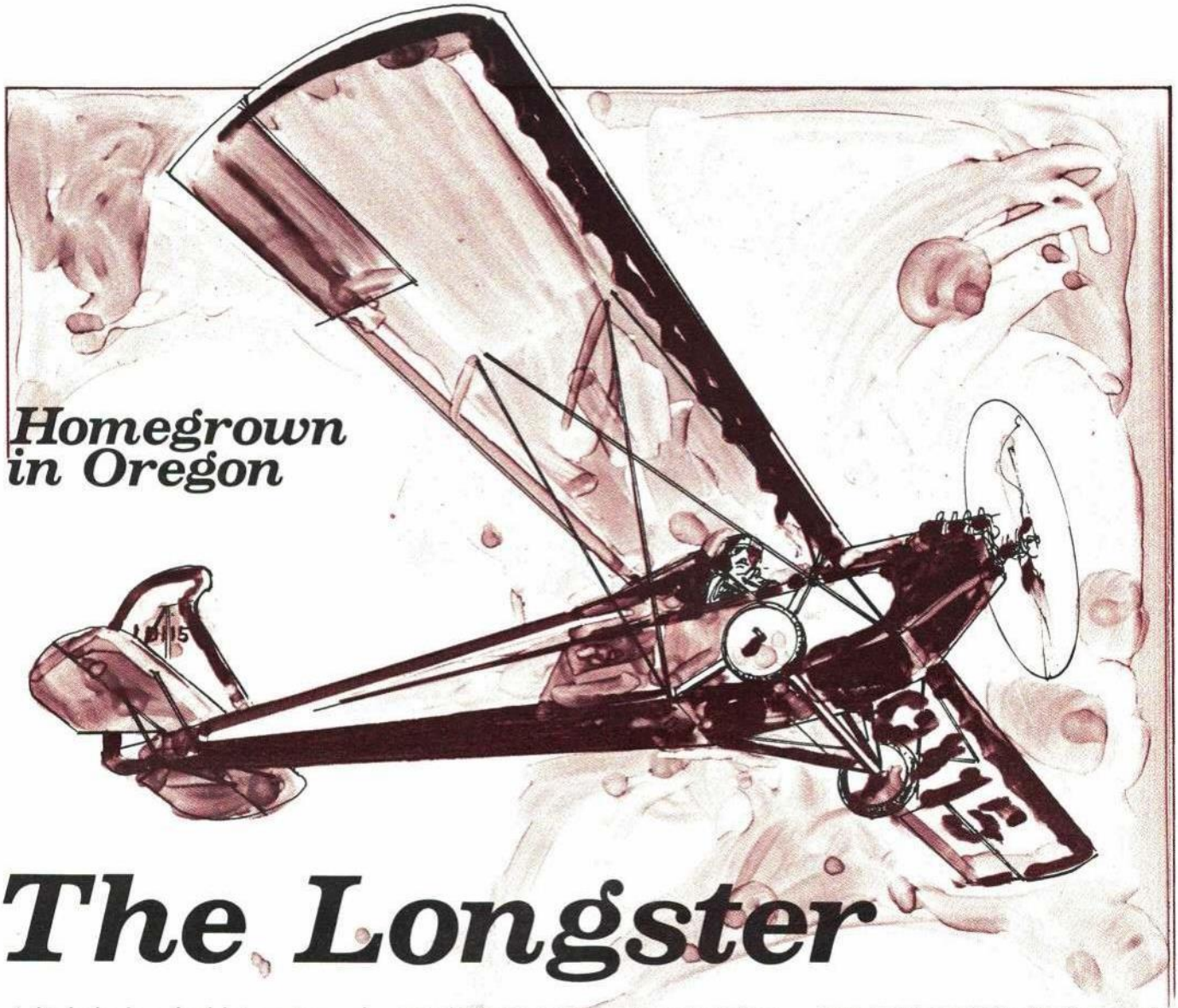
FLASHBY I

DESIGNED BY WAYNE BROWN

FULL SIZE PLANS AVAILABLE – SEE PAGE 60


3/16" WING RIBS
WING - 1/16" BALSA
1/16" BALSA FAIRINGS
FLAT
PATTERN
OF WING TIP -
1/16" BALSA
SANDWICH NOSE - 1 LAYER
3/16" BALSA EACH SIDE
1/16" MUSIC WIRE
PROPELLER
SHAFT
3/4"
SPINNER
DOWN-
THRUST
3/16" WING RIBS
ALUM. TUBING THRUST BEARING
6"
PROPELLER
1/16" BALSA FAIRING


LES LONG'S
1933
LONGSTER
SPAN 30'
LENGTH 18'-6"
CHORD 4'-2"
DIHEDRAL 1 1/2°
HIGH SPEED 75 MPH
LANDING SPEED 25 MPH
TAKE OFF RUN 200 FT
EMPTY WEIGHT 325 LBS
GROSS WEIGHT 575 LBS
1933 COST LIST
200' STEEL TUBING $44.00
35 YARDS FABRIC 7.00
7 GALS DOPE 14.00
LAQUER & VARNISH 3.00
WHEELS & TIRES 40.00
FITTINGS 10.00
MISC. 5.00
$123.00
ENGINE 75 - 300
CLARK Y RIB TRUSS
FUSELAGE PLAN
WING PLAN
STABILIZER & ELEVATOR PLAN
FUSELAGE SIDE
FIN & RUDDER
SCALE - FEET
E PARKS 1969



Homegrown in Oregon

The Longster

A lightly loaded big wing almost made this a powered sailplane.

ROBERT L. PARKS

THE 1933 "Longster" was a development of an earlier "homegrown" product of Les Long, an Oregon farmer, who designed a series of very successful Longsters. This particular Longster followed a shoulder-wing Longster that was powered by a 35-hp Anzani. To keep the two separated, the 1933 design, being powered by a Henderson motorcycle engine, is commonly referred to as the Henderson-Longster.

The homebuilders were hard pressed in the early '30s to find decent low-powered, low-cost, lightweight engines. The small two- and three-bangers left over from WW I were in short supply, and the small aircraft engines being manufactured were too expensive. Remember, there was a depression on and John D. himself would have looked twice at shelling-out 1500 clams for a 30-hp engine, such as the Bristol Cherub or Wright-Morehouse. The alternative was to turn to automotive powerplants or motorcycle engines, and numerous homebuilts were powered by Harley Davidson twin-VEES and Model-A Fords (Pietenpol).

All of these engines had their drawbacks. The automotive engines had a poor power-to-weight ratio, and the motorcycle engines would shake the fillings out of your teeth (and bolts out of your flying machine). But they were used, as marginal as they were, and the early homebuilder was able to take a swing around the pea patch — most of the time.

Les Long wasn't a typical homebuilder then; he was more than a typical homebuilder. All of his designs reflect sound mechanical engineering and good aerodynamics, both of which were in short supply with most of the roll-your-own designers. He was the Ed Heath of the west coast and his airplanes show a similar design approach in some areas.

The Henderson Longster is a prime example of good light-plane design where the most has been done with the least, the least being an engine that weighed a mere 115 pounds and produced a dubious 27 hp. To extract even this much power, one had to wind up this little mill to 2,700-3,000 rpm — 100% power, 100% of the time. Consequently, engine life was very short and failure (which could be total) was prevented by the insertion of new bearings every few hours. So Les Long had this type of powerplant around which to design an airplane.

Nowadays, every airplane design originates with a mission description. An engine is mated to an airframe to make up a system to perform the mission described. I'm sure that Les never thought of it that way. A mission was a church or a trip and all that had nothing to do with an ardent desire to build a little plane that would just allow him to get in the air and putt around the pasture. This, in fact, was the mission.

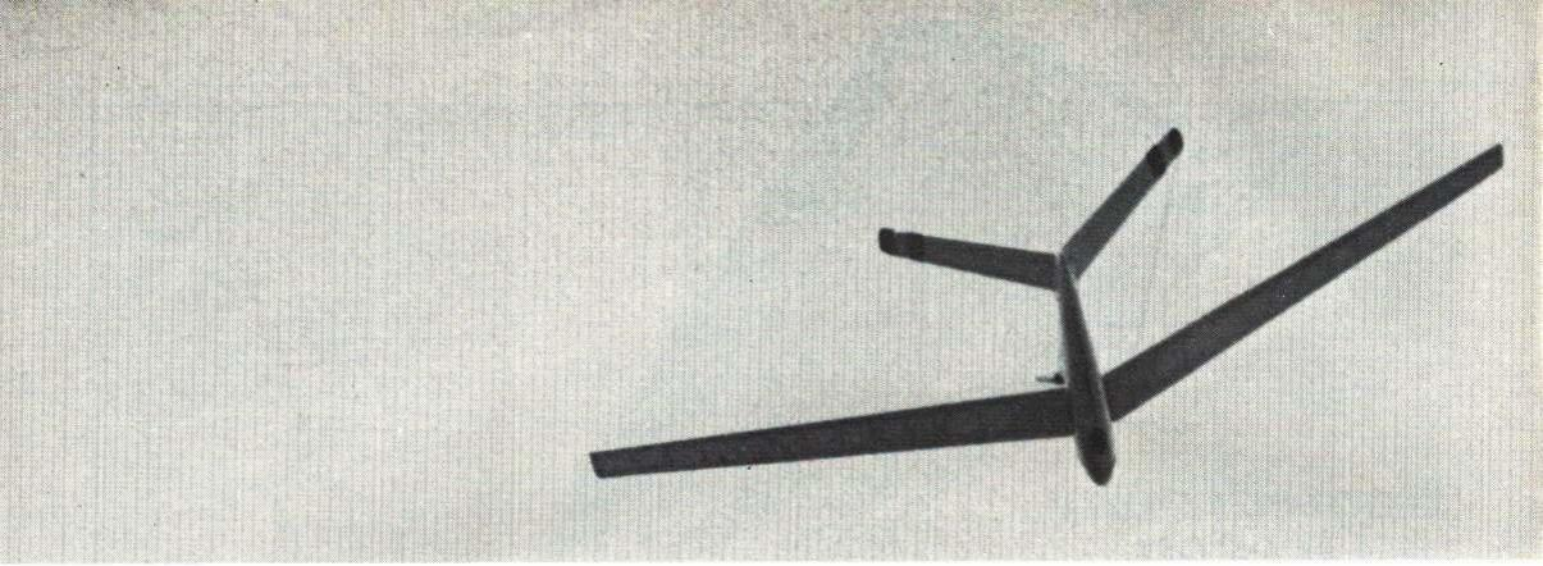
Long wasn't small like Ed Heath, so he had to design an airplane with ample lifting power to haul the payload, and flying characteristics that allowed him to operate from grass strips. What he designed was a handsome little bird with a high-aspect-ratio wing, long tail-moment and ample control surfaces. To keep drag to a minimum, lightweight streamlined wires were used to brace the wing in lieu of struts. Airframe structure was minimal but adequate and tipped the scales at a mere 325 pounds with engine.

The Longster bordered on being a powered sailplane which contributed to its success. The long wing and light span-loading was the opposite of many homebuilts of that era which employed barn-door wings, and struggled along on not much more horsepower than the Longster. In planform and size this airplane is very similar to the Aeronca C-2, and it appears that the C-2 may have influenced Les in his design.

The structure of the Longster is a combination of extremely light but simple members assembled in such a way as to be reliable and strong. The fuselage structure is unique in several areas, the first of which is the manner in which the members are connected. At first appearance, one would think that it was a welded-steel-tube structure. The structure is steel tube, but the joints were brazed! Once the joint was brazed, a thin-gage steel gusset was brazed over that and then each tube was riveted with a twopenny shingle nail!

At first glance this type of backyard construction would raise many eyebrows but

Continued on page 70



Fouga Cyclone

NICK ZIROLI

This .09-powered scale model of a famous French jet-powered sailplane is ideal for flat-land soaring.

NOT so many years ago, a flyer's greatest thrill was gliding down a hillside hanging from a sophisticated box-kite. Aviation has come a long way in the last 70 years or so. Bone-breaking hillside gliding has given way to propeller-driven and jet-powered aircraft. But to some, the challenge of gliding, or now more correctly soaring, is the ultimate in flying thrills. Flights for hundreds of miles, at thousands of feet, are made with modern sailplanes.

Radio-controlled model sailplanes have gained great popularity. Slope-soaring on the west coast has brought interest to this phase of modeling. As witnessed by the number of gliders flown at the DC/RC Symposium this year, activity is high here on the east coast. Soaring, be it slope, tow-line, or power-assisted, will become even more popular in the future. Those that like ramrodding around the sky at 80 to 100 mph should try gliders for a change of pace.

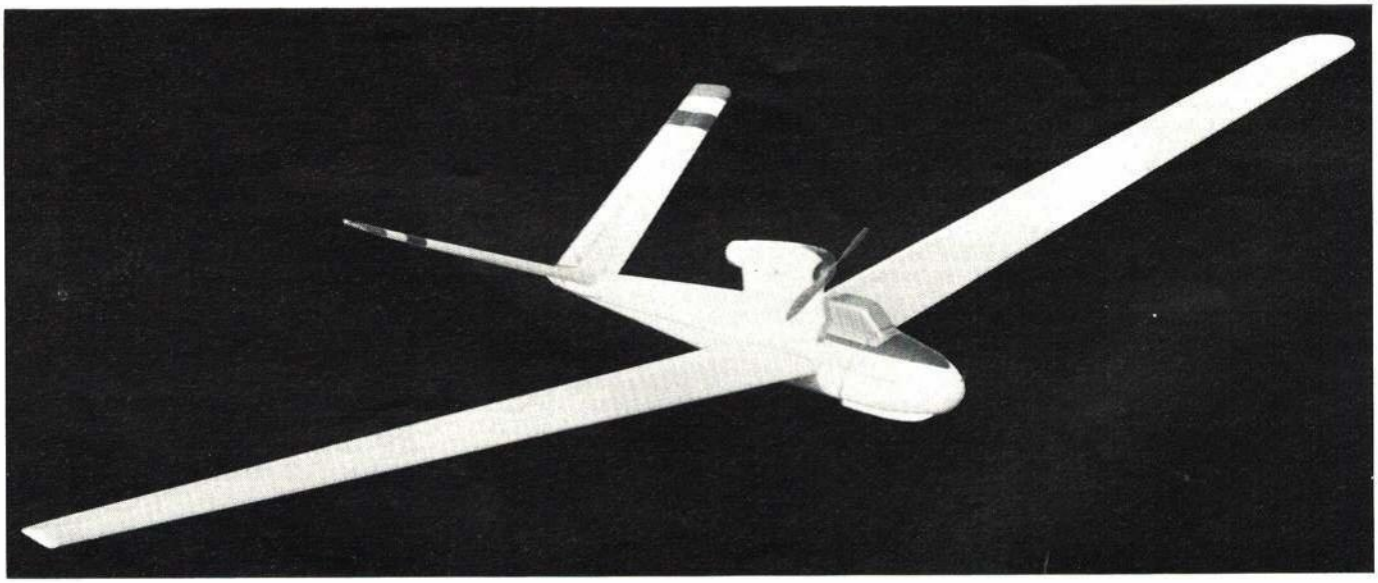
The French "Fouga Cyclone" has always been in my mind as a model to build. Everything about it is as modern today as it was when it was manufactured in 1949. The prototype was all-metal with fabric-covered control surfaces. A true high-performance sailplane, its auxiliary power was a small turbojet engine. The 100-lb. engine had a maximum thrust of 200 lbs. at 34,400 rpm. Being only 16" in diameter and 32" long, it fit easily into a streamline pod behind the canopy. The V-tail placed the tailplanes out of the way of the exhaust.

A search through my files uncovered a 3-view and details of the full-size "Cyclone." The original had a wing span of 43 feet. I wanted a model large enough to give soaring performance with proportional equipment. The plan was laid out at a 2" = 1' scale. This produced a wing span of 7' 2", not too big and unwieldy, yet large enough to perform well. Plug-in wing panels take the problem out of transportation.

A powered glider was a must. I did not want to depend upon a tow-line or hi-start, and suitable slopes do not exist on Long Island. The first thought was to place an engine in the jet-pod and raised high enough for the prop to clear the fuselage. This would upset the clean lines of the Cyclone. So the opposite approach was taken. The engine and pod were kept intact. A clearance slot was then made behind the canopy for the propeller. This no doubt cuts down on efficiency. Since all we are interested in is getting altitude, I feel the improved appearance more than offsets this loss. Maximum propeller diameter is seven inches.

The engine is an old McCoy .09 diesel. Instant starting without the help of a booster battery never ceases to amaze those that are unfamiliar with diesels. This provides ample

From any angle the Cyclone looks like a modern sailplane but actually was being produced in France in 1949. At that time it was considered a high-performance sailplane. Jet engine permitted unassisted takeoffs and sustained cross-country flights.



In spite of the engine it is aerodynamically clean. Large control surfaces on V-tail give positive rudder and elevator responses but with relatively flat turns.

power. Plans show a Cox 09. An engine larger than an .09 seems unnecessary. A two-minute engine run gets the Cyclone up high enough to seek out thermals.

The original intention was to use the throttle servo to operate an engine cut-off and spoilers. A fuel cut-off would be actuated by moving the throttle control from high to about a quarter of the way to low. The rest of the travel would operate the spoilers, full low giving maximum spoiler extension. Unfortunately, construction proceeded too far, too fast to include them. The model shown does not have this feature, but it could be added to your plane.

Radio equipment used is the new Citizenship DP-4 system. The airborne system is, I think, as up to date as any of the new digital systems. A compact receiver and plastic-cased servos with multiple outputs are featured. Servo response is fast.

Since the spoilers were not installed, only two channels were used, one for rudder and one for elevator. There are a number of ways to get the control surface movements necessary with a V-tail that is one up and one down, both up or down, or a combination of both. As can be seen from the pictures, I chose the easiest way out. The rudder servo, hooked up like ailerons only reversed, is mounted on a slide. Elevator action is produced by moving the rudder servo forward or back making each control surface go up or down the same amount. The elevator servo is connected to it to give this movement.

Remember that for rudder control the plane will turn toward the down-going surface. The other one will be up. Co-ordinated rudder-elevator turns are performed just as with conventional surfaces. This system of one servo moving another is adequate for a glider where G forces are low. I would not recommend it on a high-speed multi-ship.

Construction is easier than the seven-foot wing span might lead you to believe. The fuselage, and each wing panel, is 41" long. The model does not become large until it is assembled.

Wing construction follows the method de-Bolt used on his great "Live Wire" series. This is one of the best ways of building a flat bottomed wing. If the board it is built on is true, the wing will be. It is not removed from the plan until it is completed except for the leading edge.

The first piece to be made is the wing tongue. I used 1/16" hard aluminum. You may prefer plywood; it is easier to obtain and work with. Plywood is shown on the plan. Cut this to size so it can be fitted to the wing slot during construction.

The wing ribs are made by stacking 13 pieces of 3/32" sheet between 1/8" plywood root and templates. Keep the spar cut-outs perpendicular to the root rib. Drill two holes through the stack and hold together with the 4-40 screws and nuts. Carve and sand to shape. Cut the spar slots with a razor-saw. Separate them and square each one up. Cut out a new tip rib from 3/32" sheet. Use this first set of ribs as patterns and cut out a second set, one rib at a time. Make W-1 and W-3 of 1/8" plywood.

The leading and trailing edges are cut from firm 1/16 x 3 x 48" sheet. If a 48" length is not available, splice 36" together at 45 degrees. Reinforce the splice during construction. Cut four sheets to 41" long. Using a good straight edge, cut them down the center, starting 1" in from the edge on one end, and 2" in on the other end. This should produce eight pieces 41" long that taper from 2" to 1" wide. These are used for the leading and trailing-edge sheeting.

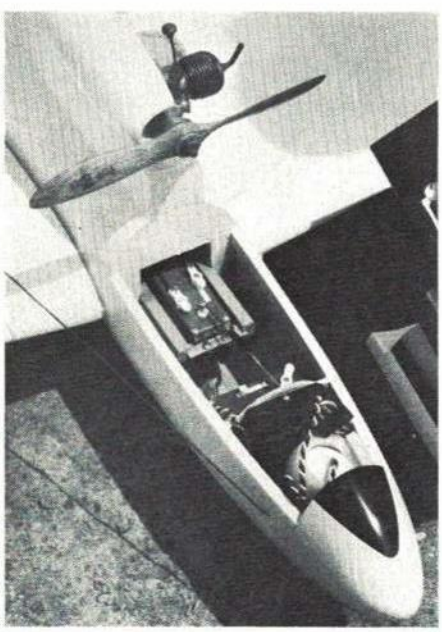
Cover the plan with Saran Wrap. Pin down the leading and trailing edge. Cut out and cement the root sheeting and 1/16 x 1/4" lower cap strips in place. Assemble the wing-tongue box on the 1/16" root sheeting. Use epoxy. Use the ribs as a guide to cement the 1/8 x 3/16" hard lower spar down. Cut W-1, 2, 3 to clear the tongue box. Cement all the ribs in place, followed by the 3/16"-sq. top spar.

Cut out 1/8" sheet leading-edge cap and cement in place. Sand down to match the ribs. Taper the bottom trailing-edge sheet again to match the ribs. Cement and pin the leading and trailing edge sheets in place. Sheet the wing root top. Cut to length and cement the top cap strips in place. When the assembly has dried, remove from the building board. Sand the front off flat and cement the 1/2 x 3/4" leading edge to it.

Rough-carve the tip blocks to shape and install. When these have dried carve and sand to shape. A razor-plane makes short work of this type of job.

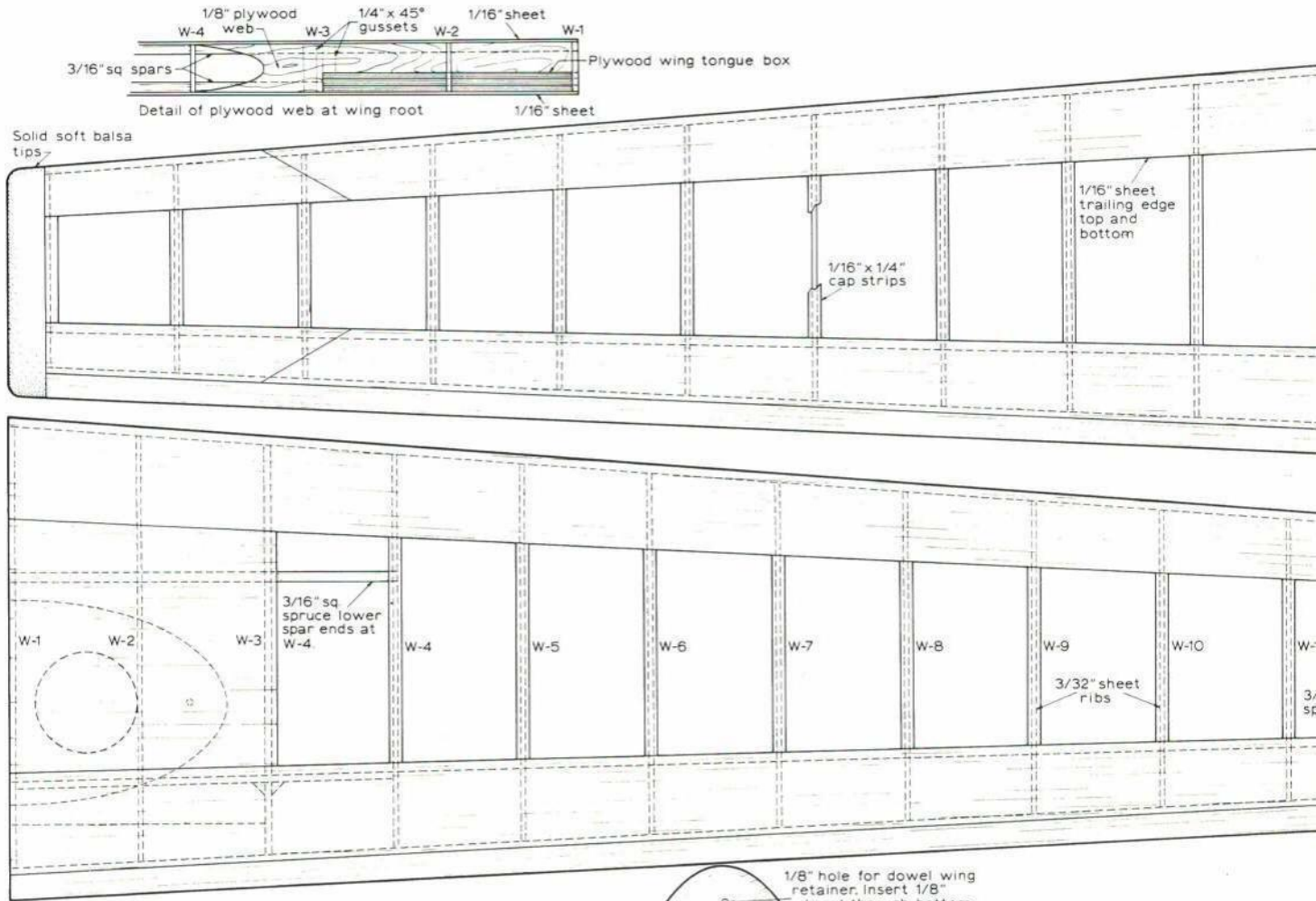
Cut out the stabilizer ribs from 1/16" sheet. Pin the 1/8"-sq. lower spars down with a

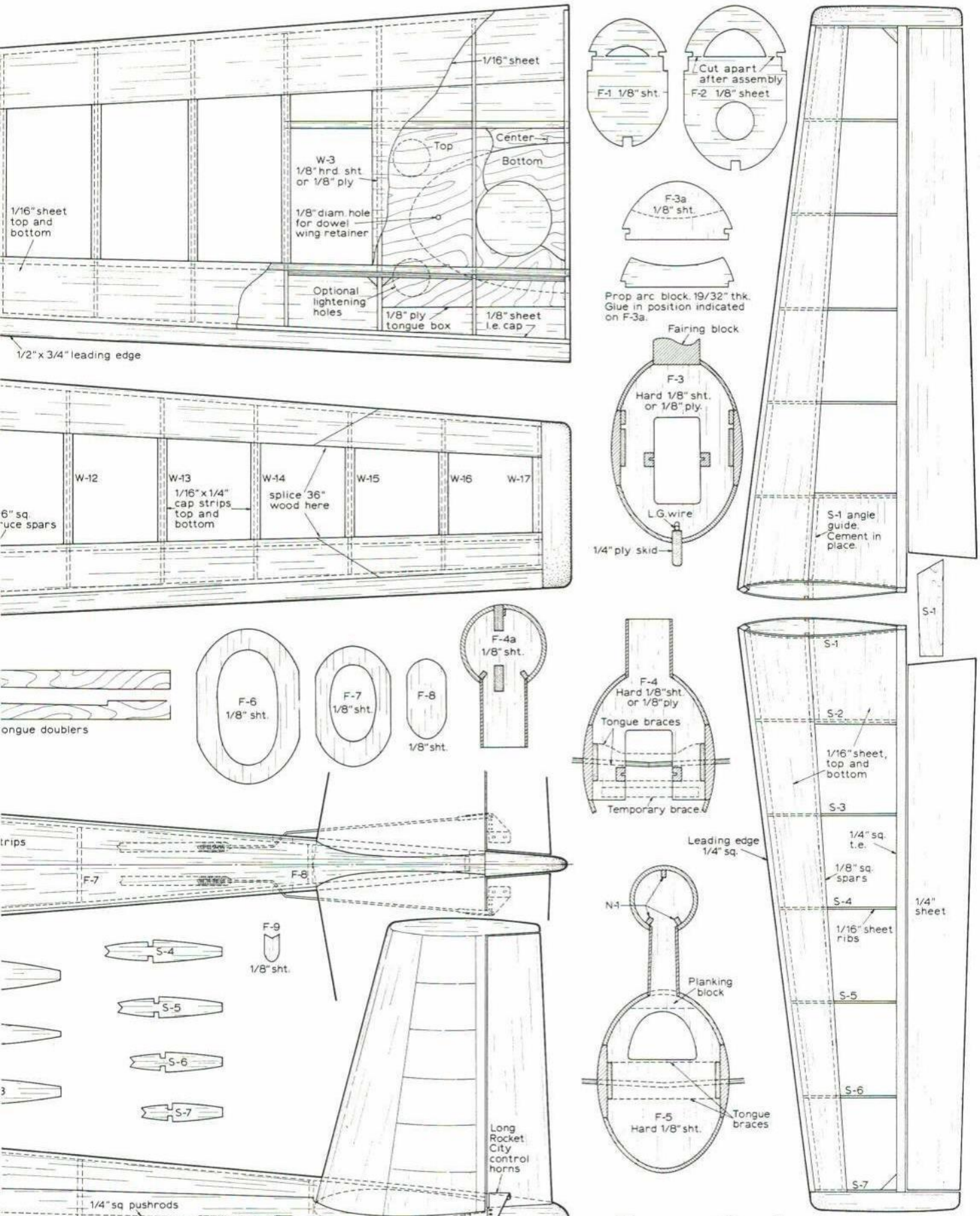
Continued on page 61



Servo positions show full-right rudder and full-down elevator. Pitch adjustments are easy with an R/C Craft link between servos.

This shows left-rudder command — don't get your controls reversed. Both surfaces move up or down together for pitch control.


1/8" plywood web
1/4" x 45° gussets
1/16" sheet
W-4
W-3
W-2
W-1
3/16" sq spars
Plywood wing tongue box
Detail of plywood web at wing root
1/16" sheet
Solid soft balsa tips
1/16" sheet trailing edge top and bottom
1/16" x 1/4" cap strips
3/16" sq spruce lower spar ends at W-4
W-5
W-6
W-7
W-8
W-9
W-10
3/32" sheet ribs
Motor mount - 1/4" ply
Drill to suit engine used
Note: Construct wing tongue from 1/8" aluminum for windy weather flying
1/8" hole for dowel wing retainer. Insert 1/8" dowel through bottom of wing.
W-17
1/8" sheet
1/8" ply wing
W-1
1/8" hd. sheet or ply
1/8" ply tongue box
Removable hatch omitted in top view for clarity.
Cowl block. Hollow as shown
Optional lightening hole
1/8" ply wing tongue
Battery and receiver
Rudder servo
Elevator servo
Citizen-ship DP-4 used in original
Alum. slides
F-1
F-2
F-3
F-4
F-4a
N-2
F-5
F-6
Plank top and bottom with 1/8" x 3/8" balsa
Details for converting Cox Throttle Control to act as muffler and exhaust deflector.
9/32" O.D. brass or alum. tubing. Length is not critical.
Seal end of tubing
Throttle control housing
Alternate method.
Tubing may be bent by first filling with molten lead
1/4" x 3/8" grooved hardwood rails
Cox 09 Medallion
Wing tongue doubler
Wing tongue braces
Motor mount
N-1(make 3)
1 oz. tank
N-3
N-2
1/8" sheet
N-3
S-1
Solid soft balsa block canopy
Fairing block
1/16" sheet grain vertical
F-4a
Removable hatch
Solid balsa block nose
F-3a
F-3
F-4
1/8" x 1/4"
F-2
Prop arc block
Wing tongue braces
Wing tongue doublers
Wing tongue
1/8" x 3/8"
F-1
Rudder servo
Elevator servo
1/8" diam. wire
F-5
F-6
1/4" sheet fuselage si
1/4" plywood skid
2-1/2" diam. wheel



Fouga Cyclone

FRENCH ALL METAL JET POWERED GLIDER

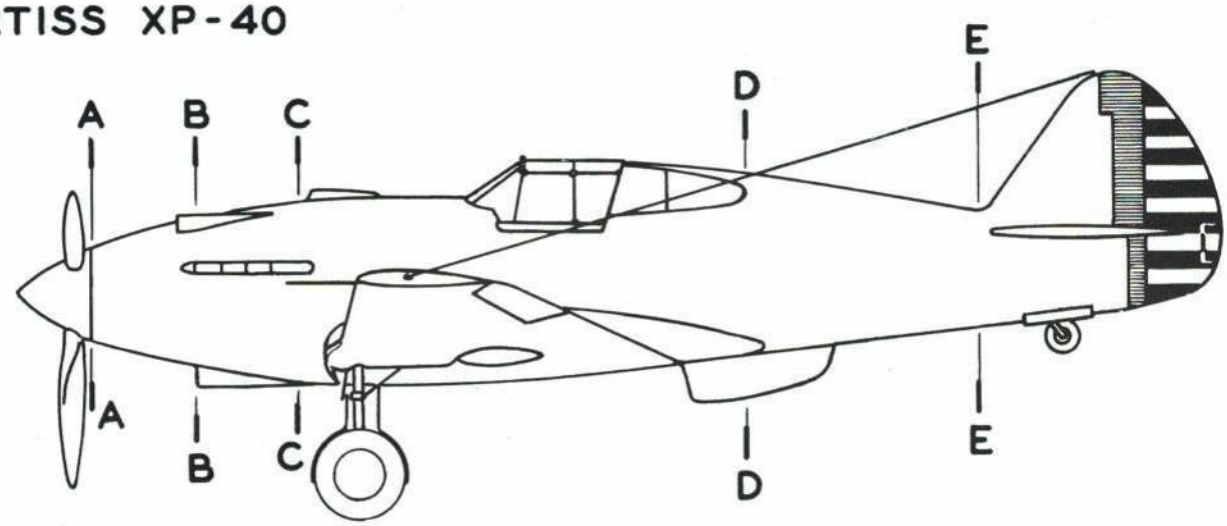
SEMI-SCALE (APPROX. 2"=1') FOR RADIO CONTROL

Wing span - 85-1/2" Length - 41" Power - 09 cu. in.

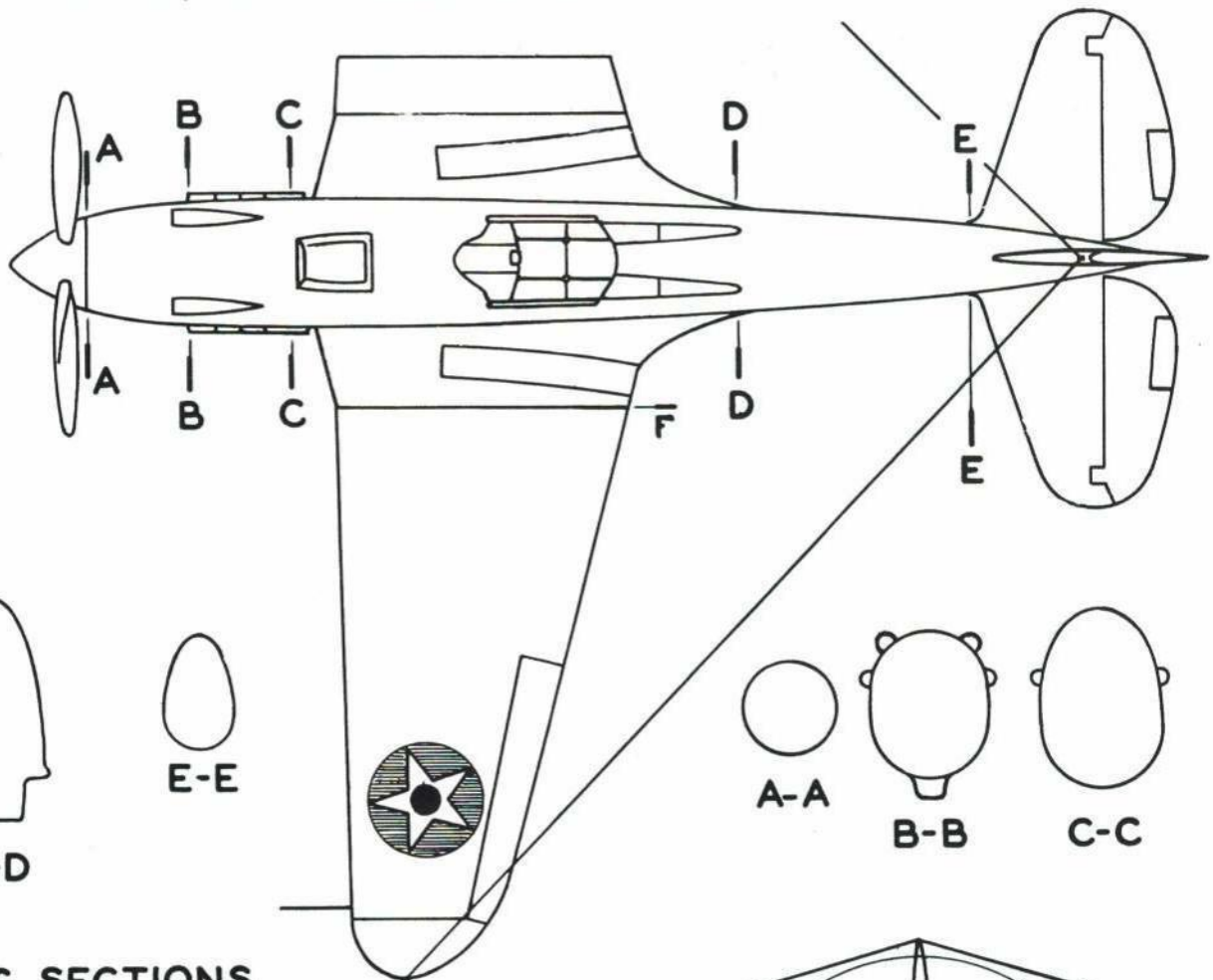
DESIGNED AND DRAWN BY NICK ZIROLI

INKED BY CHUCK BEDWELL

CURTISS XP-40



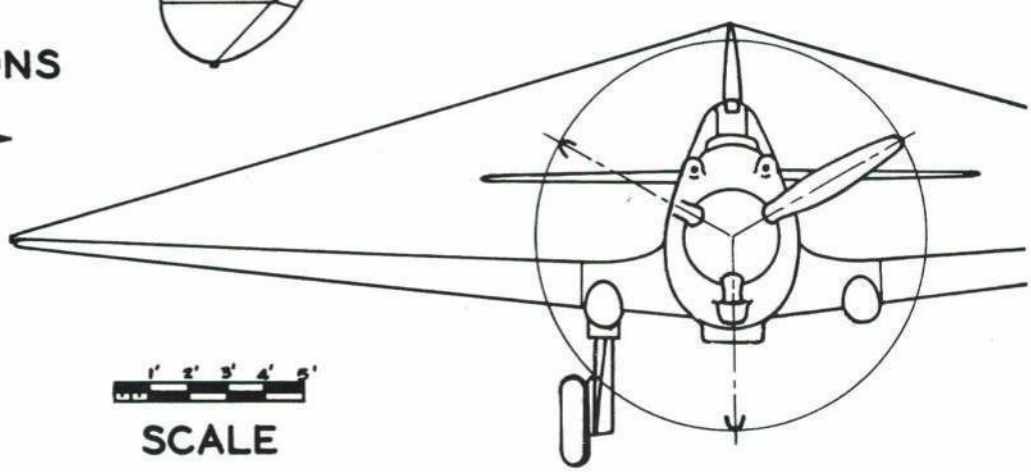
ALLISON LIQUID-COOLED ENGINE



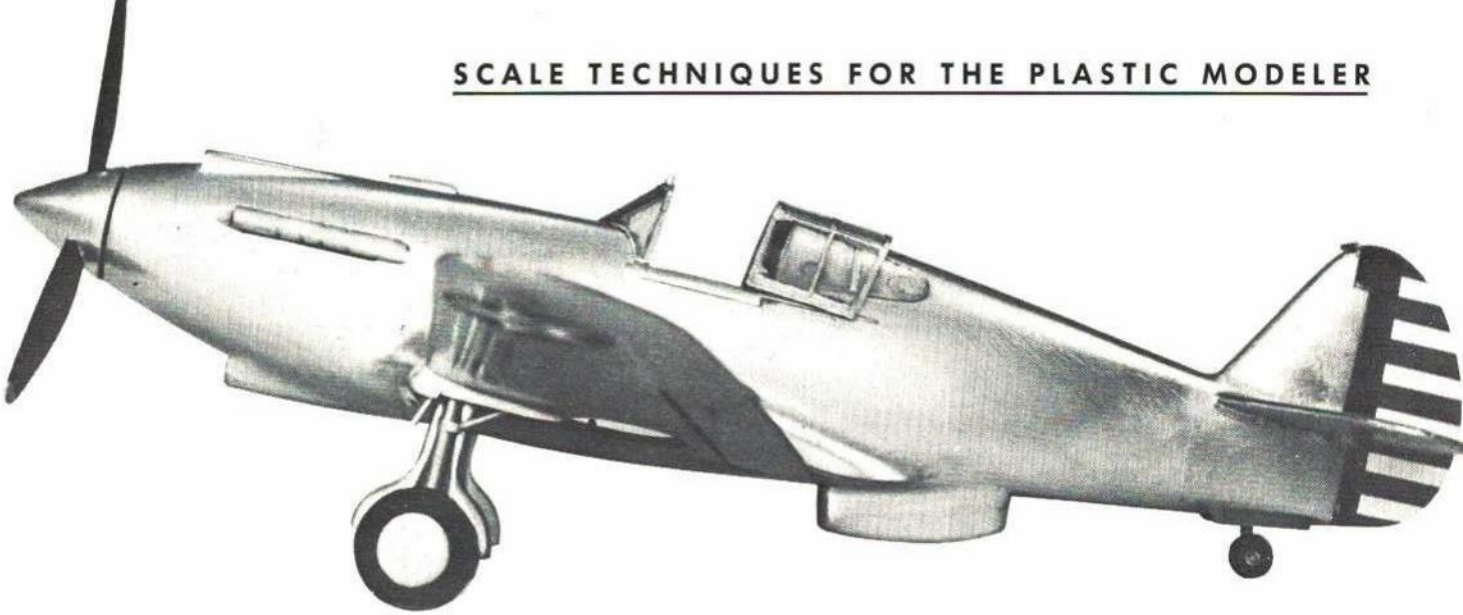
WING SECTIONS

AT F

TIP



SCALE



Curtiss XP-40

This model is an appropriate adaptation of a P-36 kit, done just as Curtiss adapted their P-36 to become the great P-40 Warhawk.

DR. FRANK L. MITCHELL

THE Curtiss P-40 was probably the most controversial, yet widely used, U. S. Army Air Force aircraft in World War II. It was sworn by, and sworn at, but it served when nothing else was available, and held the line until newer aircraft became available. It served throughout the war and in all theaters. It was used by many countries in many roles, most of which it was not designed to perform.

The P-40 came about as a result of a desire by the USAAF to utilize the then-new Allison liquid-cooled in-line engine. In an effort to acquire such a machine quickly, Curtiss was authorized in July 1937 to modify the tenth production P-36A to take an Allison V-1710-19 engine. This engine offered 1,160 hp for take-off and 1,000 hp at 10,000 ft. This aircraft first flew in October, 1938 as the Curtiss Hawk, Model 81. It was successful in a U. S. Army Pursuit Contest, at Wright Field, and brought to Curtiss the largest production order ever placed up to that time: 524 aircraft, for a total amount approaching $13,000,000.

It seems appropriate, therefore, to add to your model collection the progenitor of this famous fighter, the XP-40. This model can be built to either 1/72 or 1/48 scale, using the Monogram P-40B kit, or one of the P-36 kits now available from Monogram, Heller, Revell, or UPC. By using the P-36 kits, you can also have the satisfaction of knowing that you are producing the XP-40 in the same manner that Curtiss did. This article will mainly direct itself to the 1/48 conversion, with notes covering the smaller model.

To begin, remove the large circular carburetor intake from the top of the fuselage halves. The XP-40 has a rectangular intake set farther back on the fuselage. This can be made as follows: After gluing in place the machine-gun fairings as supplied in the kit, measure 1/4" from the end of these fairings, and cut a rectangle 1/8 x 5/16" in each half. Glue a piece of styrene plastic on a paper card larger than the hole, to the inside of one fuselage half. This will form a base for the scoop to be added later.

Assemble the cockpit details and the fuselage halves as outlined in the kit, but leaving out the exhausts. Using a jeweler's saw, make cuts as shown to eliminate the large radiator. At the same time, remove the long fairing from the center of the bottom wing half. Using plastic sheet, or pieces of an old kit, glue a base for the putty to the inside of the nose section and across the space made in the lower wing. Now assemble the wings as described, but do not add the landing gear, and attach them to the fuselage. Use putty to fill in the large spaces, and after drying, sand and file these to a smooth flowing shape.

Carefully saw off the bottom portion of the landing gear housing and save these small pieces. Fill in the small side-door openings in the wing. Again using putty, form an extension of the forward wing fillet from the landing-gear housing to a point 3/8" ahead of the leading edge of the wing.

The XP-40 had large landing-gear fairings which can be duplicated by cutting them out of plastic sheet, card stock or using fairings from a Grumman Hellcat, which have merely to be squared off on their low-

Continued on page 50

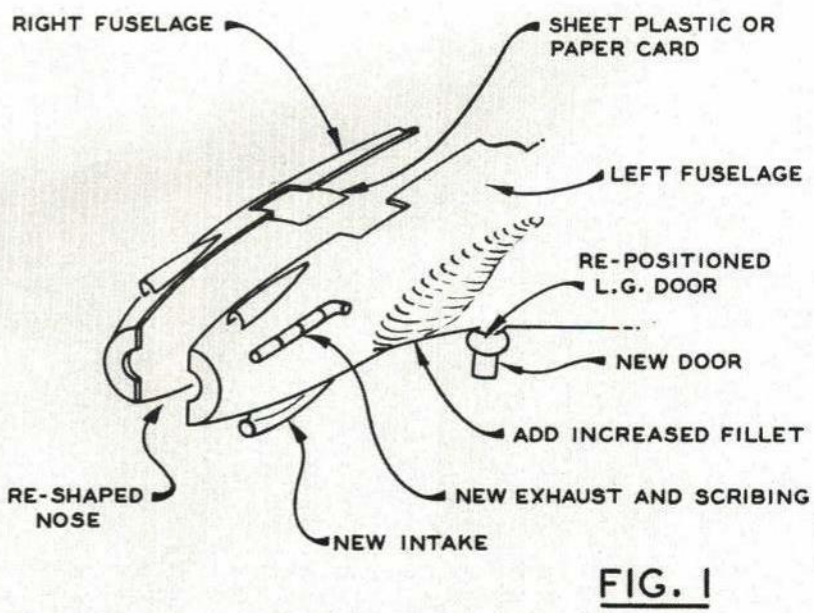


FIG. 1

La Jollita

C/L Goodyear racing event requires realism, speed, and well-practiced pit stops. Here's a consistent, rugged winner.

JAMES A. KLOTH

NOW that Rat Racing has become so refined as to require engines, fuels and techniques as expensive and exotic as the Speed events, fewer contestants are willing to face the costs and risks involved. More and more are turning to the Goodyear, or Scale Racing, event which has been around on the local level for a number of years. The local rules required only a little tailoring to adapt them to an acceptable AMA-sanctioned event. The "Scale" requirement also seems to fit into the current trend toward more realistic models.

Biggest drawback seems to be the lack of kits or published designs. Cal Smith did a series of designs a number of years back, but the structures were on the heavy side. Bill Netzeband, and others, contributed a few more designs, but enough time has passed to make them difficult to track down. Howard Mottin developed the Falcon, which is just about the only recent design. Entries in the event at the past King Orange Internationals were all Falcons, with the exception of one Bonzo built from rough drawings which I worked up for a friend.

This sameness of model is a shame for an event which could provide so much color. The old full-size Goodyear rules, now Formula I, are restrictive enough to keep the size of the different designs very similar. This means that differences in shape provide little competitive advantage, which also applies to the models. The modeler can choose what appears most pleasing to his eye without giving away any competitive edge. This should provide a good variety of designs at a contest. Apparently, few modelers have the talent to draw up one, or are not willing to do all that work.

My interest in Pylon Racing dates back to the pre-war Cleveland National Air Races. This mania produced a file full of information which has been gathering dust over the years. On digging through the books, pictures, magazines, etc., one plane seemed to keep popping up. The La Jollita seemed to have just those features which would make a good control-line model, and was one of the more attractive designs. I began scaling up a small 3-view.

With the outline taking shape, the problem turned to incorporating the appropriate and best ideas learned from past struggles with Rat Racers, FAI Team Racers and the old Thompson Trophy Racers, while a member of the Gulfhawks Model Airplane Club of St. Petersburg, Fla. The almost antique O.S. Max .15 II Glow engine had done a pretty good job in my last Thompson model. It was dependable, easily tuned, light, and produced a good power on a mild blend of racing fuel. The Veco pressure fitting was still in place and a pressure fuel system always seemed to give the steadiest runs in Rat Racing. The Veco T23B fuel tank was easily converted to pressure and equipped with a Don's Fast Fill unit. That completed the power unit.

The wing blank is glued up from sheets of $\frac{3}{8}$" balsa with the short length of $\frac{3}{8} \times \frac{1}{2}$" motor-mount stock acting as a bellcrank mount and stub spar. (Epoxy is used for all of the joints.) The $\frac{3}{32}$"-diameter dowel is epoxied in place, flush with the bottom surface of the outboard wing to absorb the frantic grabs at pit-stops. Carve, plane and sand the wing to a flat-bottomed airfoil shape, using the glue line as the high point. The tips are just rounded. Epoxy the $\frac{1}{2}$-ounce tip weight into a pocket dug into the bottom surface, and add a scrap of nylon over it to assure its staying in place. Cut the slot for, and install, the $\frac{1}{16}$" plywood leadout guide.

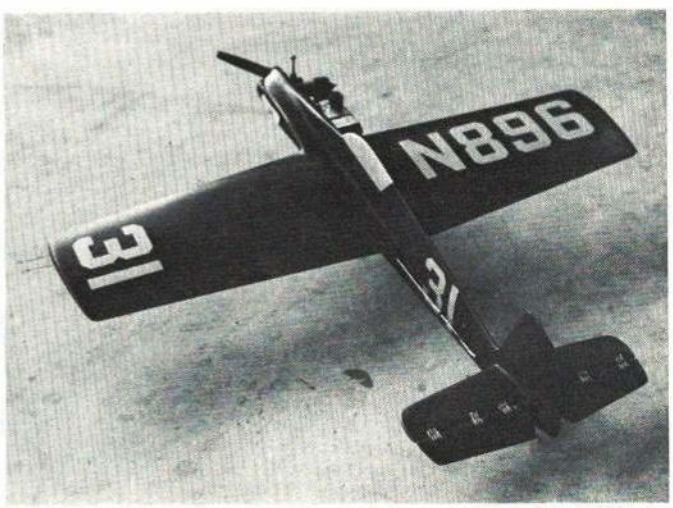
The fuselage is glued up from $\frac{3}{8}$"-thick balsa also. Adjust the cut-outs for the $\frac{3}{8} \times \frac{1}{2}$" motor mounts to fit the engine you have chosen. The $\frac{1}{8} \times \frac{3}{8}$" spruce center strip is an added feature stolen from the Top Kick A-1 towliner design. This adds to the stiffness of the fuselage and does much to correct a weakness inherent in profile type designs. Everything should be pinned to a flat building board, which is protected by a sheet of wax paper or Saran Wrap while the epoxy sets up, insuring a straight fuselage. Cut out and glue in place the $\frac{1}{16}$" plywood doublers. Fit your engine in place, locate and install the blind-nuts for engine and tank mounting. Glue on the $\frac{1}{8} \times \frac{3}{8}$" spruce tail-skid mount and taper the tail end as shown.

Cut the tail surfaces, except the vertical fin, out of $\frac{3}{16}$"-thick balsa. Glue the elevators to the $\frac{1}{8} \times \frac{1}{4}$" spruce spar and add a $\frac{1}{16} \times \frac{1}{4}$" balsa strip to build the spar up to the correct thickness. The fin is cut from softer $\frac{1}{4}$"-thick balsa, with the grain running from front to back. Sand the $\frac{3}{16}$"-thick parts to shape. The airfoil section of the stabilizer should be flat bottomed. The vertical fin is shaped after assembling to the fuselage.

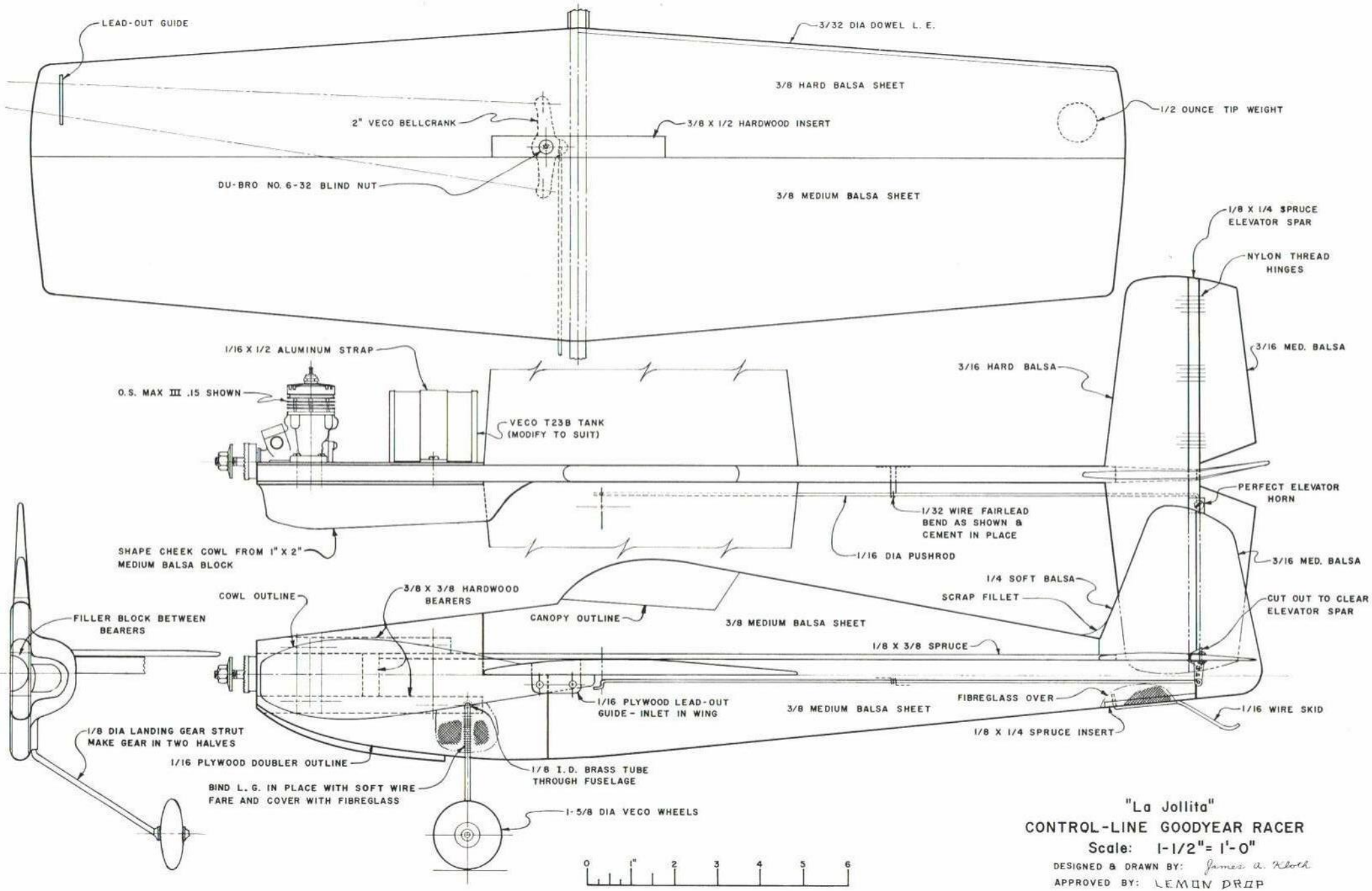
Fit the wing to the cut-out in the fuselage, fill in any gaps with scrap balsa, and epoxy in place after alignment is correct. Mount the stab to the fuselage, again taking care to assure proper alignment. Mount the fin and rudder with the elevator spar fitted through the cut-out in the rudder. Use strips of masking tape, top and bottom, to hold

Continued on page 56

Fifteen-powered Goodyear racing event is exciting to watch or fly in, but it is not a wild free-for-all like Rat Racing. Only gimmick here is convenient fast-fill tank with pressure system.



Smoothly finished model with epoxy paint is about as fuel-proof as it can be. In racing, model gets rough handling and wild fuels. Consistent performance will often beat faster models.



"La Jollita"

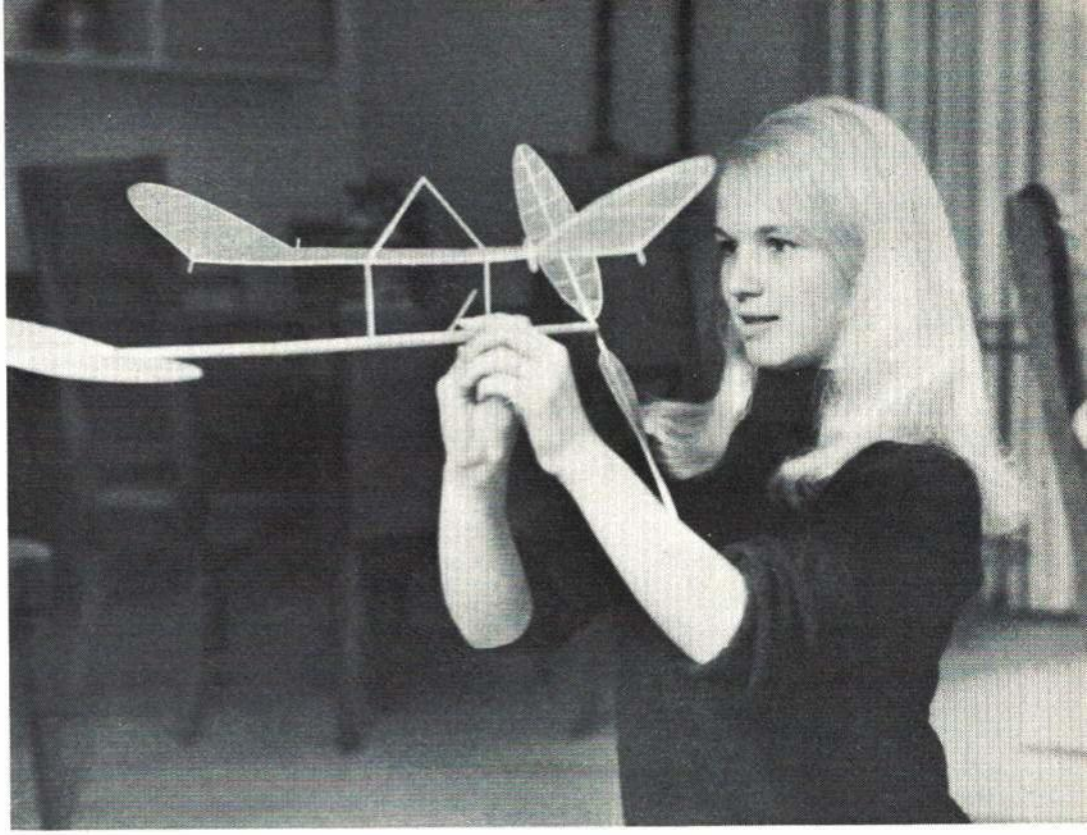
CONTROL-LINE GOODYEAR RACER

Scale: 1-1/2" = 1'-0"

DESIGNED & DRAWN BY: James A. Kloth

APPROVED BY: LEMON DROP

FULL SIZE PLANS AVAILABLE — SEE PAGE 60



Winner of '68 Nats Paper Stick event with over-15-minute flight, and then winner of microfilm Stick with 23-minutes-plus flight, is Linda Randolph. She holds four National records. Fellows, if you can't beat 'em, join 'em.

Feminine modelers can be challenging competitors at the flying site —and winners too.

Skirts Flying Minis

ROSALIE VANZANT

BE she blond, brunette or redhead, the typical feminine modeler got interested in the hobby-sport for one reason — a man! Invariably, a husband, boy friend, father or brother pointed the way to their initial efforts to build and fly.

Some of the feminine flyers, like Mrs. Norm (Barbara) Drazy, Lafayette, Ind., were born into the hobby. As she explains it, "My father (Walt Leonhardt) has flown ever since I can remember, so sooner or later it had to happen." Others, like Mrs. Joe (Betty) Stream, Long Beach, married into the ranks. She says, "Joe has been a modeler since the age of ten, so when I married him, I married the hobby, too."

For some the initiation was rougher than for others. Mrs. Bill (Ann) Gieskieng, Denver, found out about the devotion of modelers to models quickly and decisively. Says Ann, "My most frustrating moment in modeling came before I ever entered the hobby. Bill deserted me on our honeymoon to go to the 1964 FAI team finals at Winfield, Kans. Seeing what a thrill modeling was to him, I had to try it myself to see what all the excitement was about, and since then my frustration has been transformed into my avocation." Ann is now secretary of the Magnificent Mountain Men, and is the treasurer of the National Free Flight Society.

Ann Gieskieng, the suddenly initiated bride, scooped up the 1967 Rocky Mountain Regional Championship in FAI Power. In May, Mrs. Clyde (Marlene) Goodenough, Magna, Utah, came in second in C-Gas at Grand Junction, Colo., and in sunny California there is Miss Debbie Hannon, who copped the Junior National Championship in Navy Carrier at the 1967 Nats and first place in Open Carrier II at the 1968 Cal Western.

Quite a number of feminine competitors have made the boys and men take notice. Miss Martha Krogen, a native of Colombia, South America, and now a resident of Santa Ana, Calif., beat out about 40 fellows to win a first place trophy at the San Valeers annual in June.

Miss Cathy Monts, Wichita, Kans., earned first place and high time glider award at the 1968 Nats. On the east coast, Miss Dawn Cosmillo has wowed 'em with her precision aerobatics, having won first in the junior division at the 1965 Nats. Miss Linda Randolph from Ohio, the daughter of an Air Force pilot, took first in junior paper stick at the 1968 Nats, setting four national records. Miss Cheryl Weisenbach, also from Ohio (Cleveland) has placed in a number of contests, including the Nats, with her Fokker Triplane. She has also flown and won in A-1 and hand-launch glider.

Mrs. Barbara Drazy, who says she was born into modeling, began putting up winning flights in control-line speed and stunt back when her name was Leonhardt. Norm was one of her closest competitors, sometimes he won, sometimes she did. They were married in 1966, and Norm is attending Purdue University, where they are active with the Cloud Jockeys.

Some girls just enter the contest game,

Chicago Nats entrant Cheryl Weisenbach has been modeling since six years old. Here, she processes 020-powered Fokker Triplane.

Denver hobby-shop operator Norma Kelly has commercial pilot's license. Good flyer and builder, she's never crashed an R/C.

Dawn Cosmillo is an avid contestant. She won Junior National Championship in Precision Aerobatics at '65 Nats with this stunter. Flies many events and even designed her own C/L jet speed model.

Ann Gieskieng got into modeling because her husband took her to the 1964 FAI Team Trials on their honeymoon. She is now secretary of Magnificent Mountain Men club and treasurer of NFFS.

some are challenged to compete, and after a win retire on their laurels. Mrs. John (Evelyn) Lorence of Monmouth, Oreg., went to Sacramento with the Willamette Modelers to compete in the old-time cabin event. She won by two seconds over an all male field, then retired on her record. "When both my husband and son are flying in contests," she says, "I'm often kept busy just supplying food, drinks and repair parts."

Others enjoy the sport and social aspects of the hobby. Mrs. George (Maxine) Wvillamey, Tucson, Ariz., claims she is the only flying grandmother in or near Tucson, likes "being with other modelers and helping and being helped."

The satisfactions of helping others loom big with many. Mrs. Myrtle Coad, Hayward, Calif., was once a top-notch competitor (she was a member of the winning Oakland Cloud Dusters' team at the 1948 Nats at Olathe). "Mom" Coad has continued through the years to promote modeling on the west coast, as executive secretary of the Western Associated Modelers. She has maintained the multitudinous W.A.M. contest records and has boosted the local club contests which have attracted and held many young flyers in the hobby, including a number of girls.

"We always have at least 15 or 20 gals flying during the season," she says. "In the junior division we usually have about half as many girls as boys. It is truly a satisfaction," she adds, "helping youngsters get started in something that I know will always stay with them."

Another active booster is Mrs. Bob Vinson, Costa Mesa, Calif., mother of Cathy Vinson, who with her father is a member of the Sky Hoppers. Cathy has graduated from being just a "chaser" to being an occasional contest winner, thrilled when she wins and always trying.

The Vinsons have launched several of their neighborhood boys into modeling during the last few years by turning their garage into a giant workroom and setting up a bench where half-a-dozen kids could work in the evening. The building and talk were lively for this sub-club which called itself "Robert's Rats." They are all regular junior members of the Sky Hoppers now.

"We feel that other adult modelers should be encouraged to show an interest in the youngsters in their own neighborhoods," says Mrs. Vinson. "Often they just need a few words of interest and encouragement (and occasionally transportation) to become full-fledged flyers.

Miss Helen Ann Cox, Tucson, who also got interested through watching her father's modeling activities, has been flying in the Cholla Choppers contests and has had several wins in Rat Race.

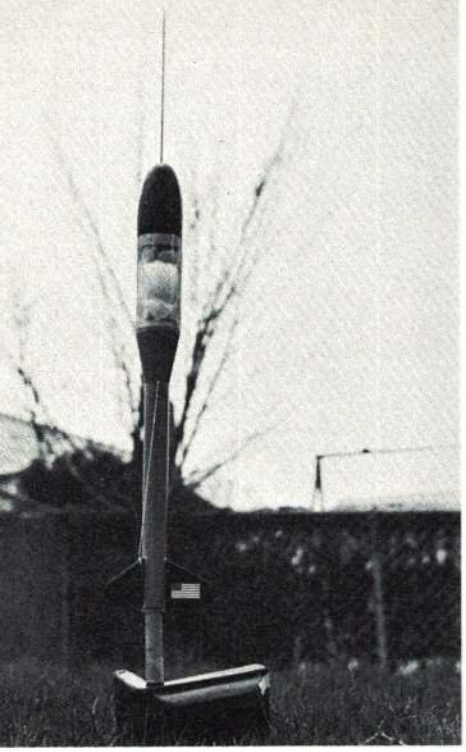
A few like Mrs. John (Norma) Kelly, Denver, have contested and won, still fly some

Continued on page 52

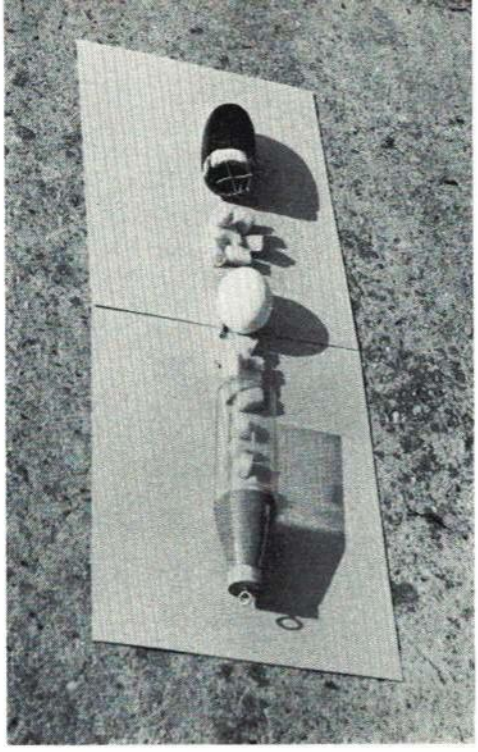
Gwen McClure's most thrilling moment was her first Split-S. She likes to hear her husband say "That was a good landing."

At San Valeer's Annual contest last June Martha Kroger beat out 40 fellows in towline event with well-decorated model.

Flying a Harbinger, Cathy Monts won first place in Nordic A2, and the High Time award in glider at the 1968 Nationals.



The factors of launch acceleration, reliable parachute release, and soft landing are all vital to success in egg-lofting event.



Egg is protected by blocks of sponge rubber and rubber bands. Parachute in top of booster is tied to both booster and cargo sections.

Author hooks up igniter to fire the rocket at a contest. High-drag nose slows the model after burn-out to help parachute deploy.

ParaLoft

For egg-lofting event, rocket carries a raw egg for highest, longest flight. Scramble it — and you lose!

ANDREW ELLIOTT

THE ParaLoft may be described as the "Great Compromise" of model rocketry. It is both Egg Loft and Parachute Duration model. The design is a compromise between performance, reliability, and ease of building, yet it comes out near the top of all three aspects. A great composite, it is a pooling of the better ideas in models and methods. In addition, the basic body-fin planform is adaptable to almost any combination of engine and payload, making it a sort of universal booster.

Ideas leading to the ParaLoft began when the last NAR rulebook came up with a new event called "Egg Lofting." Since then, Egg Loft has really caught on in the WAMARVA (Washington, Maryland, Virginia) area, and the event has been held in almost every contest since, including the Nationals, NARAM-10 (see AAM January 1969).

An amazing variety of design has appeared, ranging from a 5' monster to a small, light rocket with a payload section shaped like the egg itself. After flying in this event several times, it was noted that clustered rockets, i.e. those with more than one engine per stage, have a nasty habit of lifting off without all the engines firing and arcing into that hard egg-hating ground. Thus, a single-engined model was decided on. After seeing huge F-class rockets weathercock into the wind, still under power, the "E" engine was chosen along with the BT-50 body tube and the design made only as stable as necessary.

Still, after some beautiful upward flights, my original model would reach apogee, then streamline in, nose first. That was very bad for the finish, besides disqualifying me for the event. I therefore elected to add a little drag and adopt the external shock-mount now in use. This leaves a smooth bore inside the body tube, presenting no obstacles on which the parachute might get caught or tangled, and guarantees reliable ejection. With the 'chute ejection problem solved, a new nose cone and engine mount were all that were needed to convert the Egg Lofter into a good 'Chute Duration model, hence the name. A 24" chute may be easily packed into the BT-50 body and deployment is assured.

Before beginning, note that the following describes the construction of the ParaLoft in its Egg-Lofting configuration. Modifications for the P/D model follow. Also the center of pressure of the Egg Lofter is 14.3" from the tip of the nose; the duration model's is 9.4" from its nose tip.

Body: Working from the inside out, it is easiest to start building with the engine mount. Carve or drill a ½"-diameter hole in a BT-50 nose block, coat the hole with white glue and glue the block in, $3\frac{9}{16}$" up from one end of a 9" piece of BT-50 body tube. Cut six 3½" strips of $\frac{1}{32}$ x ⅛" hard balsa and glue them lengthwise in the tube as shown. Put a small dab of glue on each of the six rearward ends to stop the masking tape on the engine from catching there, when installed.

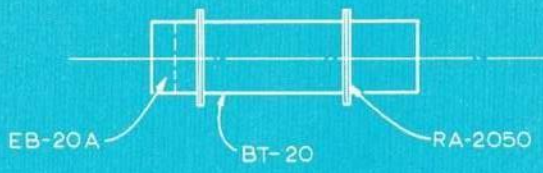
The body tube was covered with MonoKote (the sticky type), but it could also be doped if the builder prefers. Just remember to glue the fins on before painting. The MonoKote is not as expensive as it seems — one 26 x 36" piece will cover quite a few rockets. If you choose the MonoKote, cut a $9\frac{1}{8}$ x $3\frac{5}{16}$" piece, then cut three ⅛" slits, 2" long, ½", $1\frac{9}{16}$" and $2\frac{5}{8}$" from either of the long edges. Peel off the backing, then lay one edge lengthwise along the tube; it should overlap $\frac{1}{16}$" on both ends. Smooth the MonoKote evenly around the body. Try to get rid of all the bubbles, then shrink with a dry iron or hot 100-watt light bulb. Trim off the excess material with a sharp knife or razor blade.

Fins: Cut the fins from $\frac{1}{16}$" stock and sand to the section shown. Dust and rub all fins very lightly with talc, then prime them with two unsanded coats of 30% thinned clear dope. Add one more coat only around the edges, then sand the fins with 600 wet-or-dry. If you intend to make several ParaLofts, it pays to make a fin template out of heavy cardboard or light plastic. Reinforce the root corner of the leading edge of one fin as shown. Apply at least three coats of Pactra Balsa Fillercoat, sanding between coats with 400 paper. Bevel one end of a ¾" launch lug, glue it on a non-reinforced fin in the position shown on the plans and check its alignment. The grain now should be filled and the fins ready for your choice of colored dope. If it is not, apply further coats of Fillercoat.

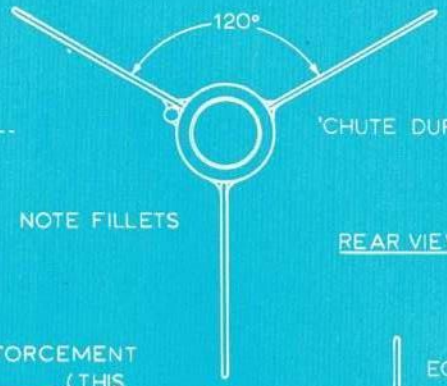
Sand after the first coat of colored dope with 600 paper, then add the final coat. Rubbing compound and gloss wax may be applied now if desired. Sand the root edges with medium sandpaper, being certain that the edges are straight, then glue the fins to the body tube in the slots in the MonoKote. Make sure that the joints are as strong as

Continued on page 54

ENGINE MOUNT DETAIL

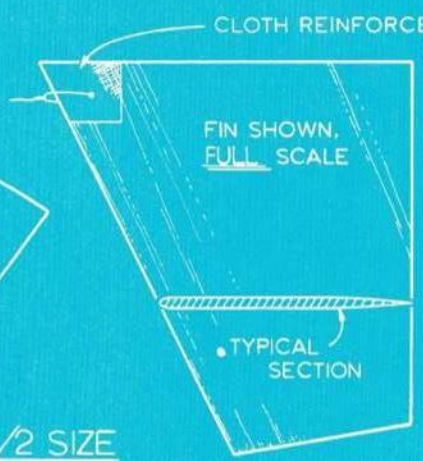


NOSE DETAIL P/D

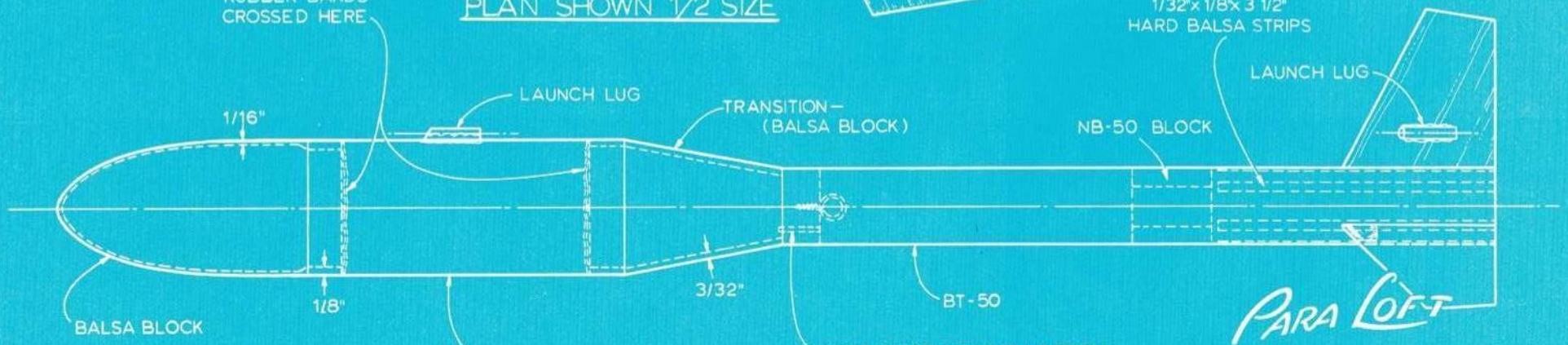


REAR VIEWS

END VIEW OF CONE AND TRANSITION BLOCKS



PLAN SHOWN 1/2 SIZE



PARA LOFT

DESIGNED AND DRAWN BY ANDY ELLIOTT

0 1" 2" 3" 4"

TRACED BY R. ANDERSON

Exact-scale model of New York Airways commuter liner, the De Havilland Twin Otter, flies like a Sr. Falcon according to builder Robin Lehman. It is also a safe steady flyer on either engine alone, including climbing with, and turning into, live engine! Makes realistic STOL takeoffs.

RADIO CONTROL WORLD

A ROUNDUP OF LATEST NEWS

CONDUCTED BY HOWARD McENTEE

Technical Notes

Real shorty link: It's often a real squeeze to hook a throttle to the linkage due to short distance from firewall to the arm, and even tougher when you have to avoid metal-to-metal joints. Bob Penko (Kirtland Hardware & Hobby Shop, 9183 Rt. 306, Kirtland, Ohio 44094) shows his way in accompanying sketch. An R/C Craft Nylink is cut off just to left of the solid center web, and left portion discarded. The web is drilled to form a new thread for the end of a DuBro TC25 "coupler." Drill hole undersize, then force rod end in and use it to make a new thread. Now cut off the back end of the coupler, also the threaded end, as indicated. You'll end up with a very compact link, which prevents a metal-to-metal joint. If the throttle pushrod is $\frac{1}{32}$" music wire, you could drill into the threaded end of the coupler (or use the original metal end of the Nylink) to make the unit even shorter. However, you will have about $\frac{5}{16}$" range of adjustment.

We've had some notes in a past issue from Bob on ¼-Midget pylon racing, which his local group has found very interesting. Just received are latest — and *final*, Bob claims! — changes to their rules, which now call for $2\frac{3}{4}$" minimum fuselage width, and a minimum weight specification of 2½ lb.

A sticky situation: Ever install a strip aileron bearing like we show, use epoxy to bind it in place — or to reinforce the center section of the wing — and find your linkage glued up solid? Nick Lavandier (2604 2nd North, Seattle, Wash. 98109) has. His simple solution is to seal the ends of the rod either with wax (you can melt on a few drops with a candle and a match) or with Vaseline. This keeps the goo out of the bearing, and is easy to remove when the job is done; even if you don't remove the sealing material completely, no harm will be done.

Holding P. C. boards: To keep etching solution off your fingers, and allow boards to be safely laid flat on your bench, try the trick suggested by Doryn Johnson (Rt. 1, Box 97, Alpine, Calif. 92001). He slips two or three of the little red clips that come on 5- and-10c gliders on each board, which makes them easy to handle. The clips will hold board thicknesses from $\frac{1}{16}$ to $\frac{1}{8}$".

Protect those fingertips: After a lengthy session of attaching sheeting to a wing framework, fingers seem to have permanent dents in the ends from pushing in pins. Of course, you can buy round-headed pins, which alleviate this problem. But like a true modeler, Loren Pratt of the Tri-Valley RCC simply makes round heads from those little dabs of epoxy resin you always have left over, after mixing a batch.

The Editor of MARCS Sparks (Nelson Wareham, 144 Proudfit St., Madison, Wis. 53715) was so taken with the idea that he attached one of the pins to each copy of his April issue. You simply dip the head of a common straight pin in the epoxy and twist it a bit to gather a little ball, then stick the pins in a piece of scrap balsa and let them hang head down till the epoxy is hard. Voila! No more sore "pin fingers."

Handy hints: Ed Gerhardt suggests use of stainless-steel leader wire (sold for fisher-

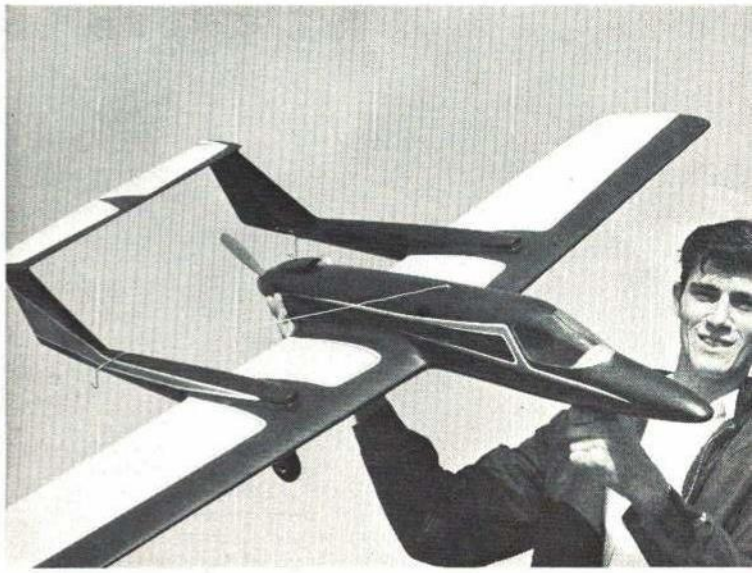
An editorial 'Many of these modelers operate high-speed boats which can be totally demolished by interference.'

WE have heard a few comments — both pro and con — on the possibilities of operating boats on the 72-76 MHz R/C spots. This is now prohibited. The FCC rules limit such operation to model planes only. Since many modelers (both plane and boat types) may not understand all the angles, let's look into the matter.

Far as we know, no real effort has been made before this to legalize boat operation on 72. But now a petition has been sent to the FCC (by W. C. Young, 2516 Oakwood Dr., Bakersfield, Calif.) requesting legalization of R/C boat operation on our high band. As is usual in such cases, the FCC has requested comments from interested parties, in this case including the AMA. The Young petition has several main points: 1) The R/C boatmen have the same problems that beset plane flyers in that there is serious interference from CB phone operators, particularly those with 100-MW handie-talkies right at the boat running areas. 2) There are large numbers of model boatmen — 23 clubs in California alone, averaging 30 members each. Many of these modelers operate high-speed boats (some of which weigh around 8 lbs., can travel up to 60 mph, and can be totally demolished by interference, with possibility of considerable danger, and loss to the boat owner). 3) Many boatmen are also R/C plane flyers. Those who wish to operate their planes on the "safer" 72-MHz spots must invest several hundred dollars additional for a complete outfit on 27 MHz for their boats. 4) Approximately 15% of boat (and R/C car) operators are already using 72 MHz illegally, and Young feels that if the FCC allowed R/C boat operation on 72, there would be far less "bootleg" operation.

The campaign of the AMA for 72-76-MHz R/C spots was based primarily upon two angles — the danger to life and property from otherwise properly equipped and flown planes

Is it the sun in his eyes, that howling 60's scream, or the ever-present danger of a broken propeller blade, which causes George O'Gar to wince so convincingly? That's a dangerous way to hold a model! Young flyers are challenging the experts in pattern events.



Easily one of the most attractive pusher-engined designs is this Lear Fli by Wayne Wainewright. Smoothly contoured plane has hand-rubbed acrylic-butyrate finish. Lear Jet-shaped nose and a Sun Fli wing explain derivation of name. It is a good stunter too.

men) for many small wire parts in models. It comes in sizes from .008 to .020, available from Sears Roebuck among other sources. Ed also suggests cutting little $\frac{5}{16}$" squares from broken nylon prop-blade tips. Drill $\frac{1}{16}$" holes in them before you cut from the blade, and these pieces will be found a tight push fit on $\frac{1}{16}$" wire, to use as retainers. . . . Ed Sweeney has found that Thermogrip Hot Melt Glue (sold with suitable electric "gun" by Sears, Wards and many other outlets) will stick tightly to MonoKote. The heat used to melt the glue causes no problems. The glue is not completely fuelproof, but it makes fine fillets. Is rather hard to sand. Ed has built an entire plane with this glue, says it went together very rapidly. It should not be used in exposed areas, due to sanding difficulty, or in areas of heavy stress — mounting firewalls and engine bearers, for example (always use epoxy here). . . . Ed mentions seeing a plane displayed at booth of Carl Goldberg (Toledo, '69) which had a nylon control horn attached to the tail of a trike LG Skylark 56, as neat way to prevent damage to rudder in rough landings.

Grassroots

"Big Ben" progress: About once a year we have given a progress report herein of a really tremendous plane — both in size and in complexity — being built by Ben Tarnofsky (942 Grou St., Montreal 379, Quebec, Canada). Our May 1968 issue had the last report, with a photo that gives one a good idea of the real size of this craft. Previously we have called it "The Monster," but as it nears completion, it becomes more and more attractive, so the official name is now "Big Ben!" Since our last photo, Ben has modified the 22½' wing to include ailerons. The craft will carry CRC digital apparatus. An all-types-of-planes exhibition by three Montreal model clubs resulted in a real spurt to get the craft presentable for public view. Unfortunately, the motor wasn't far enough along to install, but a dummy cowl illustrates the neat nose lines.

Tony Grish has sent Ben a 24"-dia. prop. The spinner is 5" dia., custom-made for this plane. The 9" wheels have spun aluminum caps. Main LG is of ¼"-thick hard aluminum, held to fuselage with seven nylon screws. Wheels have turned wood hubs, to fit aircraft (tail wheel, we assume) inner tubes. The nose gear is a real work of art; it pivots on a $\frac{3}{8}$" steel strut and two steel springs absorb shock. A separate servo will steer the nose wheel, this servo linked electrically to the separate rudder servo.

Ben had his heart set on a twin-opposed engine for this plane, finally had to build it himself. Already several parts are now partially machined. It has 5.3-cu.-in. displacement, and can be arranged for either alternate or simultaneous firing (we fear alternate firing would give extreme vibration — simul firing, however, would allow almost perfect engine balance). Each cylinder has its own separate crankcase chamber, and the shaft turns on ball bearings. The engine is mostly of aluminum, except for meehanite cylinder sleeves, and the crankshaft.

If readers who haven't seen past reports on this project think Ben is a visionary who does no practical modeling, we must state that he is very well known in free flight, has been on the Canadian World Championship FF Team. A very active builder and flyer, it's apparent he is taking his time on Big Ben. It may yet fly in 1969!

Docile twin: Modelers in the N. Y. area may have met Robin Lehman, an English R/Cer who spent some months in the States last year, and did quite a bit of flying with

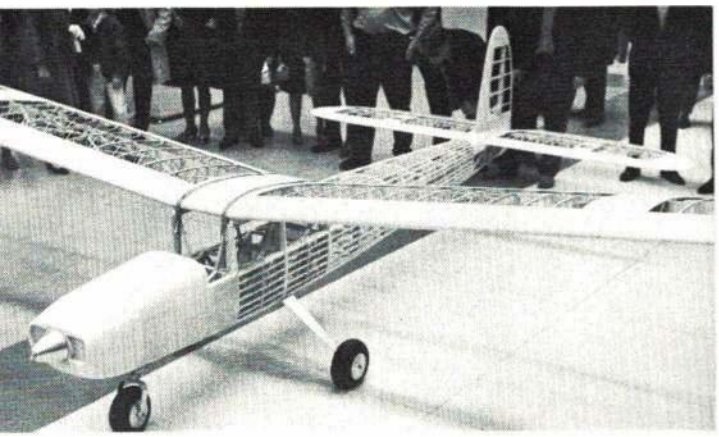
---

that were "shot down" by 27-MHz interference, and the contributions of model aviation to education and training in the aero and electronic sciences. We feel there can be little argument with either claim. Most of us have seen, or had, interference-caused crashes. And many youngsters and young men have gone on from model aviation to careers in the aeronautical branches of the military services and industry. As noted by AMA Exec. Director John Worth to another modeler who had questioned the prohibition of 72 MHz for R/C boats, the AMA counsel felt it would do us little good to base our campaign upon hobby or recreational angles — for the Commission would surely point out that the 27-MHz spots would serve these needs. John also noted that unless the boatmen could prove the same sort of case for their branch of the hobby as the R/C plane flyers did (number of participants, danger from crashing planes, educational advantages) it is unlikely the FCC would agree to open up 72 to boats.

We have heard R/C plane men comment that since they (meaning plane clubs, plane equipment manufacturers and individuals) put up the very considerable sum of money required to follow through our successful campaign that lasted for several years, they can't see why the boat boys should get a free ride. Since there was much publicity while the campaign was going on, surely the boatmen knew about it. Did they offer to help? Frankly we don't know, nor do we know if they were asked to do so. Of course many R/C clubs include members who operate both R/C planes and boats; some clubs have large and very active boating groups.

Since there are some AMA members who are both R/C plane and boat operators — and some AMA-chartered clubs that have considerable boating membership — the Academy is currently exploring the possibility of opening 72 to model boat R/C, through the AMA Frequency Committee. There is a certain danger here, though; our legal counsel points out that if we push too strongly for R/C boat operation on 72, it could jeopardize our use of these frequencies for R/C planes!

This is where the matter stands at this writing (early spring). There is now an official petition for 72-76-MHz R/C model boating (it has been stated publicly that there is considerable bootleg operation of this sort) and the AMA will soon send comments on the matter to the Commission following their request. We'll keep you posted.



Statistics on Big Ben so far: ¼" hard aluminum main gear, 24" prop, 22½' wing span, 9" diameter wheels. Will use home-made 5.3 cu. in. twin-cylinder engine. Model will need special license to fly.

Scale model of little-known Goodyear racer, the Bee Gee Baby Sportster, held by Tony Giovanetti. Real plane was designed by Granville brothers of Gee Bee, Thompson Trophy fame. Bob Granville on right. Some unsuccessful Goodyear designs of years ago might make fast Formula 1 models. Others will be attractive sport flyers, an interesting possibility.

the North Jersey RCC and other groups in the area. NJRCC Pres. Woody Woodman received a photo and description of a scale-twin which Robin has flown. He says it is docile as a Sr. Falcon to fly. It moves at virtually scale speed in the air.

It is a De Havilland Twin Otter, spans a bit over 7' and weighs 11¼ lb. Flight on either engine is very good (type of engines fitted wasn't specified). Turns in either direction with either engine running are routine. The plane will climb with just one engine. This is a 100% scale copy of the STOL Otter, and apparently many of the full-size plane's characteristics have turned out to be "scale" too.

It is almost nonspinnable. With the stick pulled full back and the craft pointing up almost vertically, it still refuses to drop a wing. Robin has experience with other R/C twin-engined planes. For example, he has a Cessna 310, *much* more difficult to fly; it travels far faster than scale speed. His next project will be a Short Skyvan. This and other twin-engined planes will be tried, for he wonders if the Twin Otter might have turned out so well just by accident! Interested modelers can reach him at: The White House, Spaniards End, London N. W. 3, England.

That Baby Sportster: In the May '69 issue (page 36) we had some notes on a plane shown at a meeting of the Northern Conn. RCC last Fall. Unfortunately, we misread some of the information in the club paper of this group, and to set matters straight, Editor Bernice Williams sent photo shown here. Builder Tony Giovanetti holds the plane at left; it's an *original* design (called the "Bee Gee Baby Sportster") intended for R/C pylon racing. The "Bee Gee" comes from initials of co-designer Bob Granville at right. Bob is son of one of the original Granville Brothers, builders of a line of racing planes in the 1930's. Photo was taken by J. P. Stakun of NCRCC.

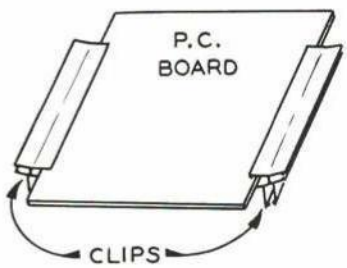
Competition

Certificates to all: Note from Russ Verbael (Assoc. Editor of the very professionally written, laid out and printed *Trim Tab*, club paper of the Pensacola, Fla., Aero-Modelers) tells us his group makes it a practice to give a certificate printed on parchment to all entrants to their meets. They feel such flyers deserve something to remind them of the meet, even if they fail to place. The certificates are eminently suitable for framing. This is the group that sponsors the "Fiesta of Five Flags," R/C meet, which appears to be growing in popularity each year. Russ is also Secretary of the P.A.M.

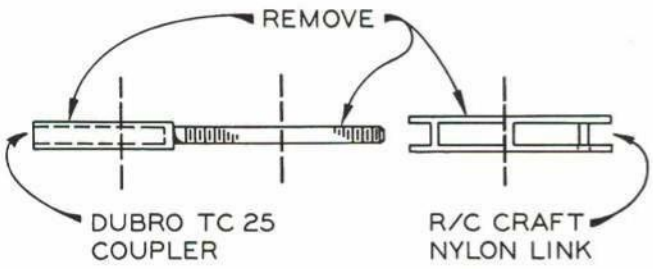
RCIA Show-Meet: All paths will lead to Atlanta, Ga., on Sept. 13-14, for first large R/C trade-show in Southeast. The R/C Industry Assoc. has also settled on this date to hold its annual Masters Tournament in the same area. The show will be held at the Marriott Motor Hotel in downtown Atlanta. In addition to booth space for R/C manufacturers, the Cobb Country R/C Modelers, who will host the show, will set up "proxy booths" for manufacturers who would like to show their wares but cannot attend. These booths will be manned by club members well-versed in R/C.

Heading this part of what sounds like a very busy weekend is Joel Harper (900 Piedmont Circle, NE, Marietta, Ga. 30060) of the CCRC. Booth reservations, and motel reservations, may be made through Joel. For the Masters Tournament, the top 30 R/C flyers in the country will be chosen by a point system based upon the actual place of the applicant in a meet, and the number of contestants in the Class C Expert event of that meet. Each entry in this class will score one point toward the total; then first place will gain 50% of these points toward qualification for the Masters, second place will get 30%, and third place will get 20%. Winning a large meet will rightfully gain a flyer more points than winning a small

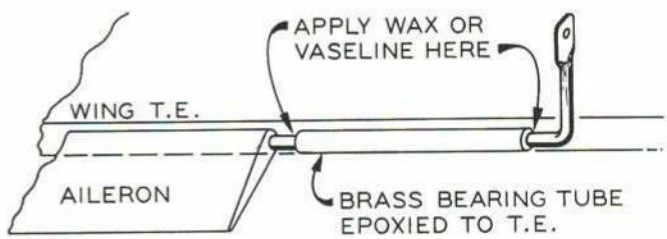
Continued on page 66



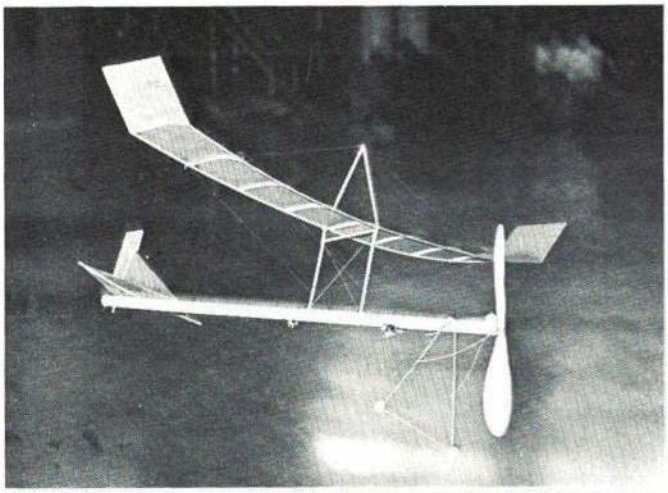
Doryn Johnson holds PC boards properly upside-down in etching solution with dime-store model's wing clips on each edge.



Bob Penko offers this solution to getting an adjustable link into the space between firewall and throttle arm. Shorten a split tube coupler, solder it to a 2/56 bolt, and thread the bolt into hole drilled in the solid center of the Nylink. Cut off back of link. Adjustment range is 1/2" and overall length is about 1".



Have you ever glued your ailerons solid to the wing? Nick Lavandier uses vaseline to lubricate the bearing and prevent the epoxy from holding torque rod with bearing. Use lots of epoxy safely.



All photos, Gordon Gallagher

Gordon Gallagher's model is easily caught in flight at its slow pace. Essentially a big indoor stick job with tube fuselage, battery behind prop, underslung receiver, and actuator behind wing.

This model's great virtue was its higher flying speed which allowed better rudder control, but required too large a turning radius for the gym size. It is Jerry Grench's 5' 10" plane, weighing 12 oz.

Rubber-Powered R/C

Lightweight radio gear opens up a captivating new world.

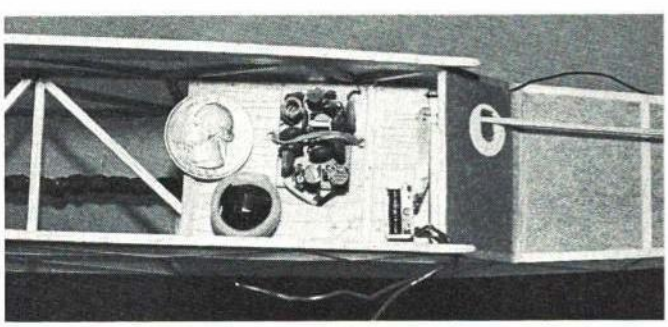
HOWARD McENTEE

RUBBER-POWERED R/C! The Aeroguidance Society (Endicott, N. Y., area) scheduled an indoor rubber meet last winter, then added an R/C event. Planes ranged from Don Harrington's relatively small 1½ ouncer to Jerry Grench's huge 5' 10" job which weighed 12 oz. Latter flew OK but was just too big for the flying space in the high school gym. "Revooh," the winner, was designed and built by Jim Hoover, with a copy built by his teammate Myron Cary. A stretched-out cabin-type plane with lightly doped paper covering, it had Trexler wheels, and weighed only 3 oz. The winning flight by Cary totaled 28 sec., but 3rd place Hoover put up a 65-second flight after the contest.

Rules called for ROG takeoff, straight flight, left turn, right turn, return to transmitter, spot landing. Air time also figured in total points. Revooh took 850 turns on the rubber motor, flew fairly fast. Control response was quite good. Second-place winner Gordon Gallagher (D.D.S., 20 Pleasant Court, Binghamton, N. Y.) who sent pix and results, flew a plane with hollow-stick fuselage, bamboo LG and dental-floss bracing. Quite slow, his plane had marginal control. The actuator couldn't quite handle the large rudder. His flight time was 39 sec.

Grench used an Airtrol receiver, others the tiny Albins. All actuators were built from tiny G.E. relays with 50-ohm coils. Batteries were silver oxide cells (Eveready S41 and S76, Mallory 312). Since Gordon had just a "stick" model, all radio gear was external. Battery was just behind prop, receiver was slung under the wing L.E., and actuator was about at the center of the tube. There will be many more entries next winter. The meet will be all-R/C, and other motive power (probably electric drive) will be allowed.

Don Harrington's model is small cabin-type thing with built-up slow-turning prop. With additional practice, experience, and rubber power, it might have been the winner. Highly undercambered wing with exposed spar gives plenty of lift at very slow speeds.



Winner, Revooh, had Albin receiver, modified 50-ohm relay/actuator, tiny silver-oxide hearing aids. System most of plane's 3 oz. gross! Ship didn't weigh much!

Revooh, by Jim Hoover, is something like a miniature Wakefield job with long fuselage, lifting stab, under-side rudder for positive control, and fairly clean airframe for efficient flight.

TRY YOUR DEALER FIRST

- ALABAMA

Alabama, Birmingham 35211
SPIVEY STORES
1301-03 Tuscaloosa Ave.

Alabama, Huntsville 35805
HUNTSVILLE HOBBY SHOP
2100 Triana Blvd.

- ARIZONA

Arizona, Phoenix 85012
WEBSTER'S HOBBY SHOP
30 E. Camelback Rd.

- CALIFORNIA

California, Burbank 91505
T & A HOBBY LOBBY
3512 West Victory

California, Covina 91724
COVINA HOBBY CENTER
140 North Citrus

California, El Cajon 92020
MIKE'S MODEL SHOP
229 E. Main

California, Eureka 95501
KING'S HOBBIES
318 W. Harris

California, Pleasant Hill 94523
OAK PARK HOBBY CENTER
1902 Oak Park Blvd.

California, San Diego 92103
HILLCREST HOBBY CRAFT
3921 Fifth Ave.

California, San Jose 95128
HUSTON'S HOBBY SHOP
930 Town & Country Village

California, Watsonville 95076
McKELL DRUG CO.
Alta Vista Shopping Center
40 Mariposa Avenue

- CANADA

Canada, Richmond, British Columbia
D AND R HOBBIES
1130 Williams Road

Canada, Calgary, Alberta
CALGARY HOBBY SUPPLY
Box 3173 Postal Stn. B

Canada, Prince Rupert B. C.
PRINCE RUPERT R/C CENTRE
936 6th Ave. East

Canada, Saskatoon, Sask.
SASKATOON RADIO CONTROL CO.
Box 1625

Canada, Toronto, Ontario
KLEIN BROS. SPORTS & HOBBIES
3187 Bathurst
Phone RU 7-9631

- COLORADO

Colorado, Denver 80220
TOM THUMB HOBBY CENTER
7020 East Colfax

Colorado, Pueblo 81001
D & S PAINT CENTER INC.
217 West 9th Street

- CONNECTICUT

Connecticut, Bridgeport 06605
BOB'S HOBBY SHOP
1542 Wood Avenue

Connecticut, Bridgeport 06610
FRED'S VARIETY
184 Success Ave.

Connecticut, Hamden 06514
HAMDEN HOBBIES
1564 Dixwell Ave.

Connecticut, Windsor Locks 06096
SKIPS ELECTRONIC SERVICE CT.
9 Spring Street

- DELAWARE

Delaware, Wilmington 19803
SIMPSON'S HOBBIES INC.
709 Faulk Road
Faulk at Murphy Road

- FLORIDA

Florida, Jacksonville 32211
ART'S HOBBY SHOP
10234 Atlantic Blvd.

Florida, Miami 33142
ORANGE BLOSSOM HOBBY SHOP
1975 N. W. 36th St.

Florida, Port Salerno 33492
WILSON'S DISCOUNT STORES
A1A
Stuart Shopping Center
P.O. Box 262

Florida, St. Petersburg 33704
FLORIDA HOBBIES & RACEWAY
2801 9th St. No.

Florida, Tampa 33605
FARMERS SUNDRIES & HOBBIES
4926 East Broadway

- HAWAII

Hawaii, Honolulu 96814
PETE'S MODELCRAFT FUN SHOPPE
1042 Ala Moana Shopping Center

- ILLINOIS

Illinois, Barrington 60010
LANGE'S BIKE SHOP
120-A West Main Street

Illinois, Chicago 60630
STANTON HOBBY SHOP
4736 North Milwaukee Avenue

Illinois, Mundelein 60060
HOBBY HUT
141½ Seymour Ave.

Illinois, Sycamore 60178
TRI-HOBBIES
116 So. California St.

Illinois, New Lenox 60451
RADIOMODELS
321 Willow Street

- KANSAS

Kansas, Shawnee 66203
KEN'S R/C HOBBY SHOP
10915 W. 59th Terrace

Kansas, Salina 67401
FLIGHT CONTROL PRODUCTS
248A South Santa Fe

- MASSACHUSETTS

Massachusetts, Attleboro 02703
HOBBY HUT
170 Pine St.

Massachusetts, Cambridge 0213
CROSBY'S HOBBY CENTRE
1704 A Massachusetts Ave.

- MICHIGAN

Michigan, Dearborn 48126
JOE'S HOBBY CENTER
7845 Wyoming Ave.

Michigan, Lapeer 48446
CLIFF'S HOBBY SHOP
317 So. Saginaw St.

- MISSOURI

Missouri, Affton 63123
AFFTON HOBBY SHOP
8627 Gravois

Missouri, Des Peres 63131
DES PERES HOBBY SHOP
12065 Manchester Rd.

Missouri, Kansas City 64110
K C HOBBY CENTER
5717 Troost

Missouri, St. Joseph 64503
POLLOCK REF. & MODEL SUPPLY
1501 South 10th

- NEW JERSEY

New Jersey, Greenbrook 08813
(Plainfield Area)
TINY TOTS INC.
U.S. Route 22 E

New Jersey, Red Bank 07701
HOBBY HEADQUARTERS
62 White Street

- NEW YORK

New York, Buffalo 14215
FIELDS HOBBY CENTER
3177 Bailey Avenue

New York, Rochester 14623
COMMUNITY HOBBY CENTER
1475 E. Henrietta Rd.

New York, Syracuse 13202
MODEL RAILROAD AND
HOBBY CENTER INC.
219 East Fayette Street

- NORTH DAKOTA

North Dakota, Minot 58701
MERYL'S HOBBY SHOP
124 1st Street S. E.

- OHIO

Ohio, Cleveland 44129
NATIONAL HOBBY INC.
5238 Ridge Road

Ohio, Columbus 43211
LINDEN HOBBY & BIKE
2458 Cleveland Ave.

Ohio, Lancaster 43130
SLATERS INC.
1141 N. Memorial Dr.

Ohio, Ohio City 45874
GLENMORE HOBBY SHOP
RR #1

Ohio, Willoughby 44094
KIRTLAND HARDWARE & HOBBY SHOP
Route 306 Kirtland

Ohio, Youngstown 44512
BOARDMAN HOBBY CENTER
7411 Market Street

- OREGON

Oregon, Portland 97217
HOBBYLAND
4503 N. Interstate Ave.

- PENNSYLVANIA

Pennsylvania, Harrisburg 17110
HEN'S HOBBY HOUSE
2955 N. 7th St.

Pennsylvania, Monroeville 15146
LORESKI'S HOBBY SHOP
"Miracle Mile" Shopping Center

Pennsylvania, Philadelphia 19143
RICHARD FRANCIS HOBBIES
5815 Woodland Avenue

Pennsylvania, Upper Darby 19082
TODD'S MODEL SHOP
7036 Terminal Sq.

Pennsylvania, York 17404
SKELLY SPORTING GOODS
2227 West Market St.

- SOUTH AMERICA

South America, Bogota 2, Colombia
AEROMODELOS BRITANNIA, LTDA.
Apartado Aereo 21030

- TEXAS

Texas, Austin 78704
LEW'S HOBBY SHOP
1704 South Congress

Texas, Corpus Christi 78410
MODEL SERVICE
Box 1013F

Texas, San Angelo 76901
WILSON'S HOBBY SHOP
2205 W. Beauregard

Texas, Victoria 77901
ANN'S HOBBIES & ART SUPPLIES
1308 Polk off N. Laurent

- VIRGINIA

Virginia, Richmond 23221
BOB'S HOBBY CENTER
3002 West Cary Street

Virginia, Winchester 22601
RADIO ELECTRONIC MODEL SHOP
800 National Avenue

Ace R/C Inc.

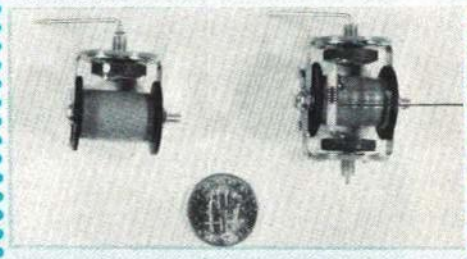
ACE R/C

SERVES YOU FOR ANY R/C NEED
SERVING YOU SINCE 1953

FOR THE NEW MINI PLANES

Looking for new R/C ventures? Join the swing to the new mini planes which have appeared in recent model magazines. We specialize in the light weight components you need for these jobs. You will find listed just a few of the items we have now—more are being added regularly.

Join the swing to fun—build 'em small and have a ball!



ADAMS AR BABY ACTUATOR

From Adams comes the AR Baby actuator. Results in lower drain for an over-all lighter weight. Plenty of torque for the mini jobs, the AR has only 40 to 50 milliamps current drain on 2.4 to 3 volts, so it can be used with some of the smallest batteries for a tremendous saving in weight.

Uses the same frame and is the same size as the regular Baby, but the secret of the weight saving is in current consumption. Weight of the AR is 17 grams.

No. 14K31—Adams AR Baby Actuator.....$8.45

For the modelers who have the regular Baby and want to convert to lower drain coil, it is available separately. Conversion is simple and takes only a few minutes with hand tools.

No. 14K32—Adams AR Coil only.....$4.00

TWO NEW BABY TWIN ACTUATORS

The Baby Actuator by Adams is now available as a Twin in either the regular or AR version. The twin magnets provide approximately 2½ to 3 times the torque of the single units and increase weight only slightly. The regular and AR Baby weigh approximately 17 grams, while the Twins weigh 22 grams.

The regular Baby Twin has the most torque and pulls around 110 mah on 2.4 volts, while the AR version pulls 40 to 50 mah at 2.4 to 3 v. The AR is designed for the Micro and Mini series of planes where weight is important and smaller batteries are used to keep overall weight as low as possible.

No. 14K58—Adams Baby Twin, regular coil..$10.95
No. 14K59—Adams Baby Twin, AR coil.....$11.45

ACE
Accessories Components Equipment

Whether it's Tufline fuel tubing, or a 2/56 x 1⅛" machine screw, or an item from almost any major manufacturer, the chances are good that Ace has it in one of the most comprehensive lines of Accessories, Components or Equipment available anywhere. Our own designer-approved radio kits are added to by lines from E-K, Bonner, Lanier, Midwest, Bee Line, SPL, Coverite, Jensen, Rocket City, Su-Pr-Line, Sterling, MRC-Enya and Webra, etc., etc., etc.

PROFILE R/C PLANS AVAILABLE

Full size plans for the Mini Profile R/C Planes are available now for the Fokker D-VIII and the Nieuport 17, and the Mini-ot—the Mini-ot is a profile version of the Bleriot. This spans 32 inches. The others average about 25 inches. Plans are by Chris Soenksen.

The Mini Planes were the hit of the Toledo R/C show. They are offset printed and are 17 x 22, and include a "how to" sheet of information. Price includes FIRST-CLASS MAILING.

Join in the latest challenge to hit R/C—Build a Mini Profile!

No. 13K31—Fokker D-VIII Profile Plans.....$1.00
No. 13K32—Nieuport 17 Profile Plans.....$1.00
No. 13K291—Mini-ot Profile Plans.....$1.00

SPECIAL OFFER

Until August 31 we will offer your choice of the above plans FREE with the purchase of a Commander R/O Baby Pulse Package. Offer is limited—and you MUST ask for it.

MICRO FLEX HOOKUP WIRE

You need a lighter weight wire than ordinary hookup when building the miniature jobs. We have #30 PVC insulated with 7 strands of #38 only .033 diameter. Packaged in a Six color pack, each length is three feet long.

No. 35K3—Six Pack hookup wire #30.....$1.00

VOGT THROTTLE RESTRICTORS

These are a must when you want to tame the Cox .010 or .020. Simply set to position for the desired RPM and you have a tame power plant that is just the ticket for the new mini scale and semi-scale planes. Be sure to order the correct one for your engine—not interchangeable.

No. 16K105—Vogt Restrictor for .010.....$2.00
No. 16K173—Vogt Restrictor for .020..... 2.00

COMMANDER PULSE
DE SUPERHET RECEIVER

This is the first superhet receiver to be produced by Ace R/C! And it is a first in many respects: Small—measures only 1⅜ x 1¾ x ¾"; Light-weight is about .8 ounce; Relayless-but double-ended (DE) with 1 amp transistors in output for hookup direct to dual coil actuators; Low voltage—works reliably at maximum range on just 2.4 volts; Versatile—works with most any transmitter of from 400 to 1400 hz; Pulses—exceptionally fast.

Manufactured by Ace exclusively under license agreements with designers — several circuit breakthroughs found only in this unit.

No. 12K1—Commander DE SH RX Pulse Assembled $26.50

(Specify frequency: 26.995, 27.045, 27.095, 27.145 or 27.195)

NOTICE

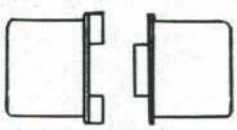
RAND

Rand Rack and Actuators and Paks are now manufactured by Ace R/C at Higginsville, Missouri. The changeover was made earlier, and production has been moved.

Herb Abrams will continue as the designer and consultant for the Rand manufacturing portion of Ace R/C, and this will assure you of new Rand items of quality and leadershp in new fields that you have come to expect.

The only thing that has been changed about the Rand products is the location of their manufacture. The same high quality, the same imagination, and the same dependable performance that you have come to expect from all Rand products will be carried on.

New Improved!



We have made some improvements on our hinges for easier installation. We changed the material from Delrin to nylon and made the webs thinner. They are designed to fit an Exacto knife slot without swelling the wood. These improved hinges should be in stock now at your favorite hobby dealer.

FOUR STYLES TO SUIT EVERY NEED!
All styles 6 for $1.25

#1023 is a 5/32" wide neutral axis hinge. Fits 3/16" thick tail surfaces.

#1024 is a 1/4" wide neutral axis hinge. Fits surfaces 1/4" thick and over.

#1025 is a 1/4" top edge hinge. For use with scale type ailerons requiring a hinge line at the top edge of surfaces.

#1026 is a 5/32" wide neutral axis double-flange hinge. Fits 1/8" thick surface on smaller airplanes.

NEW! NEW! NEW!

SERVO MECHANICS—Controlaire S-3 and S-4 and Kraft-Hayes KPS10. For the tinkerer to make his own digital or analog servo. All are complete with motor, feedback pot, gears, shafts, output hardware, etc. S-3 and S-4 in easy to assemble kit form; KPS10 preassembled. Mechanicals only, no electronics. No. 14K17—S-3 $9.98; No. 14K18—S-4 $8.98; No. 14G55—KPS10 $13.95

LAHTI ANALOG SERVO ELECTRONICS—Complete kit of all electronics needed to make an excellent analog servo with highest resolution from S-3, S-4 or KPS10 mechanics. Use it with the AAM decoder for simple rudder only NON-FLAPPING control. No. 15G31—Lahti Analog electronics only kit, $11.95

MINI GG ACTUATOR PACKAGE

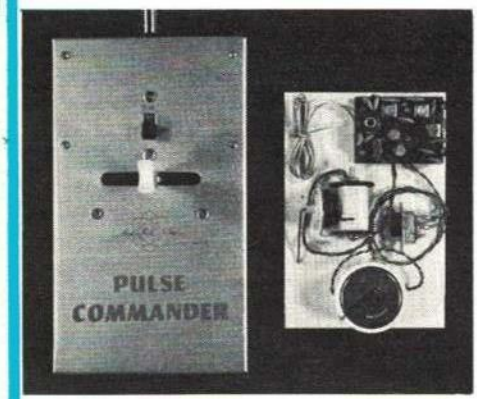
Don Srull designed this GG actuator for Rudder and Elevator for .010 to .049 ships, and we are proud to present a kit of all components required. Weight is approximately 35 grams and measures 2 x 1⅛ x 1⅜". Current drain is approximately 70 ma on 1.2 volts.

Kit contains low drain five pole motor as used in digital servos, synthane base plate, all hardware, including gears, etc., as well as simplified instructions to allow you to complete in less than 1 hour.

For use with relay receivers, or with the Ace AOSM kit with almost any relayless receiver on one set of batteries for savings in weight.

No. 14K28—Mini GG Actuator Package.....$7.95

THE PULSE LEADER



The airborne packs of the Ace Commander R/O Packages are deliberately separated into the components of receiver, battery and switch, and actuator. This allows for versatility.

COMMANDER R/O PULSE PACKAGES
Ideal for Beginners and Sport Fliers

Get one of the Ace Commander R/O packages and you get the Commander DE Superhet Receiver, Commander Pulse Transmitter, Adams Actuator of the size you want, along with matching nickel cads, and completed wiring harness, AND you save up to $10.00 over buying singly.

We have the packages as matched sets in three basic offerings to suit your every R/C sporting need from the smallest to the larger sized aircraft. Ready for easy installation.

The Baby Pack is for the .010 and .020 jobs although it can be used with tame .049's. Package has two GE 225 ma BHL nickel cadmium batteries and Baby Adams. With wiring harness and switch, completely assembled.

The Standard uses the LV Single Adams for more power for .049 to .07 size. Is furnished with two GE 500 ma BHL nickel cadmiums. With switch harness, assembled.

The Stomper uses the LV Twin of the Adams line for up to .15 or even .19 size jobs. Comes with two GE 600 ma cylindrical cells. With switch harness, assembled.

(Charging equipment not furnished.)

No. 10G15—Commander R/O Baby pack....$69.95
No. 10G16—Commander R/O Standard Pack 71.95
No. 10G17—Commander R/O Stomper pack 74.95

PROVEN WINNER!
ACE VARI-CHARGER

IN KIT FORM OR ASSEMBLED

Will charge nickel cadmium batteries—20 mils to 150 mils. Capable of charging up to 12 volt packs. Indexed dial & simple chart for correct milliamp reading for charging different size battery packs. Completely isolated from AC line supply. An extra deluxe item. New transformer of highest quality. UL approved line cord. On-off switch. 500 milliamp diode. Full instructions.

No. 34K21—Ace Vari-Charger assembled $8.95
No. 34K22—Ace Vari-Charger Kit 7.50

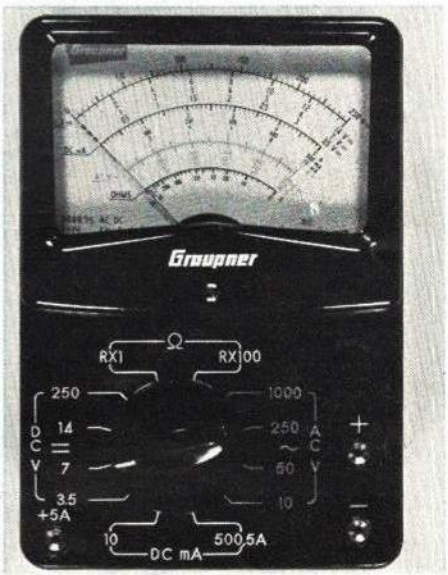
NEW HANDBOOK-CATALOG FOR 1969!
For the Fun Flyer and Tinkerer

Our 1969 Handbook-Catalog is bigger and better than ever. We specialize in equipment for the Beginner, Sunday and Fun Flyer. More items for the do-it-yourselfer; more products from most major manufacturers, in addition to many Ace exclusives. Greatly enlarged HANDBOOK section. Last year this was called "bible for R/C", "a MUST!" by R/C editors. Price is just $1.00 POST-PAID. This is completely refundable on your first order! And that order also puts you on our mailing list for our newsletters and R/C Data Service —acclaimed the world over. You can't lose—send your buck on a round trip today. It could be the best dollar you ever spent!

It's Bigger!

It's Better!

"Ace Virgin Vinyl Binder. For the protection of your Ace Catalog R/C instructions, data, news letters and much more! Only $2.00



R/C MULTITESTER

A Multitester designer for RC. This Multitester is distributed by Graupner for the European countries and is made especially for them in Japan. It was selected over all others by Graupner as a top RC meter. This gives an indication of the quality and preciseness. This identical meter now is made for Ace R/C for distribution in the United States.

DC milliammeter ranges of 100 and 500 MA; DC volts of 3.5, 7, 14, and 250 volts. Measures resistance in 2000 ohms and 200,000 ohms. 2,000 ohms per volt.

Handy pocket size. Measures 3⅝ by 5 by 1½ inches. Complete with test leads.

No. 22K5—Ace Multitester.....$13.98

ACE RADIO CONTROL • BOX 301 • HIGGINSVILLE, MISSOURI 64037

Name _____

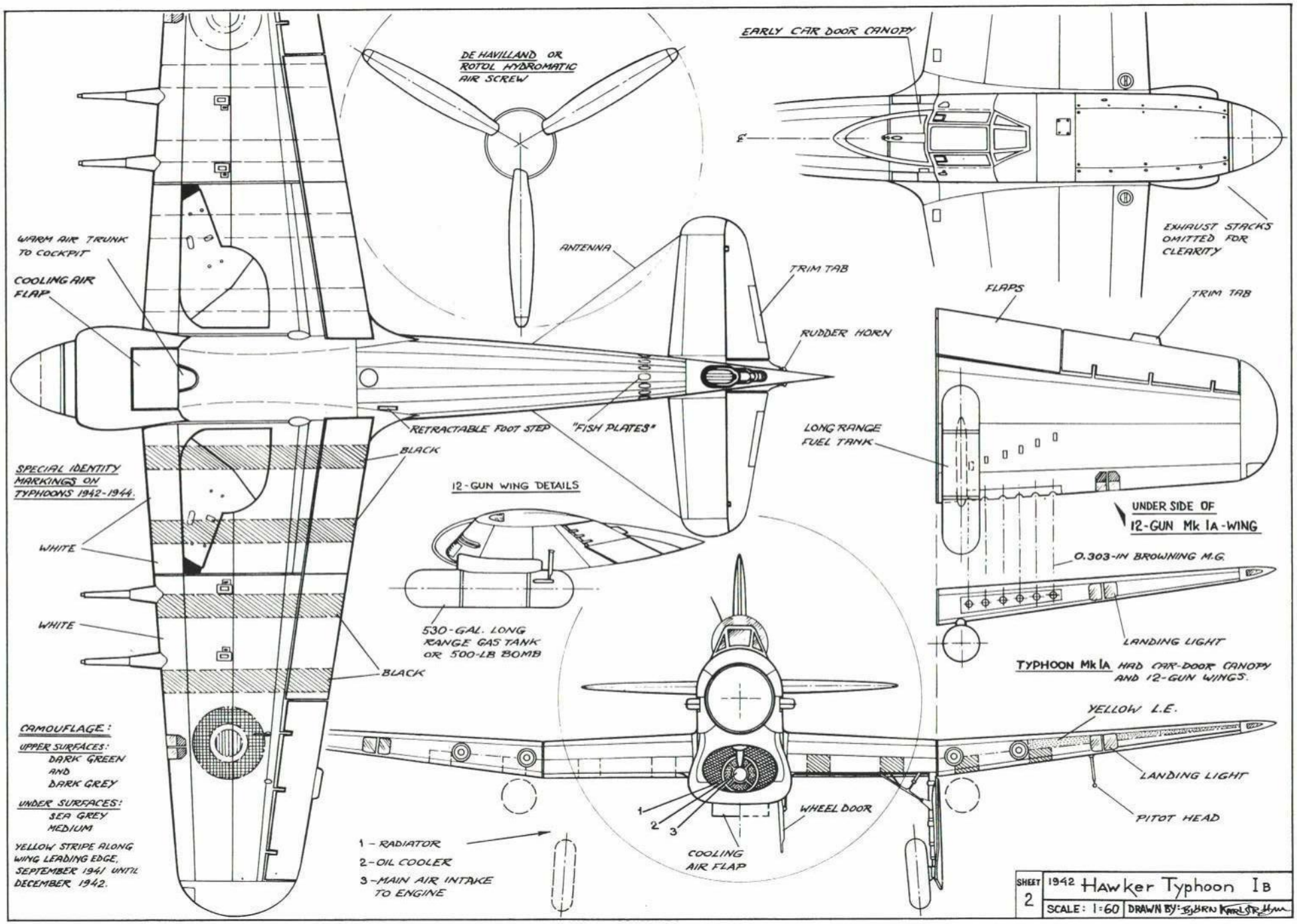
Address _____

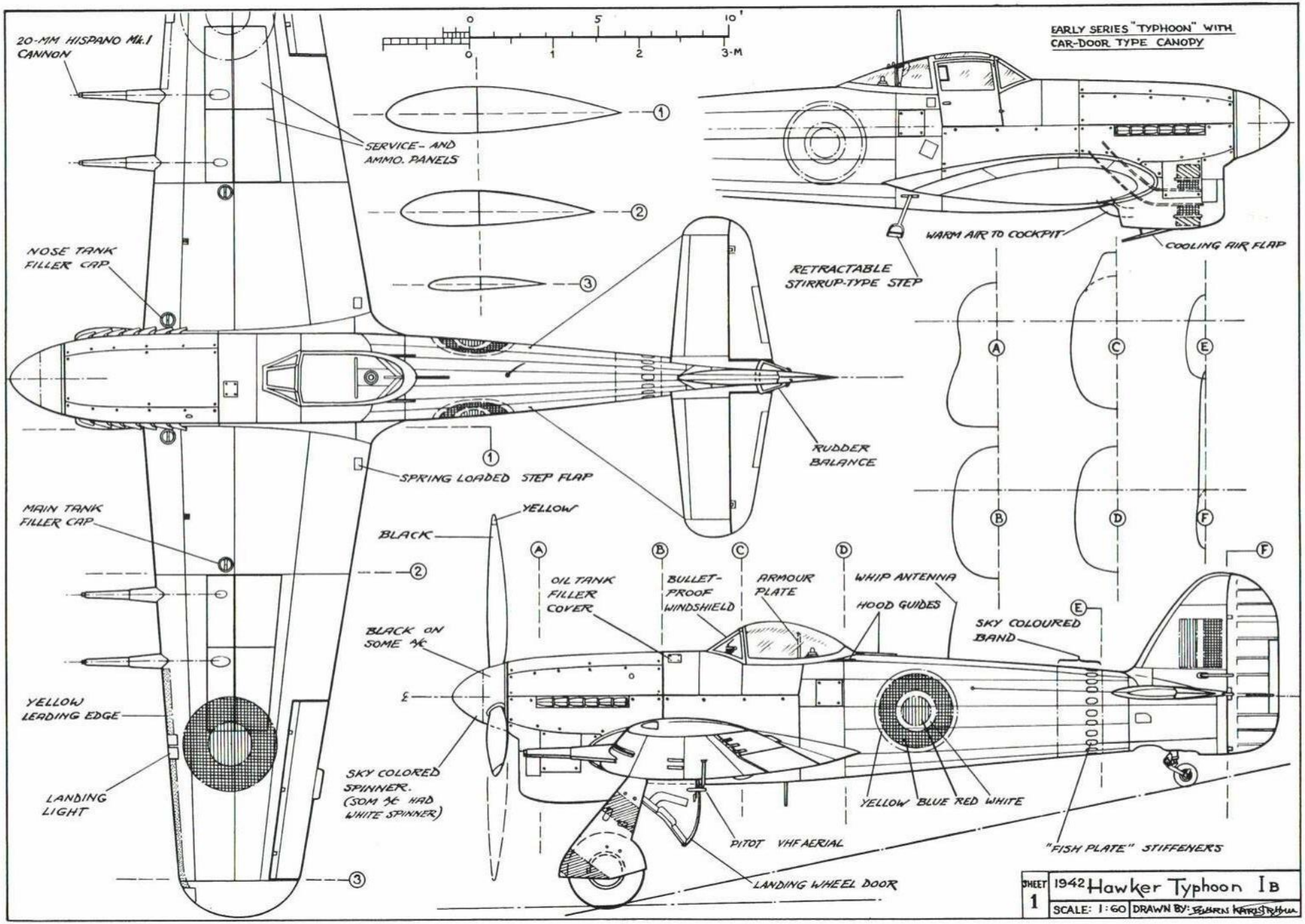
City _____ State _____ Zip _____

QUANTITY	STOCK #	NAME OF ITEM	PRICE	TOTAL

Important: For overseas delivery on catalog or Binder please add 50¢ for additional postage.

Guaranteed delivery anywhere. Orders over $5.00 sent prepaid. Orders under $5.00 please add 50¢ for postage and packing.


DE HAVILLAND OR ROTOL HYDROMATIC AIR SCREW
EARLY CAR DOOR CANOPY
EXHAUST STACKS OMITTED FOR CLEARITY
WARM AIR TRUNK TO COCKPIT
COOLING AIR FLAP
ANTENNA
TRIM TAB
RUDDER HORN
RETRACTABLE FOOT STEP
"FISH PLATES"
BLACK
SPECIAL IDENTITY MARKINGS ON TYPHOONS 1942-1944.
WHITE
WHITE
BLACK
12-GUN WING DETAILS
530-GAL. LONG RANGE GAS TANK OR 500-LB BOMB
FLAPS
TRIM TAB
LONG RANGE FUEL TANK
UNDER SIDE OF 12-GUN Mk IA-WING
0.303-IN BROWNING M.G.
LANDING LIGHT
TYPHOON Mk IA HAD CAR-DOOR CANOPY AND 12-GUN WINGS.
YELLOW L.E.
LANDING LIGHT
PITOT HEAD
WHEEL DOOR
COOLING AIR FLAP
1 - RADIATOR
2 - OIL COOLER
3 - MAIN AIR INTAKE TO ENGINE
CAMOUFLAGE:
UPPER SURFACES: DARK GREEN AND DARK GREY
UNDER SURFACES: SEA GREY MEDIUM
YELLOW STRIPE ALONG WING LEADING EDGE, SEPTEMBER 1941 UNTIL DECEMBER 1942.
SHEET 2
1942 Hawker Typhoon IB
SCALE: 1:60
DRAWN BY: BJERN KARLSTROM


20-MM HISPANO Mk.I CANNON
SERVICE- AND AMMO. PANELS
NOSE TANK FILLER CAP
MAIN TANK FILLER CAP
YELLOW LEADING EDGE
LANDING LIGHT
SPRING LOADED STEP FLAP
RUDDER BALANCE
RETRACTABLE STIRRUP-TYPE STEP
EARLY SERIES "TYPHOON" WITH CAR-DOOR TYPE CANOPY
WARM AIR TO COCKPIT
COOLING AIR FLAP
YELLOW
BLACK
BLACK ON SOME AC
SKY COLORED SPINNER. (SOM AC HAD WHITE SPINNER)
OIL TANK FILLER COVER
BULLET-PROOF WINDSHIELD
ARMOUR PLATE
WHIP ANTENNA
HOOD GUIDES
SKY COLOURED BAND
YELLOW BLUE RED WHITE
PITOT VHF AERIAL
LANDING WHEEL DOOR
"FISH PLATE" STIFFENERS
SHEET 1
1942 Hawker Typhoon IB
SCALE: 1:60
DRAWN BY:

GETTING STARTED IN R/C

Model boats have special R/C requirements; steam, gas, and electric power each offer particular problems.

HOWARD McENTEE

THIS series, which has run about two years, has been aimed almost exclusively at the R/C model *plane* builder and experimenter. But letters from readers have reminded us that the plane boys don't have an exclusive on R/C; model boating via radio is growing at a rapid pace too.

Actually, of course, most of the monthly installments of *Getting Started* could apply in some ways to model boating — or to model cars or other R/C activity. Parts 7 and 15, in fact, are the only ones that are of primary interest to plane enthusiasts only. Since some of the back issues carrying this feature may be out of print, we suggest the boatmen obtain the "Getting Started in R/C" book ($1.25, from the publishers of this magazine).

The license requirements for model boatmen are much the same as for planes — with one big exception. *Only* model planes may be operated with 72-76 MHz equipment. There is a move afoot to open this band to other R/C hobbyists, however, and the FCC may eventually allow it. Licensing was covered in Part 4 of the mag series (or Chap. 2 in the book).

There are basic differences between plane and boat R/C. For one thing, many boats (all except the real speedsters) are not too fast, thus they don't require the very rapid and precise multi-proportional control that is almost universal in larger planes. There are fine bargains available in multi-reed apparatus today, much of which would be ideal for many boat uses. You can obtain complete reed systems (with all batteries and charger) that will handle five controls, for well under $100! Not only are they low in cost, but reed systems are the most interference-resistant.

Parts placement in boats can be quite different than in planes. In the latter, for example, the servos are almost always grouped together under (or over) the wing. In boats this weight concentration near the center of gravity isn't so important; many R/C boats have the steering servo right next to the rudder post at the stern. Batteries and receiver can be shifted over a far wider range to achieve balance, than in planes.

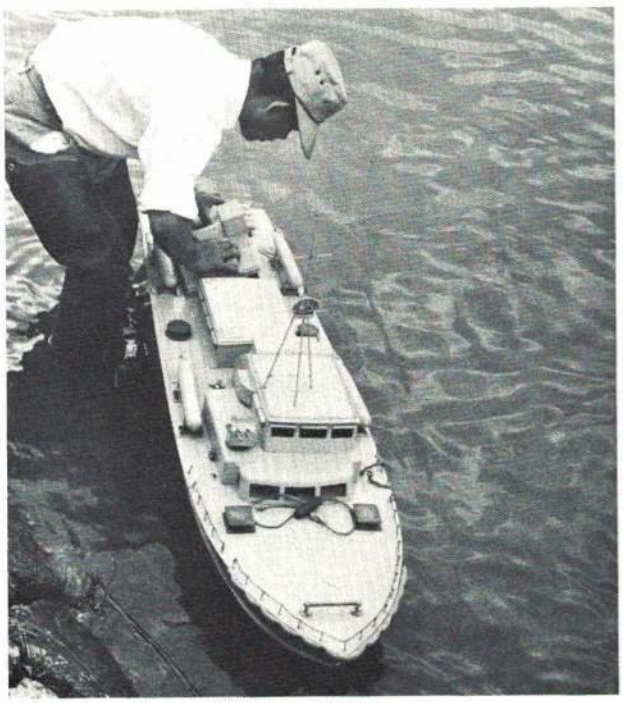
Since boats are generally much heavier than planes, vibration from internal combustion engines may not be so severe — though it must still be considered. But many boats have electric drive — just about eliminating vibration completely. Electric drive can bring in its own special problems. The heavy drive-motor current produces considerable brush sparking, which may bother some receivers. Here, digital equipment would be most vulnerable (though it doesn't present an insurmountable problem by any means), and reeds would probably be least affected. Standard interference-reduction methods, as practiced on R/C servos (but possibly with heavier-duty components such as RF chokes), should clear this up.

Model boats bring up some special R/C requirements of their own. On a large sailboat, for example, a normal R/C servo might be adequate for moving the rudder, but such a servo probably couldn't handle the heavy sail loads. Special sail servos are required for another reason anyhow; standard (model plane) servos produce a total movement of perhaps $\frac{5}{8}$ to $\frac{3}{4}$" — but large sails may need to be moved 8" or more! Model marine suppliers offer special sail servos, having the required power and range of movement. Some of these tie right into the receiver circuitry. Others may be switched for the desired action via a standard R/C servo linked to a toggle or other battery-power switch. On some boats a single servo is linked to two sails (mainsail and jib, for example), on others a separate servo or winch handles each sail separately.

The larger and faster speedboats often require more power to move the rudder than standard plane servos will provide. Some boatmen have linked two servos "in parallel"; both are driven in the same direction from the same receiver circuit, and the two output arms are linked together to provide double power. And again, special high power boat servos are available from suppliers.

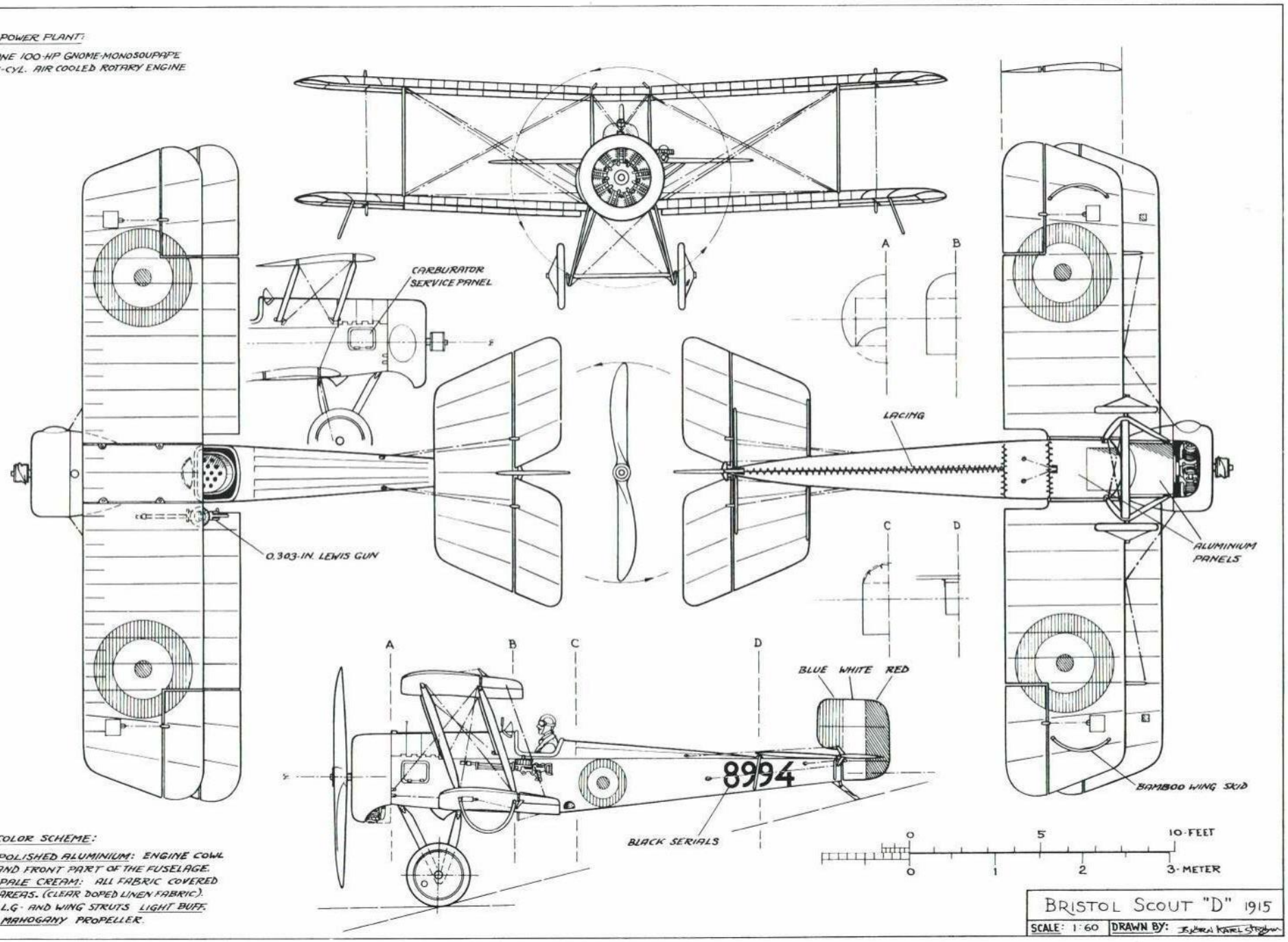
Model steamboats have a special hazard — the below-decks area is usually full of steam so that humidity is close to 100%. This

Continued on page 73

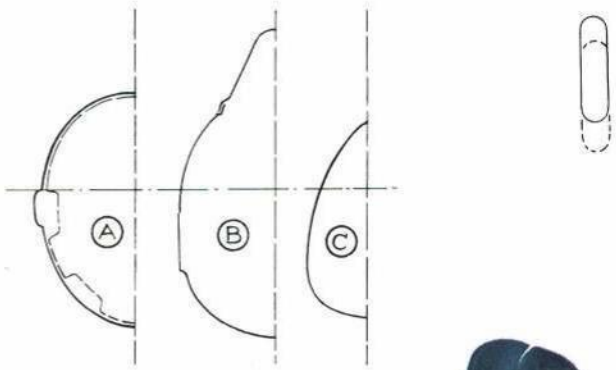


Generally, model boats have long useful life, so highly detailed, large-sized models are not uncommon. Japanese modeler prepares electric-started 50-cc powered PT.

Dr. Del Johnson poses with two Star Class sailboats — his and Frank Kelley's. Only three R/C channels are used in each: jib sheet, main sheet, and rudder. It's one of those rare, windless, useless days.


POWER PLANT:
ONE 100-HP GNOME-MONOSOUPAPE
9-CYL. AIR COOLED ROTARY ENGINE
CARBURATOR SERVICE PANEL
0.303-IN. LEWIS GUN
LACING
ALUMINIUM PANELS
BAMBOO WING SKID
BLUE WHITE RED
8994
BLACK SERIALS
A
B
C
D
COLOR SCHEME:
POLISHED ALUMINIUM: ENGINE COWL AND FRONT PART OF THE FUSELAGE.
PALE CREAM: ALL FABRIC COVERED AREAS. (CLEAR DOPED LINEN FABRIC).
L.G. AND WING STRUTS LIGHT BUFF.
MAHOGANY PROPELLER.
0 5 10-FEET
0 1 2 3-METER
BRISTOL SCOUT "D" 1915
SCALE: 1:60
DRAWN BY:


0
5
10'
0
1
2
3 M.


A
B
C

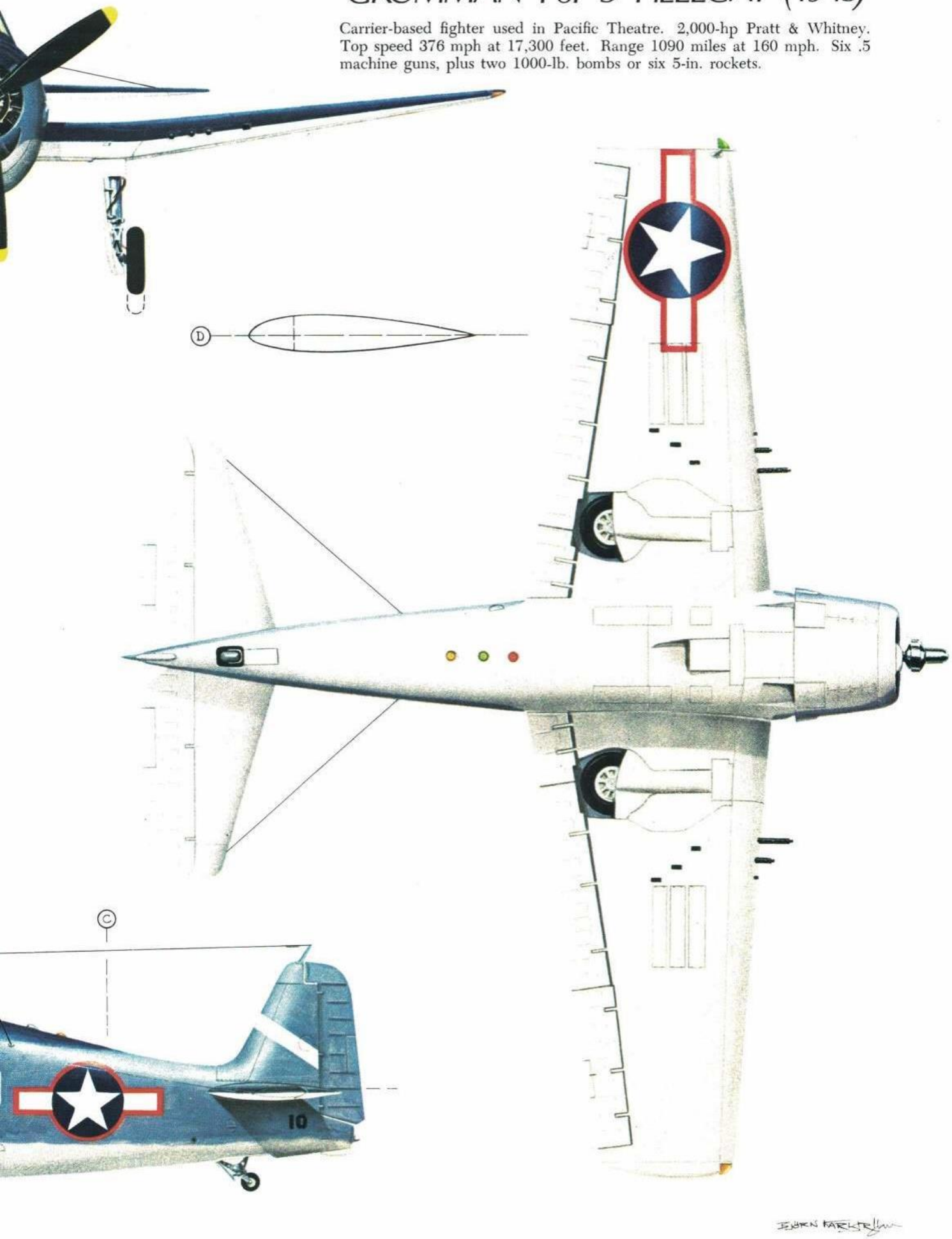
D

A
B
E

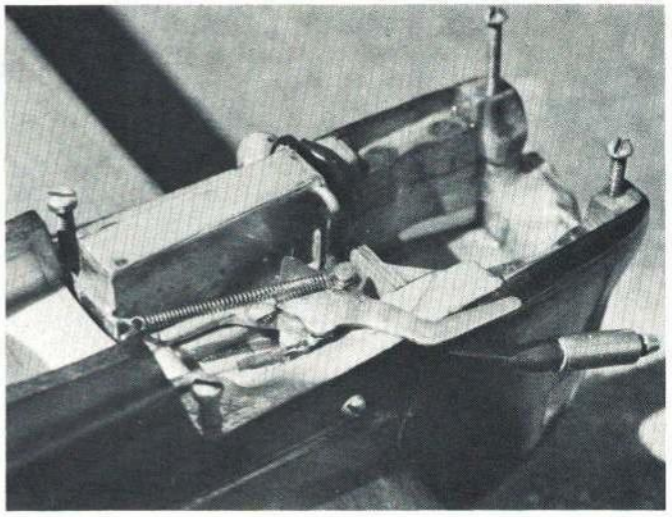
American Aircraft Modeler album of all-time favorites:

GRUMMAN F6F-3 HELLCAT (1943)

Carrier-based fighter used in Pacific Theatre. 2,000-hp Pratt & Whitney. Top speed 376 mph at 17,300 feet. Range 1090 miles at 160 mph. Six .5 machine guns, plus two 1000-lb. bombs or six 5-in. rockets.



Unconventional team racer by Zoloterverch/Kobets has extremely wide propeller blades, fully enveloping pan front and shut-off re-set button. Deep-bellied fuselage is faired to almost envelope monowheel landing gear.



Nifty spring-loaded shut-off by Babichev/Krasnorutsky is tripped by pull from elevator horn. You can just see the semi-buried tube from elevator horn. Front of cowl is incorporated in pan.

Champions' Techniques

Much-modified engines with home-made gadgets and specialized fuel systems were used by all competitors at the Control-Line World Championships.

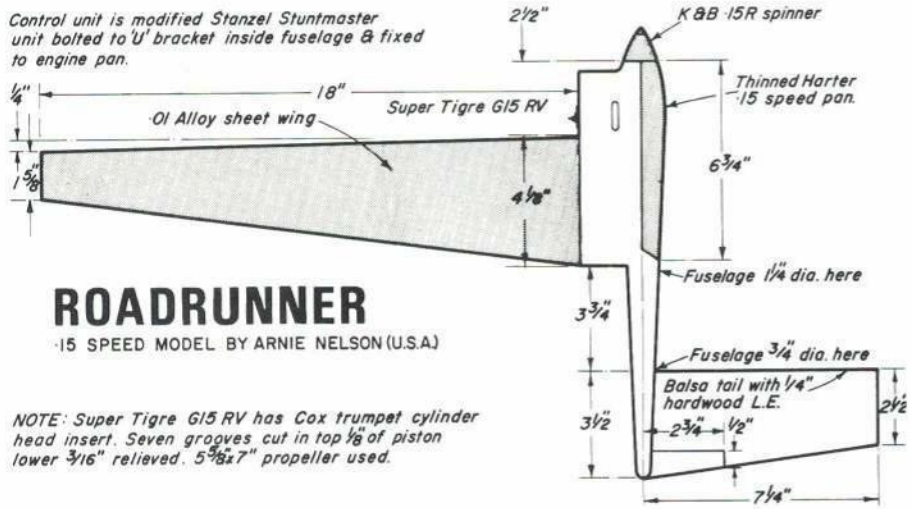
JOHN D. FRANKLIN

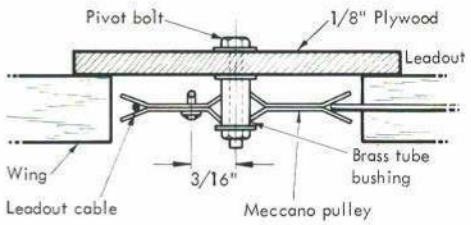
Neatest removable tailskid for team racers seen for many years, was on the Dunkin/Wright (U.S.A.) team racer. Principle of operation is that the brass tube is buried in the model with a spring wire just breaking into the inside diameter, through a groove filed in one side of the tube. The 12 s.w.g. piano-wire tailskid is a push-fit into the brass tube, and also has a groove filed across one side for the brass tube slot to line up with, and the spring to fall into. This locks the tailskid in place. To remove, the skid is turned through 90 degrees to push the spring out of the slot, and then withdrawn.

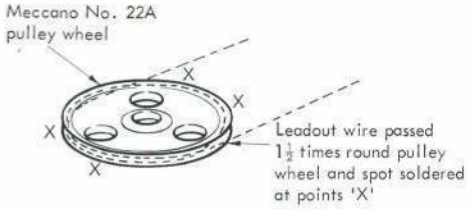
Circular bellcranks are used by many contestants for neater installations and smoother control action. South Africans Holz/Menges used a brass Meccano Pulley Wheel No. 22A with the bushed center. This is 1" diameter; they drill the pushrod fixing hole $^3/_{16}$" from the center, giving the gearing of a 2 x $^3/_8$" normal bellcrank. The flexible leadout wire is wrapped 1½ times around the wheel and spot-soldered to anchor it. Apart from making a neat installation (only a 1"-diameter hole needed in wing center) the leadout wires can be run through narrow tubes buried in the wings, as the wheel does not create the backward and forward movement on the leadouts as does a conventional bellcrank.

The Russians Babichev/Krasnorutsky had two good ideas on their team racer. As well as having a cutout operated by the down line for fast pit-stops this model had a pan that enveloped the rear exhaust motor front housing to form part of the front cowl. Their wheel is a home-made tire molding, that can't come off the hub due to a central retaining flange. The alloy hub is machined first and then inserted into a rubber injection molding die, so the two-part cold-setting rubber mix can be injected all around the hub. Using a very hard rubber they have an excellent wheel with a permanently fixed tire. (One can't afford the time to replace a tire in team race pit-stops.)

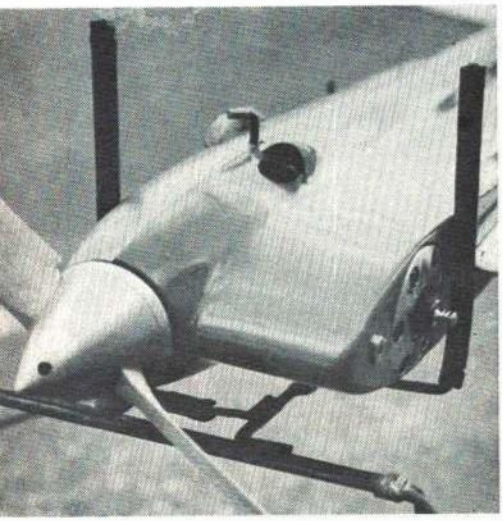
When a team-race engine is set for maximum economy, the fuel supply is often marginal for getting the model off the ground, and motors often cut for this reason just after release. Babichev/Krasnorutsky used a twin fuel supply to the venturi to overcome this problem. Their tank is normal, in that it has the normal overflow priming pipe, air vent and fuel tube to the needle valve. They fill through a spring-loaded valve on the side of the tank and use an extra fuel line from the filler valve body, outside the valve, to the rear of the ven-



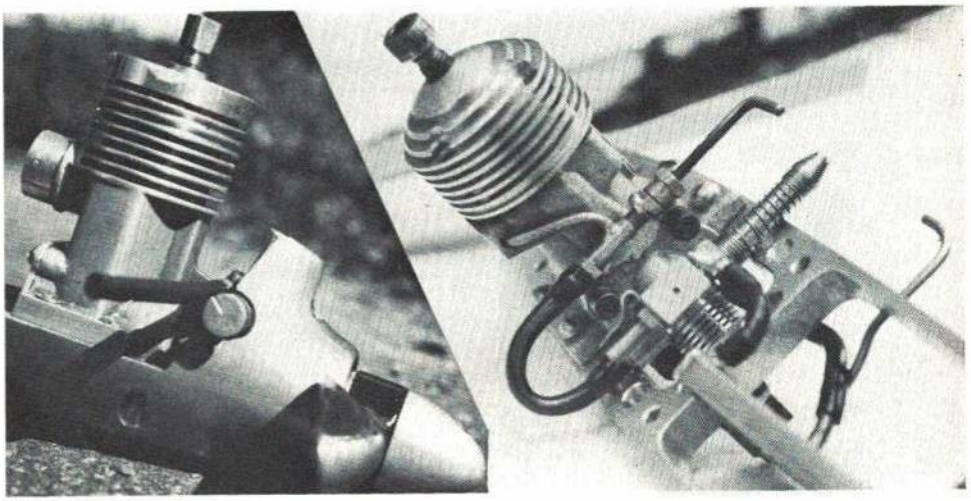




MECCANO CIRCULAR BELLCRANK
by N. Holz and B. Menges (South Africa)



Close up of Arni Nelson's T.W.A. "Roadrunner." Fiberglass molded fuselage has small cooling duct. Note black-rubber fuel tube over dolly posts and thin cuffed-root propeller. Fiberglass fuselage at front of pipe helps keep pipe temperature uniform.



Rear-exhaust team race engine was handmade by Boris Krasnorutsky. Note enveloping front end of aluminum pan.

Extra needle valve mounted on rear of Hasling brothers H. P. 15D meters amount of exhaust prime. Stockton/Jehlik thought this unnecessary when they saw it — but promptly flooded their H. P. 15D in final race.

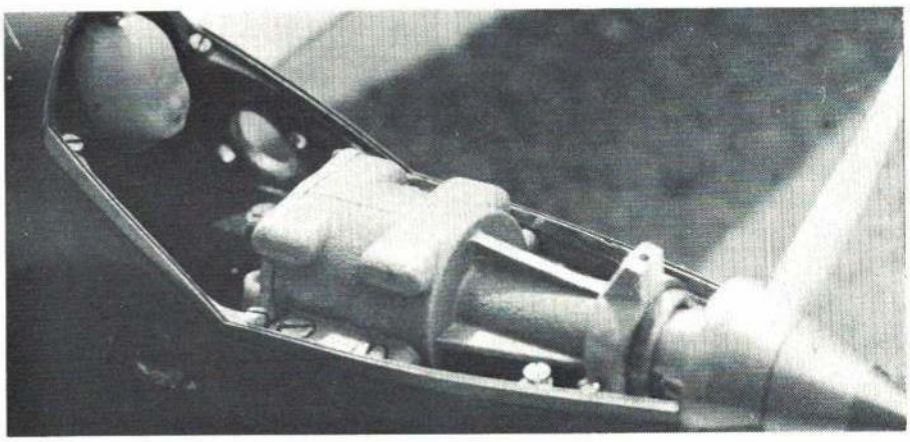
turi. When they fill the tank they also fill this length of tube, so for the first few seconds of the engine run, it is running on its normal fuel supply from the needle valve, and the amount contained in this tube, which is sucked into the rear of the venturi through a fixed-size jet. Their starts were very good and the run was noticeably rich for the first half lap with blue smoke streaming from the model.

The trend in speed models from nearly every nation was toward a "Pink Lady" style model. Few seem to be trying their own designs and the low-aspect ratio Stuppi types. The T.W.A. group were taking orders for their engine and several were given away at the meeting. No one knows what the M.V.V.S. pipe engine will look like, but if the current political situation allows development to continue, it should be very much influenced by the T.W.A. that Bill Wisniewski gave to Josef Sladky. The Hungarian Moki's were a lot slower than expected, and seem to have gone over the hill; they will have to work pretty hard to get them into the 160 mph region.

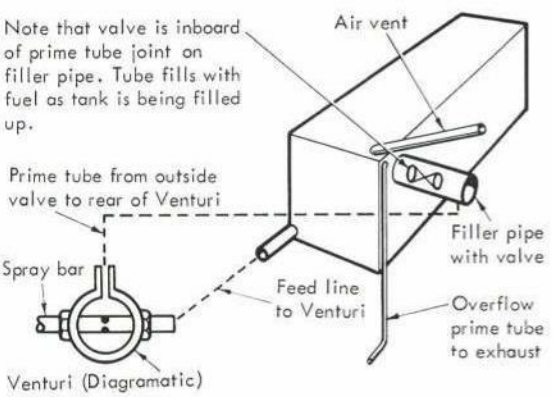
In team racing there seems to be very little between any of the makes of engine, and in the right hands, all of them would have turned in almost identical times. (We are not talking about standard engines, as nearly every engine used at these international meetings is modified in some way or another.) The long-awaited H.P. .15D was flown by several contestants, but these were not production motors. These were all part of a large batch of prototypes made by the Austrian factory. We were given to understand that the 15 will not be in production for a long while yet — if ever! This is because the 60 R/C must take preference for commercial reasons and the 15 involves too much hard work. The 60, being larger, lends itself to normal automatic industrial processes much better, so eliminating handwork and lowering costs. While the factory have some 15 components in stock, they do not have all the parts required to make complete engines. Stockton/Jehlik's H.P. was basically stock except for the homemade Cox 049 engine's drum-valve fuel induction system.

The experienced Russian race team of Zoloterverch/Kobets had a most interesting model with a deep fuselage that com-

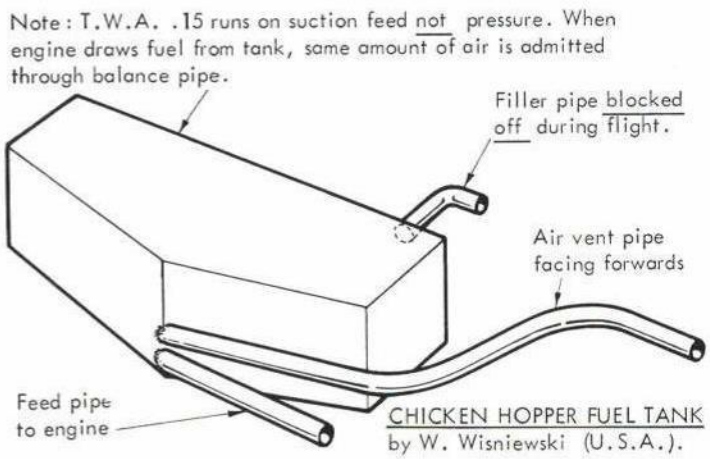
(Continued on page 52)



Neat fiberglass fuselage and M.V.V.S. "Team Race Special." 15 Diesel installation by Klemm of Czechoslovakia. Brass edging strips keep canopy in place. Doll's-head pilot meets rules but is not scale as rules intended.



RICH ENGINE RUNNING SYSTEM
by Babichev/Krasnorutsky (U.S.S.R.)



CHICKEN HOPPER FUEL TANK
by W. Wisniewski (U.S.A.).

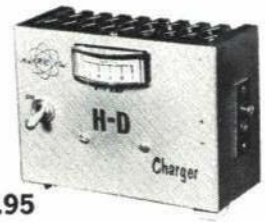
WE HAVE MOST EVERYTHING

NICKLE-CADS

#2 CELL	#3 CELL	KOH PELLETS
#2—4 Amp Cell		1.95
#3—7 Amp Cell		4.50
KOH Pellets		.50

COX THERMAL HOPPER

.049 ..... 6.95



$13.95

ACE H-D CHARGER
IDEAL FOR #2 OR #3
NICKLE-CAD CELLS

12" Folding Prop	2.00
Chrome Mylar Sheet	.35
1/10 Second Stop Watch	18.50
Cleveland 36" Black Widow	3.00
Dyna Jet Engine	49.50
Tatone U-Control Handle	1.75
Profile Publications	Ea. .50
World Engines Catalog	.75
Unimat Lathe, F.O.B.	139.50

WE HAVE IGNITION ENGINE PARTS
☐ SEND FOR FREE LIST

STARTING CELL

#3 CELL $4.95

#3 Nickle-Cad Cell with Glo Plug Clip
$5.55 Value 4.95

COX SPACE BUG

.049 ..... 6.95

WANTED

We buy and trade used engines and RC gear. Send us a list today of what you have.

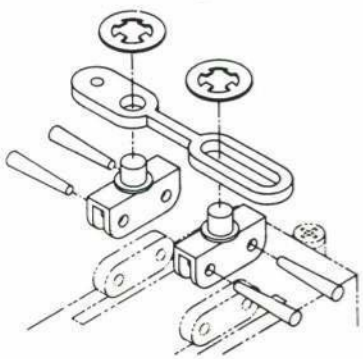
Stanton Hobby Shop Inc.

4734 North Milwaukee Avenue
Chicago, Illinois 60630
Telephone 545-8185 area code 312

STANTON SPECIALS

HUNDREDS OF CLOSE-OUTS
& USED ITEMS
SEND 10¢ FOR SPECIALS CATALOG

NEW! Throttle Device for Log III Servo



This device was designed for the new Logitrol MINI-MITE Servo and will give an easy hook-up for throttle. It will increase servo throw to 3/4" and allow override at each end of travel. The override is achieved through the flexure of the small beam in the center of the arm. Molded from NYLON and sold with our usual guarantee. Price .59 ¢ each. M.O. cust. add .25¢ postage, five or more accessories sent P.P.

ROCKET CITY SPECIALTIES
1901 Polk Drive, N.E.
Huntsville, Alabama 35801

Race Cars by radio control!

We have parts you need to make fast reliable GT or Indy cars. 12" wheelbase, 1/8 scale. Bodies, clutch, gearbox, chassis, suspension, engines and accessories in kit form or assembled. Use 2 or 3 channel radio. 25 cent brochure tells full story. Race clubs are forming now!

Ra/Car Developments
Dept. A, 1622 E. Maywood
Santa Ana, Calif. 92705

8 OUT OF 9 NATIONAL CHAMPS USE

E-Z JUST CONTROL HANDLES

"Hot-Rock", ideal for everything from 1/2A's to speed. Pre-formed loops for quick hook-up. Pull-tested for 150 lbs. min. Hot fuel-resistant plastic handle. 4" size. $1.25

E-Z-JUST TEST STANDS. Quick, sure lock-up for any engine..... $2.25

At All Leading Dealers

PHIL-LEYS
BUFFALO 25, N.Y.

Tatone HEAVY DUTY STEERABLE NOSE GEARS

THE MOST VERSATILE EVER OFFERED ✶ Wheel Drag Brake included

TATONE PRODUCTS Dept. AA-5 4719 Mission St., San Francisco, Calif. 94112

SEPTEMBER 1969

MODEL AVIATION

Official magazine

A.M.A. NEWS

Academy of Model Aeronautics • 1239 Vermont Avenue N.W., Washington, DC 20005

First AMA Member Around Moon Receives Distinguished Service Award

AMA is proud of its member, USAF Col. Frank Borman, command pilot for last Christmas' Apollo VIII moon flight. As a small measure of AMA's esteem, he was presented with the AMA Distinguished Service Award in a ceremony at Washington, D.C., last May, attended by seven past presidents of AMA and current AMA President John Patton, who presented the plaque. In a letter written by Col. Borman upon returning to the NASA Houston Manned Spacecraft Center, he said, "Thank you for sending me the plaque commemorating the successful Apollo VIII flight. This is a wonderful salute to my efforts as a voyager around the moon, and I am most grateful to you for your thoughtfulness in providing me with a plaque of such beautiful workmanship. I am glad that I could distinguish the organization by being its first member to circle the moon."

In Washington last May for the AMA Distinguished Service Award presentation were (L to R) former AMA Presidents John Worth, D.C. (1963-Jan. 1964), current AMA executive director, and Al Lewis, N. Y. (1938); current AMA President John Patton, Md.; Col. Frank Borman, recipient; and former AMA Presidents Walt Good, Md. (1958-1960), Willis Brown, Md. (1936-1937), Maynard Hill, Md. (Feb. 1964-Dec. 1964), Howard Johnson, Calif. (1965-1966) and Frank Bushey, Conn. (1952).

FAI Control Line Scale

As time goes on it seems increasingly likely that Control Line Scale may be elevated to World Championship status, just as it seems probable that the RC Scale World Championship may be authorized for France in 1970 (and the host's offer may be expanded to include CL Scale). Such authorization, if granted, would come at the November meeting in Paris of the Federation Aeronautique Internationale (FAI) Committee for International Aero Modeling (CIAM). AMA is the U. S. representative of this worldwide body by authorization of the National Aeronautic Association.

Contingency plans have already been brought into play for use of 1969 National Contest results for RC Scale and CL Scale to determine U. S. teams for the possible 1970 World Championships. It has been the policy of AMA, established by the Executive Council, to field U. S. teams for all official FAI World Championships whenever possible.

The international FAI RC Scale rules have previously been published in these pages as well as in the 1969 AMA rule book, page 80. The first part of the already-available rules, sections numbered 6.1.1 through 6.1.11, are applicable equally to Radio Control Scale and Control Line Scale. These sections relate chiefly to the system of judging fidelity to scale and craftsmanship, proof of scale requirements and general contest conditions.

The rules which follow apply only to FAI Control Line Scale; they define how to judge the flight portion of a contest and enumerate special conditions required for models.

It is interesting to note that the CL flight judging is similar to RC judging in that the rules provide for giving maximum points for duplicating flight characteristics of the prototype. In this way, any given type of aircraft should not have an advantage over another.

The methods of final scoring for CL and RC are dissimilar. In CL, the points for fidelity to scale and craftsmanship are added to flight points for final scoring. In RC, the final scoring is done by a formula which, essentially, multiplies the flight score times the fidelity/craftsmanship score.

Use the rules below, together with sections 6.1.1 through 6.1.11, to make up the complete FAI Control Line Scale rules.

6.2 CONTROL LINE FLYING SCALE REGULATIONS

6.2.1. General Characteristics:
Maximum surface area: 150 dm^2 (2325 sq. in.)
Maximum weight: The weight of the complete model, less fuel, shall not exceed 5 kg (11 lbs.) except that a model of a prototype using more than one engine shall not exceed 7 kg (15 lbs., 6 oz.).
Maximum loading: 150 gr./dm^2 (49.14 oz. per sq. ft.)
Motive Power
a) Piston motors: the total swept volume of the motor or motors shall not exceed 10 cm^3 (.61 cu. in.) except that in a model of a prototype using more than one engine, the total swept volume of the motors shall not exceed 20 cm^3 (1.22 cu. in.).
b) Direct reaction motors (rockets excluded).
1. Maximum weight of bare reactor: .5 kg (17.6 oz.).

6.2.2. Control Mechanism: Before each flight the entire control mechanism, including control lines and their attachments to the model and control handle, shall be subject to a pull test equal to 10 times the weight of the model, with a maximum of 35 kg (77.2 lbs.).

Control line length (center point of hand grip to vertical center line of model) shall be not less than 15 meters (49.2 ft.) or more than 20 meters (65.6 ft.), except in the case of models with motors of 2.5 cc (.1526 cu. in.) or less, then the lines may be 12 m (39.4 ft.) to 20 m (65.6 ft.).

6.2.3. Definition of an attempt: There is an attempt when:
a) the model fails to take off within the three minutes allowed the competitor.
b) the model takes off, but fails to achieve an official flight.
c) jettisoning occurs.
N. B. An attempt can be repeated at the judges discretion only when, for any unforeseen reason outside the control of the competitor or organizers, the model fails to start.

6.2.4. Definition of an official flight: A flight is an official flight when the model has completed ten laps or turns of the circle from point of take-off.

6.2.5. Number of flights: Each contestant shall have 2 attempts to complete each of two official flight programs.

6.2.6. Flying time: Competitors must be called at least 5 minutes before they are required to occupy starting area.

Each contestant shall have 7 minutes to complete each flight program. Time shall start when contestant begins to crank engine or two minutes after entering the starting area, whichever is first. Model must become airborne within the first three minutes (plus one minute for each additional engine).

A multi-engine model shall be allowed one additional minute for each engine in excess of one.

No points may be scored after the expiration of the time limit (7 minutes plus one minute for each added engine).

6.2.7. Flight:

6.2.7.1 Take-off	K=2
6.2.7.2 Realism in Flight	K=4
6.2.7.3 Optional demonstration	
6.2.7.4 Optional demonstration	
6.2.7.5 Optional demonstration	
6.2.7.6 Optional demonstration	
6.2.7.7 Optional demonstration	
6.2.7.8 Landing	K=2
6.2.7.9 Taxi demonstration — engine cut off	K=2

6.2.8. Optional demonstrations: Contestant shall give evidence that his subject normally performed each selected option.

Optional selections must be announced to judges in writing before take off.

The five optional demonstrations shall be selected from the following list (the options may be flown in any order, but contestants must indicate flight plan to the judges before flight):

A. Multi engines option. All engines must be running at take off and shall continue to run for at least five laps. K=2

Note: K=2 applies to all multi engine subjects; no points are awarded for each individual engine.

B. Retract and extend landing gear. Gear may be retracted immediately after take off and extended for landing. K=4

C. Retract and extend flaps. If prototype used flaps for take off model shall also. Flaps shall be retracted for flight. If prototype used flaps for maneuvering, models may also; flaps shall be lowered for landing. K=2

D. Drop bombs or fuel tanks. If bombs are carried internally bomb bay doors shall open, bomb drop, and doors reclose for maximum score; if bombs or fuel tanks are carried externally, they may be dropped as per prototype. k=2

E. 3 laps of turns at 45° line angle. K=2

F. 1 inside loop. K=2

G. 3 inverted laps K=3

H. Wingover K=2

I. Figure 8 K=2

J. Touch and go. Model should land normally and take off again without coming to a stop: precision and smoothness of landing and take off will be judged. K=3

K. Throttle control shall be demonstrated by landing with the engine still running. Throttle control should be demonstrated only once for score, either during touch and go or during final landing. K=1

L. Parachute. If prototype was used to drop cargo or men via parachute, competitor may demonstrate such an operation during his flight — if prototype uses a parachute in landing, competitor may demonstrate such landings. K=3

M. Contestant may demonstrate a flight function of his own choice. He must supply evidence that this function was performed by his subject. He must indicate to the Flight Judges the nature of his demonstration before going to the flight line. The flight judges shall determine K value, before flight, based on relative difficulty of demonstration. K=1 to 3

6.2.9. Marking (flight points): Each maneuver may be awarded marks between 0 and 10 by each judge during the flight. These marks are multiplied by a coefficient which varies with the difficulty of the maneuvers.

6.2.10. Flight score: Flight score shall be the aggregate sum of points awarded in 6.2.7 by the three judges.

6.2.11. Scoring: Add the points earned in 6.1.11 to the score of the best flight under 6.2.10.

The Avro Lancaster bomber of Linton Keith, San Jose, Calif., at 17 lbs. exceeds the FAI CL Flying scale maximum weight of 15 lbs. 6 ozs. for multi-engine models. Keith's model is two-time Nats Open CL Flying Scale winner (1967 and 1968). The model is powered by four Super Tigre 23's, has operable turrets, bomb bay doors and lights. Shot from 1968 Olathe Nats.

Sets 220 Mile RC Record

Bill Bertrand, Allen Park, Michigan, flew his radio control model from Windsor to Toronto in Canada to claim what is believed to be a new FAI World Record. Distance covered during the May 3 flight was approximately 220 miles, subject to revision by actual distance certification. When accepted by FAI, Bertrand's RC straight line distance record will eclipse the mark of 184 miles achieved by Maynard Hill, Silver Spring, Md., in 1965.

Bertrand used a model of 1100 square inches, powered by a Super Tigre 40 front rotor engine swinging a prop of 12" diameter, 8" pitch. An O & R Pressure Regulator was used in conjunction with a gravity feed fuel tank holding 80 ounces of 50% gasoline fuel. Radio was Micro-Avionics, which operated elevator, engine fuel mixture and ailerons. Airborne batteries were two sets of Alkaline pencells hooked up in parallel.

The flight took 4 hours and 23 minutes, indicating an average speed of about 50 mph. At landing, 8 oz. of fuel remained.

1969 RC Symposium Books Now Available

When one constructs a reproduction of a subject airplane in miniature, with all dimensions scaled by the same factor, this gives assurance that the model will be a recognizable facsimile of the aircraft modeled. Then, after the builder carefully applies the color scheme and markings of the chosen subject so that it takes on the appearance of that airplane in a more definite way, most builders stop in the belief that their model is finished.

"It isn't," said Dave Platt, builder of the radio control SBD Douglas Dauntless which captured more points for scale fidelity and workmanship (at the 1968 Nats) than any other model, RC, CL or FF, at any previous National Contest. The missing "... ingredient is Character. If we forget this, our models will always be just that — nice models; nothing more. We must somehow capture the air, the dignity, the very *soul* of this proud machine that flies or stands on a runway like it is King of the Universe."

Platt, admitting his definition sounds a bit romantic, goes on to define in his opinion what constitutes character in a scale model airplane, tells how such effects are achieved, and lists in order of greatest importance the various character builders. He does this in a paper titled "Adding Realism to the RC Scale Model," the first of nine interesting, timely papers presented during the Twelfth Annual Radio Control Symposium, Silver Spring, Md., under sponsorship of the District of Columbia Radio Control Club, Inc.

The bound volume of papers, 76 pages plus introduction and cover, is must reading for any dedicated RC'er and for others whose interests are in the vein of the various subjects (all scale modelers would find Platt's paper of value, for instance). **The 1969 RC Symposium papers are available from AMA HQ for $2.50 each.**

Other papers within the volume are "The Construction of a Modern Jet Type RC Scale Model," by Paul Sherlock; "The RC Helicopter Model," by John Burkham; "Wankel Engine for RC"; "Tiny RC Planes," by Dave Robelen; "Direct Lift Control with Coupled Flaps and Elevator," by Ed Sweeney and Fred Marks; "The RC Glider: Experiments and Recent Developments," by Ray Smith; "Snoopy's RC Dog House," by Al Signorino and Bernie Murphy; "Critical Mechanical Aspects of the RC Engine," by Dick Hall.

AMA VP's Lament

By Art Schroeder

The business of representing District II has certainly been interesting, although difficult at times. As I am sure you are aware, copious amounts of steam are generated at various times — AMA is too RC oriented; AMA never does anything for RC — AMA is insensitive to the modeling community; AMA changes course at the slightest complaint — too many rules; not enough rules — rules change too rapidly; it takes forever to pass a rule change — the rule book is late; who rushed the rule book? — too much help at headquarters; how come I can't get instant service from headquarters? — dues too high; why doesn't AMA do more things for us? — a self interest group perpetuates themselves on the Executive Council; we need more experience on the Executive Council — too many contest flyers running things; we should have only contest flyers running things — too many contest flyers; boy, we need to encourage contest flying.

All of the above could be called "A Lament from an AMA Official." Really what I'm saying is that the average member has got to get involved in the Academy and the Academy must, in some way, improve its image with its own membership. I guess the important, and overused, word is communication. Currently John Clemens, of Texas, has been employed as P/R man, part time, to begin turning the situation around. I must admit that your District Vice President could become schizoid very rapidly under present conditions.

(Reprinted from *Printed Circuit*, monthly newsletter of the AMA chartered North Jersey Radio Control Club.)

RC Rule Correction

Pylon Formula II. In order to both correct and clarify the Formula II chord thickness rule in Section 23 — Radio Control Pylon Racing — Formula I and II, the following change takes effect immediately.

Under Section 23.4.7.3 chord thickness, Formula II: delete the third (or last) sentence in the first paragraph which begins with "Thickness of wings . . .", and substitute the following:

"Chord thickness may decrease in a straight line taper from root to tip as viewed from leading or trailing edge."

Bill Northrop, Chairman
RC Contest Board

HQ note: The problem with the previous wording was that it required excessive processing effort. The intent of the rule is to have a wing with minimum thickness at the root, with thickness toward the tip being no less than that obtained with a straight line from the root to the tip.

Gene Burnoski photo

Danny Burnoski is proud of the RC Ford Tri Motor built by his dad, Gene Burnoski, Downers Grove, Ill., from modified Smith/Plecan plans. Power is S.T. RC 61 (dummy outboard engines), radio is Logictrol. High lift wing caused risky early flights — necessitated reducing wing incidence.

Murry Frank photos

The June 1 FF meet at Electra, Tex., was almost blown out by 25-35 mph winds. Only the bravest registered to fly, said Contest Director Murry Frank. Tom Peadon, left, of Dallas, Tex., flew model shown in both Class A and B. Dick Mathis, right, also of Dallas, was high-point winner. Weather improved later in day. Net profit from meet to be donated to FAI team fund.

AMA News Bits

Sacramento Paper Features FF

Tear sheets from the Sunday, May 18, "Valley Leisure" section of *The Sacramento Bee* newspaper passed our way compliments of **Chuck Broadhurst**, executive director of the **National Free Flight Society**. Starting off the tabloid-size section's cover was a full page of FF action photos in color — very impressive. On the inside was another page with action photos plus a description of the various kinds of FF flying which take place at monthly **Northern California Free Flight Council** contests during the spring and summer, how to get to the contest site, and how to join the **AMA chartered Capital Condors** model airplane club. It is a fine example of good local model airplane activity coverage.

Elks Take to Wings

The **Presque Isle (Maine) B.P.O. Elks** has converted its lodge basement into a meeting room and workshop for a model airplane club under Elks' sponsorship, reports **Richard Theriault**, vice president of the model club. In January, the 100% AMA member **Presque Isle Model Aero Club received AMA club charter.**

Photo shows **Gary Grivois, Stephen Foster, Richard Theriault** and **Tod Skillings** studiously building control line models. Most club members are beginners. VP Theriault invites anyone who is interested to attend club meetings as well as building and flying sessions. Contact him at 125 Cedar St. for schedule.

Urges Clubsters Fly in Meets

Winding up a report of the **AMA chartered BIRDs 5th Annual Open Contest, Hal Mayberry** had comments for the different reasons members didn't participate:

"I am a Sunday Flyer" (not the club, but the state of mind). If you fall into this category, stop reading now and skip to the other articles (in *Birds Eye Views*, from which this was taken).

"I would have flown, but my radio, airplane, can opener, etc., was broken." To these people go my sympathy, and we will see you at the next contest.

"I would like to, but I am not good enough yet." This is the group that the message is for. If you can land an airplane by yourself, you can fly contests. There were 23 entries in Class A, and many of these were rank beginners — **Debbie Hannon** was in seventh place at the end of three rounds. Did you hear that — Debbie is 16 years old, and she was ahead of 16 "contest" flyers. If Debbie can do it, why not you? Try it; it's kicks.

New MAAC Prexy

Our oak leaf friends to the north have a new president of the **Model Aeronautics Association of Canada** in the person of **D. E. Henshaw**, 3570 Academy Dr., Windsor 21, Ontario. In a recent letter to **AMA Executive Director John Worth**, Henshaw said that "It is our goal to continue to cooperate with AMA in every way possible to improve both our organizations in the future." AMA likewise pledges its mutual cooperation.

The MAAC in Canada issues licenses to model flyers, sanctions model meets, provides modeler insurance, issues flight records, selects World Championship teams, etc., much the same as AMA does in the United States. All Canadian model flyers ought to belong to the MAAC. Write to the **MAAC Secretarial Service**, P. O. Box 10, Islington, Ont., Canada, for application.

SoCal CL Assn. Considering Mufflers

Many radio control clubs have already instituted a muffler requirement for models flown at club fields, and more are doing so every day. Those who have put in such a rule report pleasure both from the lessened jangled nerves of modelers and the increased acceptance by flying field neighbors.

Beginning to creep into the scene is an increased awareness of the noise problem with control line models and the need to do something about it, as evidenced by a recent issue of the **Southern California Control-Line Assn.** *Newsletter* edited by **Jean Mead.** No doubt free flighters in most sections of the country will have to come to grips with this problem sooner or later as communities expand and place housing nearer and nearer to flying sites.

In an editorial in the May CL Newsletter, the relationship between mufflers and flying field use is not debated — that's taken for granted. The problem the editorial deals with is that of a modeler equipping his engine with a muffler, as may be required at various flying fields in the Los Angeles area, and then finding out that he is hopelessly outmatched by models with unmuffled engines at an area contest. The alternative, says the editorial, is for the Southern California CL Association to enact a regulation for contests hosted by member clubs to require mufflers for engines larger than .15 cu. in.

An alternate solution, opposed to by the SCCA editorial writer, is to impose strict penalties on unmuffled contest entries. The **Western Associated Modelers**, active primarily in northern California, has used this system.

Seniors Winning RC

During one day AMA HQ received reports from AMA sanctioned meets in which Senior age entries had either won or placed high in radio control events. One was the **AMA sanctioned Bamberg** (South Carolina) **RC Invitational** on April 19-20, directed by **John Bradham. Al Todd III**, a Senior from Greenwood, S. C., placed first in Class A Pattern over Open entries. The other meet was the **AMA sanctioned 4th Annual Dallas** (Texas) **RC Club Contest**, May 3-4, directed by **Carl Summers**, in which another Senior, **John Jennings**, Dallas, won third in Formula I Goodyear in the combined age event. Good reflexes — congratulations young men!

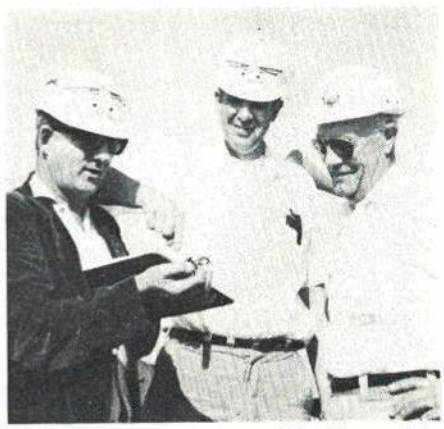
FF Mobile Contest Center

Joe Hawkins, Jim Dyer, Jim Stevenson and **Willard Kehr** of the **AMA chartered Tulsa Glue Dobbers** are nearing completion of a Free Flight Mobile Contest Center, according to the club's *News Letter*. Most likely it will be in operation by the time this issue reaches newsstands. The Mobile Contest Center is mounted on a two-wheel trailer, accounting for its portability. It is designed with a drop table on the back with storage drawers and shelves, and additional storage for contest materials in the front. The trailer has a ridge pole on top, enabling a tarp or tent to be pitched over it. The unit should make much easier the running of the frequent Glue Dobber meets.

C. O. Wright Checks In

Young in spirit, though not so young in years, is **C. O. Wright, the sixth president of AMA** (1949-1950). We'd like to let all those who have been wondering what he has been up to lately know that C. O. has been active in many ways, including taking a new wife, since retiring in 1965 as executive secretary of the **Kansas State Teachers Assn.**

Still active in modeling at age 74, he reports that he hopes to get to **Willow Grove**



John Clemens photo

Fokker D-7, left, by Justin Shumway, Dallas, took Flying Scale at 4th Annual Dallas RC Club Spring Contest. Events heavily contested, particularly Form. I Pylon, 25 entrants. Plastic helmets (right) were issued to all contest personnel — red for contestants, yellow for mechanics, white for officials. Shown are Carl Summers, Contest Director, Bill Knost, Dist. VIII RC CB member, Bill Lank, Dist. VIII VP.

for the **Nats** for at least a day or two. His health is good, although he says he is slowing up some. He likes to be in the sun — spends three hours or so in the garden each day. A hobbyist of multiple interests, a good deal of C. O.'s time is taken in refinishing and repairing old furniture, plus rebuilding old clocks for friends. An interesting project he completed this past winter was the rebuilding of an 1830 Terry clock, with wood gears, which he repaired or rebuilt from apple wood turned on his lathe.

CL 1000-Lap Rat Race

John Kilsdonk, Detroit, Mich., finished the **Mid-American Model Aviation Assn. 1000-Lap Rat Race** with a time of 41 minutes, 39.8 seconds, to come in first. Of the 15 entrants, seven finished the 1000 laps within the allotted time of one hour. The remainder completed from 885 laps (melted plug) to 1½ laps (line tangle). One plane was broken, but there were no other serious mishaps, reports Contest Director **Jerry Martin** of the May 4 **AMA sanctioned** meet at Dayton, Ohio.

RC Great in Hawaii

Radio control model flying in Hawaii takes a back seat to no place, nor does the *Club News* monthly paper of the **AMA chartered Hawaii RC Club** — very professional looking. Catching our attention was a challenge by Contributing Editor **Garry Johnson** for the club to host a State RC Championship this year and for it to send a plane load of modelers to the National Contest in 1971 when it is expected to be in California.

Dad Is Club Secretary

John Clemens photo

Photo shows **Norman Read, Jr.,** 8, preparing to launch a **Jetco ROG,** his first effort with a paper-covered model, during a flying session of the **AMA chartered Dallas Aeromodelers** (Texas). His father, **Norman Read, Sr.,** newly elected club secretary, is a firm believer in the character-building aspects of airplane modeling as well as its educational values in the areas of science, mechanics and aerodynamics. The Reads, Junior and Senior, are also finding that modeling provides a fine vehicle for adult and boy to get together and know each other.

New Safety Committee Chairman

Carl Fries has stepped down from the position of chairman of the **AMA Safety Committee,** a position he held for several years. **Ed Henry,** Berkeley, Mo., has assumed the chairmanship by appointment of **AMA President John Patton.** Henry had previously been a member of the committee. Fries will serve as the committee's **Nats Safety Observer.**

Promotes CL Dive Bombing/Strafing

Despite high winds, the turnout for the April 13 **AMA sanctioned Luftmeisters Custom Tailored Dive Bomb Meet** at New York City was excellent in the opinion of **Mike Agranoff,** assistant Contest Director. He was especially impressed by the turnout of nine Juniors and 10 Seniors. Despite the fact that only four Seniors got balloons, and only one Junior got balloons without crashing (mainly due to the 20-25 mph wind), all made valiant tries with official flights. Agranoff recommends that the event be upgraded from supplemental to official AMA rule status, and that it be included among the Nats events.

RC Wing Rubber Suggestion

The *Newsletter* of the **AMA chartered D.C. Radio Control Club** recently reported the crashing of a member's **Falcon 56** when the rubber bands gave way and allowed the wing and fuselage to part company. This was a fairly experienced pilot who has flown many models at the **Fairchild-Hiller** field in the past year.

He admitted that the bands were getting old. "We note he usually 'doubles' his bands," said the *Newsletter*. "That is, stretches them tight enough to put them around the pegs twice. That's a terrible strain on the bands. Some people prefer to put more bands on (thus increasing the safety in numbers idea) rather than pulling them too tight. On the positive side, this pilot got to low throttle before the fuselage hit and thus minimized damage. Most of us would have just watched with our mouth open."

Suggests National AMA Week

A letter to **AMA HQ** recently suggests promoting the AMA and modeling by holding a **National AMA Week** just as is done by the **Scouts, 4H** and other organizations. During this week, writes **George Fraser,** advisor of the **AMA chartered North Plymouth (Massachusetts) Balsa Bugs,** clubs should make a concentrated effort to obtain local newspaper, radio and TV coverage of their activities. They should also arrange for store window exhibits and other public displays of models. This would also be a fine time for clubs to sponsor parent-son banquets and bestow special awards and honorary memberships to persons who have helped the club throughout the year. A Model Air Show, with free flying lessons for youngsters, is a "natural" for National AMA Week.

The benefits of a successful National AMA Week are obvious, but can it be done? Yes, but like so many things, the degree of success rests mainly with how vigorously it is promoted on the local level. While AMA, through HQ, could provide recommended programs, sample press releases, ideas, etc., these materials would be of little value without local level promotion. The North Plymouth Balsa Bugs is one club that wants a National AMA Week. Are there others — and if so, how many? If there is substantial support for the idea, it could be looked into further. Write to the AMA Vice President for your district, and send a copy to AMA HQ.

Bugs the Circle Burners

John Clemens photo

When **Johnny Clemens** was invited to show the AMA Super-8 movie of the 1968 National Contest to the **AMA chartered Fort Worth Cowtown Circle Burners** (Texas), he stumbled across an interesting story behind the "Wearing of the Bug" as shown in this picture. For a number of years there has been intense rivalry between two of Ft. Worth's clubs. Considering this, the worst punishment that a member of either club can imagine is to have it hinted that he has any connection with the rival club.

The Circle Burners have set up a novel "torture" for any of their members who have "goofed." They have an old broken relic of a model known as the "Balsa Bug," named in honor (?) of the rival club, the **Fort Worth Balsa Bugs.** The torture is for the erring member to have to wear the "Bug," hanging from his neck by a cord, during a club meeting.

If you know of any unique punishments or awards, please share them with us.

Bob Stalick photo

Dan Driscoll photo

Vic Boswell photo

L to R: Gene Lapanzie, Grosse Pt. Woods, Mich., with half size Chet Lanzo old-timer. Workshop shot from beginner program in Oregon using AMA Racers; Willamette Modelers Club teamed with Albany Boys Club and Tangent Rural Fire Protection District. Ken Purzycki, Clifton, N. J., with S.T. 40 Navy Carrier I Bell Airabonita — has 98 mph top speed. Patty Jo Thornhill, Mt. Rainier, Md., with Oily Bird she decorated.

Dist. III RC Club Association

During the **Toledo RC Conference**, on March 1, the First Delegates Meeting of **The Association of RC Clubs, District III** (Ohio, Pa. and W. Va.) was held. Purpose of the association is to promote and assist in a well organized program of RC activity within AMA District III.

Among the specific things the association set out to do: provide assistance in establishing a non-conflicting calendar of RC events, provide assistance to association members (if requested) in conducting meets, encourage all member clubs to sponsor an event (contest or fun-fly), and encourage modelers belonging to member clubs to participate in activities.

SMAE Troubled by Model Flying Near Airport

Modeling in England has received adverse newspaper coverage because an official group, while monitoring jet noise near Heathrow Airport, observed a model airplane believed to be within the approach path of the airport. This was reported by the **Society of Model Aeronautical Engineers** (SMAE), British equivalent of AMA. "The implications arising from a repetition of such an incident cannot be stressed enough; nothing could cause the end of model flying in this country so quickly as official sanctions upon the use of flying fields," said the SMAE.

Model flyers here, as well as throughout the world, must fly in areas well removed from runways and approaches of operating airports.

Slow Combat Popular in Midwest

Judging from various club papers received at AMA HQ, Control Line Slow Combat is popular in several sections of the country, particularly in the midwest. There are variations to local Slow Combat rules, but most we have seen specify plain bearing engines and prohibit pressure fuel systems.

The Slow Combat event at the April 27 **AMA sanctioned Dedication Day Meet** at Cincinnati, O., had 38 entries, attesting to its strong following. Contest Director **Daniel Patton** indicates that he favors including Slow Combat as an AMA event. An AMA member who wishes to propose new rules, or changes to present rules, should refer to page 3 of the 1969 AMA rule book for proper procedure.

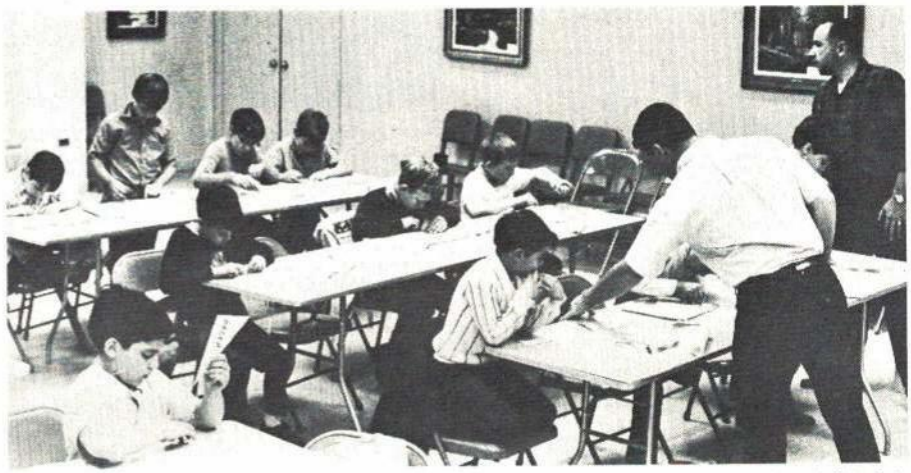
Keep Gates Closed

Alex Chisholm, writing in *Watts New*, publication of the **AMA chartered Fresno Radio Modelers** (Calif.), relates how one California club lost its flying field due to reasons like not picking up trash and, most particularly, for leaving the gate open when the club had been requested by the owner not to do so. The FRM's are in danger of losing their flying privileges at Madera Airport, says Chisholm. A warning has already been received. Not only must both gates at the airport be kept closed at all times, but the last one off the field must padlock both gates.

Model flyers everywhere should pay special attention to keeping fields free of litter and to complying with the requests of the owners. This will pave the way for continued use of these hard-to-come-by flying fields.

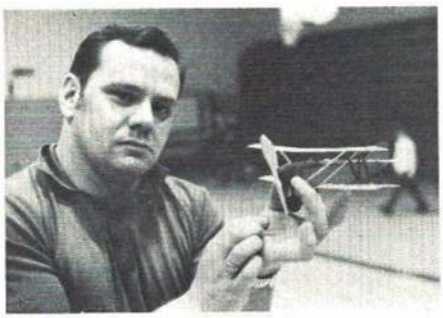
Tries Diesels for CL Goodyear

In reporting on the April 27 **AMA sanctioned Aero Modelers of Aura Control Line Goodyear Meet** at Vineland, N. J., Contest Director **George Hubschmidt** indicates that the event was run by special rules which he believes will, indirectly, promote FAI Team Race participation. What they did was lengthen the Heat and Feature races to 100 laps and 200 laps (standard rules call for 70 and 140) and remove the pit-stop requirements. They found that diesel engines, which have generally been best for FAI Team Racing, faired pretty well under these conditions.



Jean Pailet photo

The Long Island Association of Model Airplane Clubs, in cooperation with Macy's Department Stores, organized a three-session model building course last year. In photo, Stewart Wolff (back to camera) and Bill Dunwoody (far right) are shown assisting youngsters. New JASCO kits also used.



Leonard Goss, Camphill, Pa., displays indoor rubber peanut scale model Sperry Messenger. Wishes others in his area shared his interests.

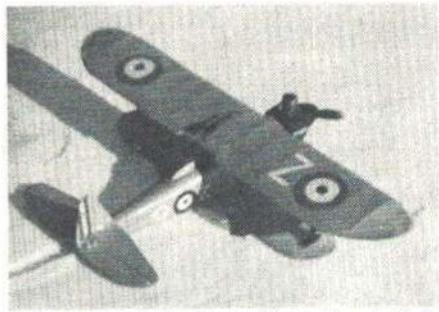
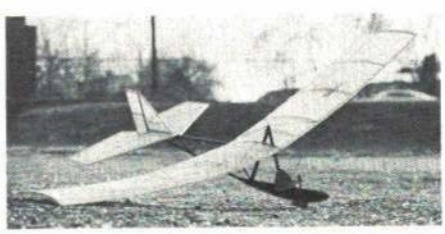


Photo by Chester Karasinski, Jr.

A Flying Fool is his modified SE-5, says builder Chester D. Karasinski, Jr., Marlton, N. J. Presume it is control line, but he didn't say.

The AMA chartered Aquidneck Island Aeromodelers, Middletown, R. I., is a group primarily RC oriented, but some members fly control line and free flight. The photo was taken at the club's flying field on Berkeley Avenue in Middletown. Write AMA HQ for club charter information.



Scale Franklin primary glider, 18" span, flown indoors or outdoors in light wind with 20' thread towline. Does 16-20 seconds indoors.

Many of the photographs in the AMA News section were contributed by AMA members. If your favorite type of model is not pictured, most likely none was received. Your assistance is requested in submitting interesting photos on all subjects, together with sufficient information for captions and photographer's name. Send photos (which cannot be returned) to Picture Editor, AMA HQ, 1239 Vermont Ave., N.W., Washington, D. C. 20005.

AMA News Extra .....

NEW FAI WORLD RECORDS?

RC Duration. With a flight total of 11 hours, 32 minutes, 30 seconds, Maynard Hill, Silver Spring, Md., is believed to have established a new Federation Aeronautique Internationale World Record for Powered Radio Control Duration Models. Hill's flight, just exceeding the previous record held by Bill Bertrand, Allen Park, Mich., by slightly over the required 2%, was set on June 1.

Hill was trying for a flight of over 15 hours which, if successful, would have established a new Absolute World Record (the longest flight irrespective of category), but when the Merco 49's muffler worked loose and fell to the ground after 45 minutes flight time--thereby voiding the attempt--insufficient daylight hours remained for a new start at the 15-hour flight. An approaching thunderstorm during the last few minutes of flight made doubly sure that Maynard could only break the class record.

The Merco was modified by Hill to operate on spark ignition (instead of glow plug). Fuel consumption was reported to be at a remarkably low rate of four ounces per hour.

Indoor Cat. I Duration. Harold Crane, Hampton, Va., has applied for a new FAI record with a flight of 20 minutes, 2 seconds, made on May 18. The flight was made in the Willis School auditorium which has a ceiling height of just over 20 feet, well within the maximum FAI Category I ceiling height of 26 feet. Crane's flight exceeds the record held by Jiri Kalina, Czechoslovakia, at 19 minutes, 20 seconds.

The model Crane used has a wingspan of 31.5" (which is larger than the 65 cm span allowed for FAI Indoor World Championship models). An advisory from the FAI Technical Secretary is that the maximum span for WC models does not apply to records.

SPECIAL NATS RC PYLON AWARD

As this was written the Professional Race Pilot's Association, another of the National Aeronautic Association family of aviation organizations (as is AMA), was set to award the Art Chester Memorial Trophy for Excellence in Scale Aircraft Racing at this year's National Contest. The recipient is slated to be the Formula I RC Pylon Racing entrant who places 1st, 2nd, or 3rd and whose model is judged by the PRPA representative to be best on the basis of scale accuracy and detail consistent with the racing aircraft modeled. Art Chester, the man in whose memory the trophy is named, is noted for his contributions to aircraft racing as an engineer, builder and pilot. The PRPA award was suggested by the AMA affiliated National Miniature Pylon Racing Association.

WITH SADNESS WE REPORT

Richard A. (Dick) Schram was killed on June 4 while performing his "flying professor" act at an air show in Reading, Pa. A captain in the Naval Air Reserves and a former member of the Navy Blue Angels Flying team, Schram had been a crowd pleaser in air shows at a number of AMA's National Contests. His specialty was flying a Piper Cub (usually borrowed locally or rented) in the guise of a student pilot whose plane took off accidentally without the instructor. In this roll he would perform intricate low altitude maneuvers, usually no more than 300 feet above the ground. His many AMA friends mourn his passing.

Mike Des Jardins, Denver, Colo., died June 14 from injuries he sustained the previous Sunday when he and other race car pit workers were hit by flying debris from an out of control car which slammed into the pit area. An AMA member and Contest Director for a number of years, he had also previously been executive director of the National Free Flight Society. He will be sadly missed by all who knew him.

By special arrangement with the publisher this page is produced at the very last minute, just before the magazine is printed, to bring you the latest news concerning current Academy of Model Aeronautics events of national significance.

DIRECTORY OF AMA OFFICERS

Which officers live in your district? Select correct address when writing officers.

EXECUTIVE COUNCIL

President:
John Patton, Route #5, Frederick, Md. 21701
Secretary-Treasurer:
Earl Witt, Longview Trailer Court, R.D. #3, Chambersburg, Pa.
Executive Director
John Worth, c/o AMA Hq., 1239 Vermont Ave. N. W., Washington, D. C. 20005
Vice Presidents
I: Cliff Piper, 391 Elm St., Pittsfield, Mass.
II: A. Schroeder, 18 Spencer Rd., Glen Ridge, N. J.
III: Eva Biddle, 2156 Street Rd., Warrington, Pa.
IV: C. Telford, 8612 Rayburn Rd., Bethesda, Md.
V: Jim Kirkland, 344 Edge Ave., Valparaiso, Fla.
VI: Gosta Johnson, 6810 S. Crandon, Chicago, Ill.
VII: Jack Josaitis, 23663 Lawrence, Dearborn, Mich. 48128
VIII: William Lank, 3143 Rotan Ln., Dallas, Tex. 75229
IX: Stan Chilton, 446 Ida, Wichita, Kans.
X: Vic Cunnyngham, Sr., 4337 Hornbrook St., Baldwin Park, Calif. 91706
XI: R. D. Stalick, 2807 S. Oak St., Albany, Ore.

CONTEST COORDINATORS:

I: W. Leonhardt, P. O. Box 965, Lawrence, Mass. 01841
II: E. F. Hoffman, 158 Carpenter St., Belleville, N. J.
III: E. Biddle, 2156 Street Rd., Warrington, Penna. 18976 (East)
M. Weisenbach, 4568 West 146th St., Cleveland, Ohio 44135 (West)
IV: D. L. Johnson, 3367 Sudlersville So., Laurel, Md.
V: T. McLaughlan, 4140 Fern Ct., Pine Glades, Pensacola, Fla. 32503
VI: Wheland Webb, 15722 Vine Ave., Harvey, Ill. 60449
VII: Odell Marchant, 2004 N. Hillsboro, Minneapolis, Minn. 55427 (North)
W. Hartung, 14759 Kilbourne, Detroit, Mich. 48213 (South)
VIII: M. Frank, 2933 Blankenship, Wichita Falls, Tex. 76308
IX: R. R. Combs, RR #1 Box 712, Morrison, Colo.
X: D. C. Farnsworth, 301 Carl Dr., Visalia, Calif. 93277 (North)
Pete Brandt, 5817 W. Ironwood, Palos Verdes Peninsula, Calif. 90274 (South)
XI: A. L. Grell, Rt. 1 Box 165, Tangent, Ore. 97389

CONTEST BOARD COORDINATOR: Don Lindley, 301 E. Elizabeth Dr., Crown Point, Ind. 46307
Bold type below indicates Chairman of Contest Board.

FREE FLIGHT CONTEST BOARD:

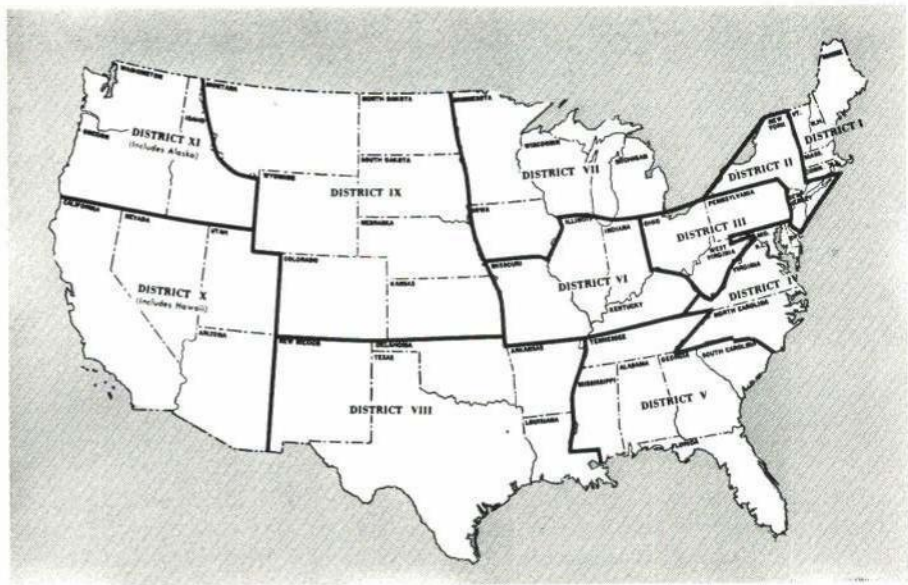
I: Henry Struck, R.F.D. #2, Hamburg, Old Lyme, Conn.
II: E. Fronczek, 34-14 Broadway, Long Island City, N. Y. 11106
III: Robert Leishman, 167 Goldenridge Dr., Levittown, Pa.
IV: J. V. Boyle Jr., 219 Shenandoah Rd., Hampton, Va. 23361
V: Jerry Wagner, 274 E. 9th St., Hialeah, Fla.
VI: Chuck Borneman, 1401 W. Taylor, Kokomo, Indiana 46901.
VII: P. W. Klintworth Jr., 894 Brooklawn Rd., Troy, Mich. 48084
VIII: Robert Combs, c/o Del Rio National Bank, Cashier, Del Rio, Tex. 78840
IX: Frank Monts, 6519 Marjorie Lane, Wichita, Kans.
X: John Pond, 2162 43rd Avenue, San Francisco, Calif. 94116
XI: J. Lenderman, Route 2, Box 460, St. Helens, Ore.

CONTROL LINE CONTEST BOARD:

I: D. K. Cook, 148 Belair St., Brockton, Mass. 02401
II: J. G. Pailet, 30 Emerson Rd., Brookville, Glen Head, N. Y. 11545
III: Laird Jackson, 323 Meadowbrook, St. Davids, Pa. 19087
IV: Wm. Pardue, 1407 Gracewood Dr., Greensboro, N. C.
V: W. D. McGraw, 1325 Carol Dr., Memphis, Tenn.
VI: Arthur J. Johnson, 1818 Oslo Drive, Rockford, Ill. 61108
VII: Howard Mottin, 2124 Common Rd., Warren, Mich.
VIII: Leland Morton, 8614 Triton, Dallas, Texas 75227
IX: J. R. Mason, 2214 S. Pine Crest, Wichita, Kans.
X: J. E. Barr, 7418 Collet Ave., Van Nuys, Calif.
XI: Keith Loutocky, 1419 S. 48th, Tacoma, Wash.

RADIO CONTROL CONTEST BOARD:

I: H. A. Thomasian, 369 Brigham St., Northboro, Mass. 01532
II: R. Noll, 96 Pine Knoll Rd., Endicott, N. Y. 13760
III: George Kane, 209 Barbara Lane, Warminster, Pa.
IV: **W. C. Northrop Jr., 56 Holly Lane, Newark, Del.**
V: Don Coleman, P.O. Box 436, Citronelle, Ala. 36522
VI: Bud Atkinson, 734 North 6th St. Terr., Blue Springs, Mo. 64015
VII: James E. Northmore, 28207 Grand Duke, Farmington, Mich.
VIII: Wm. A. Knost, 6914 E. Admiral Pl., Tulsa, Okla.
IX: Loren Tregellas, 3003 S. Everett, Wichita, Kans.
X: G. E. Nelson, 121 Medinah Pl., Ramon, Calif. 94583
XI: R. Brooke, 17845 3rd Ave., S.W., Seattle, Wash.



CONTEST CALENDAR

Official Sanctioned Contests of the Academy of Model Aeronautics

Aug. 2 — Richmond, Va. Brainbusters FAI FF Qual. Trials. Site: Curles Neck Farm. D. Orr CD, 102 Bickfield Dr., Hampton, Va. 23366. Sponsor: **Brainbusters.**

Aug. 2 — Salt Lake City, Utah (AA) Summer Fiesta for RC. Site: Saltair Modelport. C. Pannier CD, 1781 Mtn. View Dr., Salt Lake City, Utah 84106.

Aug. 2-3 — Tacoma, Wash. (AAA) Jim Walker Memorial FF Meet plus RC Glider. Site: Hart's Lake Prairie. J. Shafer CD, 5720 122nd Ave., S. E., Bellevue, Wash. 98004.

Aug. 2-3 — Chicago, Ill. (AA) 3rd Annual SAC RC Contest. Site: Flossmor Rd. & Central Ave. S. Peterson CD, 6416 S. LaPorte, Chicago, Ill. 60638. Sponsor: **Suburban Aero Club of Chicago.**

Aug. 2-3 — Riverview, Mich. (AA) 16th Annual Indian City RC Meet. Site: Allen & Pennsylvania. E. Lynn CD, 3167 22nd St., Wyandotte, Mich. 48192.

Aug. 2-3 — Cleveland, Ohio (AAA) Cleveland Jr. CL Air Races and FAI CL Team Selection Meet. Site: Cleveland Model Flying Field. A. Montagino CD, 3911 Daisy Ave., Cleveland, Ohio 44109.

Aug. 2-3 — Winchester, Tenn. (AAA) Tenn. State FF, CL, RC Championship Meet. Site: Airport. L. Webster CD, 1000 Sycamore, Manchester, Tenn. 37355.

Aug. 2-3 — Fargo, N. D. (AA) F. M. Skylarks CL Championship Meet. Site: 12th Ave. N. & Elm St. M. Olson CD, 305 N. 27th Ave., Fargo, N. D. 58102. Sponsor: **F. M. Skylarks.**

Aug. 3 — Denver, Colo. FAI FF Qual. Trials. Site: E. Colfax Air Park. E. Collins CD, 4318 E. Utah Pl., Denver, Colo. 80222. Sponsor: **Magnificent Mountain Men.**

Aug. 3 — Alton, Ill. (AA) Illinois Metro-East Model Airplane CL Contest. Site: Civic Memorial Airport. J. Blum CD, 2417 Glen Pl., Granite City, Ill. 62040. Sponsor: **Tri City Sky Steelers & Alton Area Thunder Bolts.**

Aug. 3 — Sharon, Pa. (AA) Skylarks 3rd RC Jamboree. Site: Club Field. G. Ehnot CD, 1077 March St., Sharon, Pa. 16146. Sponsor: **Skylarks.**

Aug. 3 — Bong Field, Wisc. 1971 FAI FF Qual. Trials. P. Sotich CD, 3851 W. 62nd Pl., Chicago, Ill. 60629. Sponsor: **Illinois Model Aero Club & Chicago Aeronuts.**

Aug. 3 — Ponca City, Okla. (AA) Annual CL Contest. Site: Skeeter Field. W. Patterson CD, 816 S. 7th, Ponca City, Okla. 74601. Sponsor: **Ponca Skeeter Pilots.**

Aug. 3 — Grand Junction, Colo. (AA) 2nd Annual CL Contest. Site: Lincoln Park. G. Kirkham CD, 258 Hill Ave., Grand Junction, Colo. 81501. Sponsor: **Grand Junction Modeleers.**

Aug. 3 — New Bedford, Mass. (AA) 1969 CL Classic. Site: Airport. L. Gadomski CD, 166 Richmond St., New Bedford, Mass. 02740. Sponsor: **New Bedford MAC.**

Aug. 3 — Dunkirk, N. Y. LSAM 2nd Annual RC Fun Fly. Site: LSAM Field. A. Hemenger CD, 1031 Central Ave., Dunkirk, N. Y. 19165.

Aug. 3 — Wichita, Kans. Wichihawks Flying Circus. Site: Wichita Modelers Council Field. J. Finley CD, 5217 E. Murdock, Wichita, Kans. 67218. Sponsor: **Wichihawks.**

Aug. 9-10 — Freeland, Mich. (AA) Saginaw Valley RC Annual. Site: 2240 Lone Road. G. Gill CD, 2020 Lone Road, Freeland, Mich. 48623. Sponsor: **Saginaw Valley RC Club.**

Aug. 9-10 — East Granby, Conn. (AA) New England RC Championships. Site: NCRCC Field. E. Brant CD, 16 Amaryllis Dr., Windsor, Ct. 06095.

Aug. 9-10 — Jacksonville, Fla. (AA) Jacksonville RC Meet. Site: Herlong Airport. H. Pierce Jr. CD, 208 W. Forsyth St., Jacksonville, Fla. 32202. Sponsor: **Jacksonville RC Club.**

Aug. 10 — Lancaster, Ohio. Forks Fun Fly for RC. Site: Whiley Rd., S. W. J. Slater CD, Box 489, Lancaster, Ohio 43130. Sponsor: **Fairfield Ohio Radio Kontrol Society, Inc.**

Aug. 10 — Lakehurst, N. J. (AA) 12th Annual North Jersey RC Meet. Site: Naval Air Station. F. van der Wilt CD, 86 Beech St., Maywood, N. J. 07607. Sponsor: **North Jersey RC Club.**

Aug. 10 — Cleveland, Ohio (AA) Jr. Air Races for FF. Site: City Field. R. Kluiber CD, 2021 Lakeland, Lakewood, Ohio 44107. Sponsor: **NOFFA.**

Aug. 10 — Hastings, Minn. (AA) Mpls. Annual FF Silent Meet plus RC Glider. Site: Webers Airport. H. Langevin CD, 4854 Aldrich Ave., S., Minneapolis, Minn. 55419. Sponsor: **Minneapolis MAC.**

Aug. 10 — Denver, Colo. (A) MMM Monthly Outdoor FF Meet. Site: Prop Buster's Field. A. White CD, 1373 Bellaire, Denver, Colo. 80220. Sponsor: **Magnificent Mountain Men.**

Aug. 10 — Hempstead, N. Y. (AA) LIAMAC Annual Invitational FF, CL Contest. Site: Mitchel Field. W. Dunwoody CD, 985 Ft. Salonga Rd., Northport, N. Y. 11768.

Aug. 10 — Sioux Falls, S. D. (AA) Sioux Empire Model Airplane CL Championships Meet. Site: Fair Grounds. J. Donovan CD, 1409 Thompson Dr., Sioux Falls, S. D. 57105. Sponsor: **Flying Eagles Model Club.**

Aug. 10 — Cincinnati, Ohio (AA) Tri-State Combat CL Championships. Site: Lunken Airport. D. Patton CD, 2493 Downing Dr., Cincinnati, Ohio 45208. Sponsor: **Exterminator Combat Team.**

Aug. 16-17 — Marietta, Ga. (AA) Marietta Annual RC Meet. Site: Cobb Co. RC Field. L. Johnston CD, 1021 Church St. No. E-3, Smyrna, Ga. 30080. Sponsor: **Cobb County RC Club.**

Aug. 16-17 — Converse, Ind. (AA) 2nd Annual Converse RC Flying Club Meet. Site: Airport. W. Hutchins CD, 122 N. Munson, Portland, Ind. 47371. Sponsor: **Converse RC Flying Club.**

Aug. 16-17 — Baton Rouge, La. (AA) Baton Rouge RC Club 8th Annual RC Meet. Site: Kleinpeter Field. L. Boutwell CD, 1739 Oak St., Baton Rouge, La. 70815.

Aug. 16-17 — Endicott, N. Y. (AA) 14th Annual Aeroguidance Society RC Contest. Site: Tri-Cities Airport. R. Noll CD, 96 Pine Knoll Rd., Endicott, N. Y. 13760. Sponsor: **Aeroguidance Society, Inc.**

Aug. 16-17 — Tullahoma, Tenn. (AAA) 10th Annual Airfoilers FF Meet. Site: AEDC. A. Mansfield CD, 621 Glendale Pl., Tullahoma, Tenn. 37388. Sponsor: **Coffee Airfoilers.**

Aug. 16-17 — Odessa, Tex. (AAA) Odessa-Midland 13th Annual FF Contest. Site: Ector Airport. L. Hood CD. This contest which was previously scheduled has now been cancelled.

Aug. 16-17 — So. El Monte, Calif. (AA) RC Contest. Site: Whittier Narrows. J. Garabidian CD, 909 N. 3rd St., Montebello, Calif. 90640. Sponsor: **San Gabriel Valley RC.**

Aug. 16-17 — Shakopee, Minn. (AA) 13th Annual TCRC Meet. Site: TCRC Field. J. Duncan CD, 3835 Tonkawood Rd., Minnetonka, Minn. 55343.

Aug. 16-17 — Omaha, Nebr. (AA) 15th Annual Omahawks RC Contest. Site: Club RC Flying Site. R. Hess CD, 11720 Cedar St., Omaha, Nebr. 68144.

Aug. 17 — Aurora, Colo. Model Museum Old Timer Fall Meet. Site: E. Colfax Air Park. B. Schliem CD, 3270 S. Franklin St., Englewood, Colo. 80110. Sponsor: **Model Museum Flying Club.**

Aug. 17 — Grand Ledge, Mich. (AAA) Lansing Flying Aces Annual FF, CL Contest. Site: Airport. J. Hainen CD, 12893 Bayview Dr., Vicksburg, Mich. 49097. Sponsor: **Lansing Flying Aces.**

Aug. 17 — Flushing Meadow Park, N. Y. (AAA) Assoc. of MAC of Greater N. Y. CL Meet. Site: Model Airfield. W. Boss CD, 145-24 223rd St., Laurelton, N. Y. 11413.

Aug. 17 — Fountain Valley, Calif. (A) Orange County Thunderbugs Monthly for FF, CL. Site: Mile Sq. D. Esslinger CD, 6631 Oxford Dr. Huntington Beach, Ca. 92647. Sponsor: **Orange County Thunderbugs.**

Aug. 17 — Oklahoma City, Okla. (AA) Central Okla. CL Championships. Site: Topping Park, 5300 N. Bdwy. Ext. M. McGee CD, 1805 N. Tulsa, Oklahoma City, Okla. 73107. Sponsor: **Oklahoma City Controliners.**

Aug. 17 — St. Louis, Mo. (AAA) 11th Annual Midwestern CL Championships. Site: Buder Park Model

Continued on page 66

RARE BIRD HANDLERS WANTED

You need a certain touch. A special drive. Whatever comes up in Navy air, you have to handle it. Jockeying a hot jet off the deck in foul weather. Hunting through skyways where even the wind gets lost. Or bossing the little black box with the big punch. Whatever you do, you learn to do it right. You learn the difference between taming a falcon and a wren.

If you think you can handle the job, let us know. Our birds are ready when you are.

If you're going to be something, why not be something special?

U.S. Navy Recruiting Aids Division
Washington Navy Yard
Washington, D.C. 20390

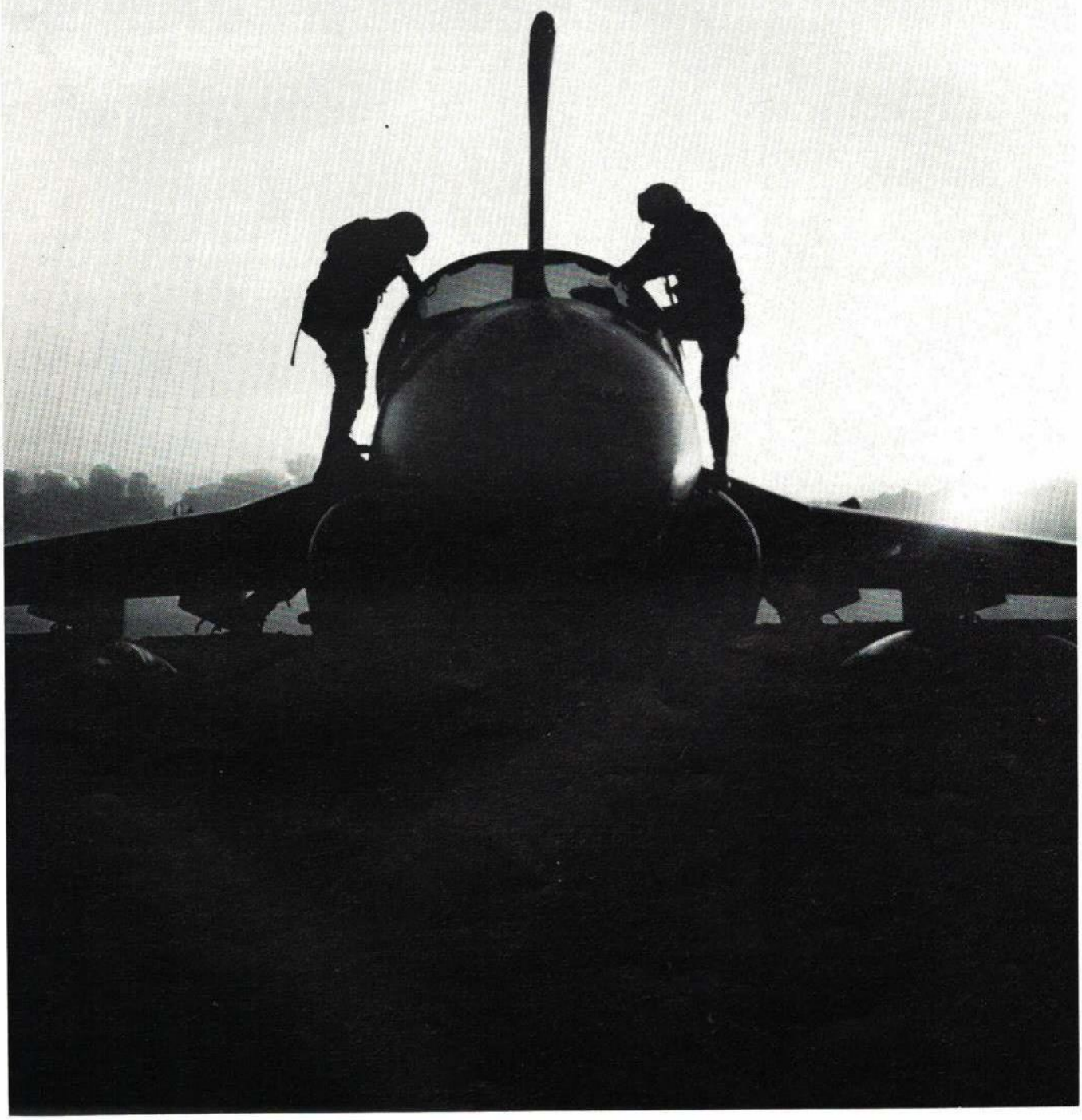
The Navy

Please send me further information about your
☐ Naval Aviator ☐ Navy Flight Officers' program(s)

NAME _____ AGE _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____



Scale Techniques

Continued from page 23

er ends. To complete the landing gear, cut out two small doors to mount on the front of the struts, and replace the small housing pieces cut earlier in their new position.

A new oil cooler must now be formed. This is approximately ¼" in diameter and can be made of plastic sprue, dowel, or whatever is convenient. This should be placed in position ¾" from the flat spinner surface and faired generously with putty.

A small carburetor intake can now be formed and glued in the hole previously made in the top of the fuselage. To build a new radiator, plastic sheet is best, but other material (even balsa) can be used. The dimensions should be 1" long and 9/16" wide at the front, tapering to 5/16". It also should have a tapering surface as shown. This is added to the bottom of the fuselage and faired into the surrounding surface.

New exhaust pipes can be made from plastic sprue cut to the length of the existing holes in the fuselage, and scribed to show the divisions. The edges of the openings should be beveled so that the end result will have a half-round appearance.

To complete the construction, remove all wing guns, and snip off the guns protruding from the nose housings, as the only armament on the XP-40 was one .30-cal. and one .50-cal. machine gun, and they did not stick out of the fairings.

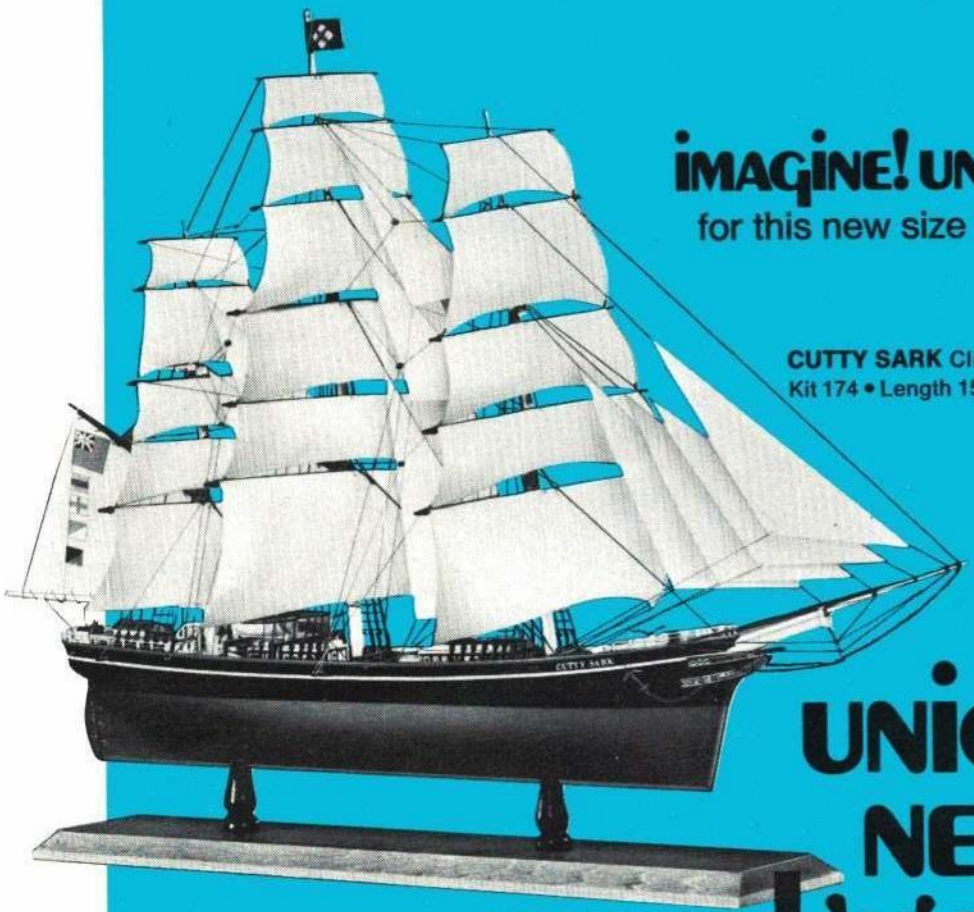
If you desire to build the model in 1/72 scale, the best method would be to use a P-36 kit, cutting off the nose at approximately the wing leading edge and making up a new nose from balsa, or vacuum forming one if this method is available to you. Building the model in this scale offers the advantage that the landing gear can be used as is, and, of course, the amount of cutting and filling necessary is proportionately reduced.

The finish and markings for this aircraft are very simple. It is overall natural metal with the insignia in only the four wing positions, and the red, white, and blue striping on the rudder. In addition, the wording "U.S. Army" appears under the wings in black.

For the natural metal finish, many methods are available. Metal foil, silver paint, or one of the silver pastes, such as Rub 'N Buff or Treasure Silver can be used. Rub 'N Buff was used on the model pictured. The technique of application varies, but the following has worked well for the author.

With any silver finish, surface defects show up well, so close attention is necessary to attain a smooth finish. Next, all painting is done and masked off. In this case, only the black wing-walks and the rudder are involved. A coat of flat paint then is applied; any color is satisfactory, but white or silver is probably best. Alternately, the model can merely be sprayed with a flattening agent, such as Dull-Coat by Testor, since the object is to give the paste a surface to which it can adhere. Using a small amount on a piece of cotton, apply the paste to a section of the model, then polish it with a soft, clean cloth. These pastes produce a very realistic metallic sheen, and if the paint or flatting agent has been used, decals can be applied with little difficulty.

This is not a simple conversion, but it is an interesting one, and will give your collection a one-of-a-kind whose descendants compiled an amazing combat record.



IMAGINE! UNDER $10
for this new size "Best Seller"

CUTTY SARK Clipper Ship 9.95
Kit 174 • Length 15" • Height 9½"

Wood ship model with carved wood hull and cast metal fittings. Complete with cloth sails and display stand.

UNIQUE NEW wood 'N' METAL models

PARTIAL LIST OF CUSTOM PARTS

- Metal Fenders
- Louvered Metal Hood
- Metal Radiator
- Precision Metal Fittings
- Wood Chassis & Body
- Wood Display Stand

Introducing a new kind of
ANTIQUE CAR
with hand crafted metal & wood components

1910 MAXWELL 12.95
KIT 173

¾" SCALE

An Original New Design • Accurately Scaled From Material Furnished By The Automobile Reference Collection Of The Philadelphia Library.

SEE YOUR DEALER. If kits are not available at dealer, you may order direct from factory adding 50c for postage & handling. Outside U.S.A. add $1.00. Send for Catalog. 25c.

Scientific **SCIENTIFIC MODELS INC.** 111A MONROE STREET NEWARK, NEW JERSEY 07105

Skirts Flying Minis

Continued from page 27

when they aren't busy flying the "real" birds. Norma now holds her commercial license. She also has spent many hours as contest director for the Mile-Hi R/C Club and is known for running a good meet.

First successful flights are highlights for everyone. Mrs. Bill (Bonny) Jenkins, Memphis, says, "My most thrilling moment was when I flew my Starduster under full power for the first time. The thrill of seeing my own plane fly was tremendous. Learning to start and tune my motor was satisfying, too, disregarding all the times the prop 'bit' me." Bonny, a member of the Tennessee Model Airplane Assoc., won first in ½-A free-flight at Clarksdale, Miss., in 1968, as well as a second place at Cleveland and a third at the Volunteer State Model Championships.

Mrs. Kenneth (Loretta) Hall, Studio City, Calif., best known as the editor of the Valley Flyers newsletter, also recalls the thrill of her solo flight. It was on Dec. 25, 1967, with Frank Capan, fellow Valley Flyer, as instructor. "When I finally landed, he grinned and said 'Merry Christmas.'" Loretta made her first and only contest winning at the 1968 SC²RC² and RCM Fourth Annual Scale meet with a fifth place. The first multi ship she ever built was a Senior Falcon and she is now working on a Sportmaster.

Mrs. Lin (Gayle) Haslam, Salt Lake City, used to fly in A-2 Nordic, but now her biggest contribution to modeling is the monthly typing of husband Lin's newsletter. The Dope Bucket, for the Utah State Aeromodelers. She has been known to retrieve both by motor scooter and horseback. Horses are her big hobby.

All the girls readily give credit to the husbands, fathers and boy friends who help them out when the going gets rough. Mrs. Bob (Dolly) Wischer, of Delafield, Wis., says, "Guys will say to Bob, 'Man you have it made, your wife builds, too.' Little do they know how much time he spends telling me how and/or what to do next. But," she adds, "I do all my own work. At our house, no one touches the other fellow's stuff."

Mrs. Carroll (Arliss) Powell, Tucson, also has her own work bench. "In fact," she says, "we added a 16 x 39 room to our house, so our model airplanes and trains would have a home. We each work at our own benches, which are slab doors with legs. I've learned to drill and solder, but for a long time I drilled holes that would fit only those crooked bolts that come out of engines after you've made a horrendous landing."

Mrs. John (Amy) Boudreau, Garden Grove, is perhaps a typical explanation of the entry of the average wife into modeling. "I decided I would show a 'polite' interest in John's hobby," she says, "so I built a model called Bewitched. And, I am now genuinely interested. Modeling is fun! We build together and fly together and our little girl goes right along."

Champion Techniques

Continued from page 39

pletely cowled the undercarriage. The wheel is supported on both sides of the axle by a U-shaped bracket inside the model. This is bonded to a sheet of rubber ½" thick which, in turn, is bonded to a ¼" plywood sheet floor in the fuselage. Bamboo guide dowels pass through the whole assembly to keep the undercarriage in line as the rubber absorbs the landing forces

and surface roughness. The engine mounting plate is a solid bar of alloy machined to leave a solid front that completely envelops the Supertigre 15's front housing. Very small diameter propellers with very thick and wide blades have to be used to permit ground clearance due to the low fuselage lines. Note the shut-off reset button on the side of the fuselage.

Now that Stanzel Mono-Line units are no longer made in the U.S.A., and H & R Torque Units are the only single-line control mechanisms available, most competitors make their own. The American Pink Lady models, with their alloy wings and very narrow glassfibre fuselages, used home-made units built on the Stanzel principle. Because of space restrictions, they used lengths of spring as the worm gear and anchored the torque wires to the outboard wingspar. Arnie Nelson used modified Stanzel Stuntmaster units in his asymmetrical models.

Arnie Nelson's two asymmetric models should be described in more detail, even though they did not win the Championship. We asked Arnie why he had used sidewinder engines on these asymmetric models, and the reasons are of interest to all control-liners. With an upright engine that is flying on a tangent to a circle, any wind tends to hit the side area of the cowling and force the model nose out of the circle, thereby increasing the drag and slowing the model down. By turning the engine sideways the effective horizontal sideways area is halved, hence halving the drag. The wing area is all on one side of the model (inside) and the tailplane is all on the outside, so it does not have a wing turbulating the air before it gets to the tailplane. These types of models have one unfortunate vice. When the engine cuts, the model dives for the ground. This is because the cowl contributes a lot of lift off the propeller wash during flight, and as the model is trimmed primarily to fly on power, it dives when the engine stops and the lift is reduced. This can be handled though, as shown by Arnie, but it takes experience. The T.W.A. powered asymmetric model was not flown in the Championships due to lack of practice beforehand; but the Supertigre version went really well. Another unusual point is that the control unit is mounted directly onto a U-shaped steel bracket in the fuselage that is bolted directly to the pan. This means there is no G-pull on the spar or alloy sheet wing, making for a much stronger model.

Of the British speed men Gordon Farnsworth did not record any times because he had a leak in his fuel line, and Bill Firbank crashed because his fuselage was too thin and bending under back pressure from the pipe. This gave the tailplane fatal positive incidence. Brian Jackson's T. W. A. has passed its peak and we understand the lads are going to get some new engines.

The Danish Hasling brothers, who did so well in team race at last year's Criterium of Aces, were pretty hot again this time and now use an H.P. 15D. As with most other contestants, they use an overflow prime tube to assist starting, but with a difference. To prevent flooding by over-priming they have fitted a remote needle valve on the back of the exhaust stack. This allows them to regulate the amount of fuel they pump into the exhaust port.

Over half the contestants at the Champs in team race used Bartels glass-fibre propellers and, from experience with them and what we saw at the Champs, they are unbreakable with normal usage. What few modelers realize is that from the large range of sizes made now, there are two team-race types. One is molded to the M.V.V.S. shape, while the other is a Tornado Plasticote shape. The latter were new to many and were snapped up from the stock Jurgen Bartels brought along to sell at the meeting in Helsinki.

Para Loft

Continued from page 28

possible, otherwise the fins will shear off during acceleration. (Hobbypoxy Formula 1 works beautifully.) Also make sure that each is aligned and stands out straight from the body, then add small white-glue fillets.

When they are dry, poke a pinhole in the middle of the reinforced fin section. Cut a 1' length of shroud line, tie one end to this section and the other to an 18" piece of 1/8" contest rubber. Put a drop of cement on each knot and your booster is complete.

Payload section: Start the "egg crate" by cutting down to four inches the plastic tube from the PS-50E. Next, split lengthwise the nose cone and balsa transition. Hollow the cone carefully to a 1/16"-thick shell, except for the shoulder, which should be 1/8" thick. A router in the No. 5 X-acto handle works very well here. Aside from the BT-50 shoulder, which is left solid, hollow the transition to a 3/32" thickness. Glue the halves of both pieces together.

The nose cone is finished in the same manner as the fins, but skip the third coat of clear dope. Don't skimp on the filler; a really grainless cone is worth the extra effort, paying off in low aerodynamic drag and excellent appearance.

For best performance, the transition also should be finished this way, and the plastic tube joint later filled in; but, if you are in a rush, MonoKote can be cut according to the plans. If the latter is chosen, sand the transition lightly, make sure the edge between transition and shoulder is sharp, then carefully apply the MonoKote. Air pockets here will be extremely difficult to remove later, so make sure this is as even as possible. Seal the edges and shrink as before.

Cut four 1 1/2" pieces of rubber band and contact cement two each at right angles across the mouths of both of the parts. These help to absorb the shock of launch and ejection, while adding little weight. Use 1/2" cubes of foam rubber for any further padding. Cement another launch lug to the payload tube and again check alignment. Press four tape strips to the inside of one end of the tube and glue in the transition piece. The nose cone should fit tightly in the other end. If it doesn't, build up the shoulder with tape.

Screw the screw-eye into the solid shoulder of the transition, remove it, squirt glue in the hole and reinsert the eye. Cut a small notch across the shoulder for the shroud line to enter the body, checking that, when the launch lugs are in line, the notch will align with the reinforced fin. Your Para-Loft is complete.

Mods for 'Chute Duration: These are not instructions for constructing the Parachute Duration model but an explanation of the differences between the two layouts. Anything not mentioned here is the same as on the Egg Lofter.

Instead of engine mount strips, a 2 3/4" piece of BT-20 should be centered in the BT-50. Glue an engine block into one end of the BT-20. Make two sets of two RA-2050 paper adapter-rings glued together, and glue one of these 1/2", and the other 2" from the end with the block. When these are dry, sand them to a tight slip fit in the BT-50 and glue the entire assembly in, block forward, so that the ends of the two tubes are even.

Instead of two launch lugs, when cutting the MonoKote for the body tube, enlarge one of the slots to 3/16" wide. Later, cement a single lug in the body joint of the fin in that slot. In place of the payload section, round the tip of a BNC-50K nose cone, making it a lower-drag parabola, and finish it in the same way as described for the other cone. Also cut a corresponding notch on the shoulder and install a screw-eye. Add a 2-to-3'-diameter 'chute and you have your Parachute Duration bird.

new XL-IC sunday best!

Sunday flyer or competitor, Micro-Avionics new XL-IC Proportional System is best any day for hour upon hour of smooth, precision control.

The reasons are many. Twenty-one integrated circuits reduce size, weight and result in ultra reliability. MPS-4 servos are a scant .725 x 1.490 x 1.395" and put out a hefty 3½ pounds of thrust. Small enough for .049 models; power enough for the .60s. Total system weight with optional 225 mah power pack a mere 9½ oz. New internal lock connector system eliminates accidental disconnects; saves space and weight.

Single-stick and dual-stick transmitters are small and comfortable to handle with that precise feel of complete control.

The XL-IC System is the perfect match for medium-sized sport and scale models.

Optional one-six servos with dual linear output deliver 4½ pounds of thrust. Other options include square or flat 500 mah airborne power packs.

And new **Quick Time** *factory authorized service centers in the East, South and in Canada assure you of fast service when you need it.*

Complete XL-IC System, ready-to-fly, all approved frequencies — including transmitter (built-in charger), receiver, 4 servos, power packs, switch, cables and connectors:

XL-IC 6D 6-channel, dual-stick	$429.95
XL-IC 4D 4-channel, dual-stick	$399.95
XL-IC 6S 6-channel, single-stick	$449.95

Ask your dealer for complete XL-IC specifications or write:

530 South Mountain Avenue, Ontario, California 91762 • Phone (714) 984-2818

MICRO AVIONICS®

Flying: In the Egg Loft configuration, Para-Loft should be flown with a Flight Systems E-O .836-6 engine. As a P/D bird, it may be flown with any 1/2A through C-class engine. In either case, wrap masking tape around the engine until it makes a very tight fit in the engine mount, then install it in the rocket. This has to stop the ejection charge from kicking out the engine. If the engine goes, the parachute won't, giving the same type of ballistic trajectory noted at the beginning of this article. This usually demolishes the rocket you worked so hard on, not to mention spreading raw egg all over the landing area.

If flying Egg Loft, after tieing the shock-cord to the screw-eye, add another 1' length from the eye to the parachute, using an 18 to 24" parachute, depending on the strength of the winds. For either event, use sufficient flame-resistant material (such as rock wool) to protect the 'chute into the body first, then dust, fold and pack the 'chute. Add the egg crate, or nose cone, an igniter, and ParaLoft is ready to fly.

The variations and additions to this basic body design, as mentioned before, are almost unlimited. Why not try a few of your own?

PARTS LIST

All part numbers from Estes Catalog No. 68-1, equivalent parts are available from Centuri.

Egg Lofter: 1 — PS-50E payload section; 1 — NB-50 nose block; 1 — 1/32 x 1/8 x 36" balsa; rubber band; 30 inches — 1/4" Contest rubber.

Parachute Duration: 1 — BNC-50K nose cone; 1 — EB-20A engine block; 1 — BT-20J body tube; 4 — RA-2050 paper adapter; 18 inches — 1/8-inch Contest rubber.

Either: 1 — BT-50 body tube (makes two), or BT 50W body tube (makes one); 1 — 1/16 x 2 x 36" balsa; 1 — screw-eye (small); 12" — shroud line or string; 1 — launch lug (small paper straw); cloth reinforcement; MonoKote, regular; parachutes.

WRITE AMA HQ FOR CHARTER CLUB INFORMATION

La Jollita

Continued from page 24

the elevators roughly in place while other work is being done. The fin is sanded to shape to match the rudder and fuselage, after the scrap fillet is added. The fuselage aft of the doublers can be rounded top and bottom, or tapered upward from the center strip to approximately 1/8" thick and then rounded. The area below the center strip should not be tapered, as it weakens the fuselage.

The landing gear is made in two halves and bent to the shape shown in the front view. The portion extending into the fuselage will have to be shortened to one-half the fuselage thickness after bending. Drill a 5/32"-diameter hole through the fuselage, where indicated, and insert a length of 1/8" I.D. brass tubing flush with both sides. Fit one landing gear half in place and draw a pencil line on either side of it. Drill a series of small holes through the fuselage along these lines. Install both landing gear halves and thread soft wire through the holes and around the struts.

The cheek cowl has a purpose other than just appearance. Adding a little bit to thickness adds a lot of strength. The cheek cowl is 1" thick. It provides a stronger, more rigid engine mount. The engine must be mounted on a strong structure, capable of absorbing vibration and torque loads, in order to deliver its maximum power. It should also be mounted squarely and securely so that the crankcase is not distorted when tightening down the mounting bolts. The light-weight, potent 15-size engines suffer large power losses through internal friction if the case is distorted. Enough force to do this can easily be applied through the four small-appearing No. 4 bolts we use to mount engines. This distortion created by an improper mount-

tough surface for a good base for the final finish. Several coats of Hobbypoxy paint were sprayed on, wet sanded with 600-grit paper, and then treated with rubbing compound. However, choose the method of finishing which you have found best for your needs.

Install the controls as shown on the plan. ½A Dacron line makes excellent thread hinges. Space the hinges approximately as shown. Start from the fuselage and work out. Sew down through the elevator, up between, and down through the stabilizer, making about five stitches. Tie off the ends and secure with a dab of regular model cement. Stagger the hinges by sewing the next one from the bottom up. Reverse again for the outer one. This balances the thread pull and the elevators will line up with the stab nicely.

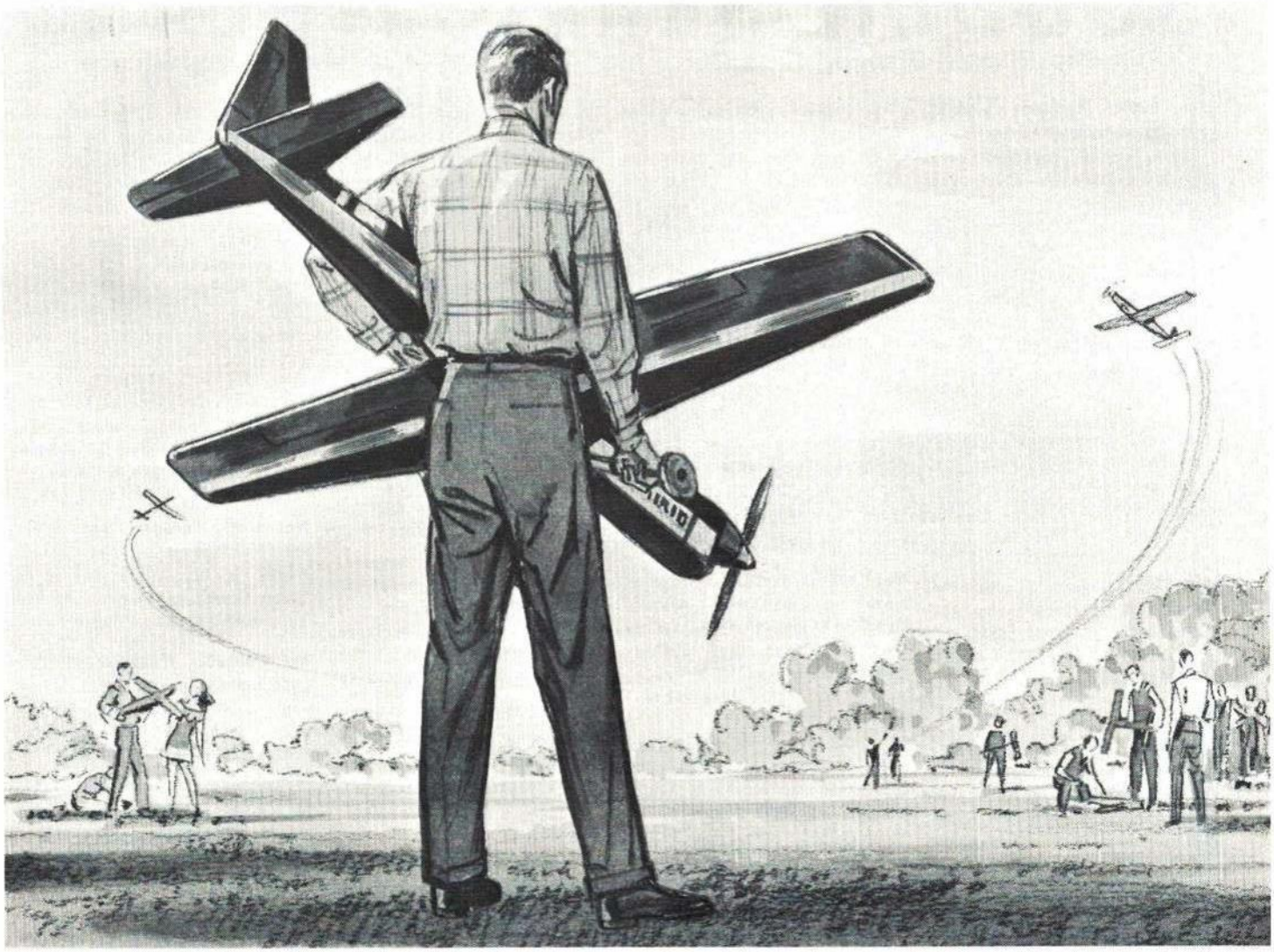
Mount the engine, tank, and wheels. Put on your AMA license number, preceded by an "N," racing numbers and any other suitable decals to dress up the model. Some of the decals left over from the great Slot Race invasion can be used to duplicate the accessory decals used on the real Formula I Racers.

You're almost ready to go racing. I say almost because you need another member on the team. He can be either the pilot or the pit-man. I decided to be the pit-man on my team, because I was most familiar with my engine. I haunted the Combat circle when I was looking for a Rat pilot. Cal Adams was Florida State Champ, was well experienced at mixing it up with others in the center of the circle and had the quick, Combat-honed reflexes to keep away from line tangles and out of trouble. Our team was finally broken up when Uncle Sam decided that he needed Cal's talents to service F-4C's in Thailand. Bruce Van Hoozen, a Junior, took over and still holds the job. The model's handling is set up to suit the pilot. He has enough problems without worrying may not be visible to the naked eye, but the engine can refuse to put out that last several thousand rpm.

The cheek cowl, running back and surrounding the front section of the wing, provides the necessary support to allow the engine to deliver full power. A properly mounted, inexpensive engine can deliver more than one of the more potent engines which is poorly mounted. Carve and sand the cowl to shape after gluing in place.

A layer of the 3-oz. fiberglass cloth, as sold by Sig, is a good addition to the cowl, though not completely necessary. It can be applied to act as fillets around the cowl. This could be done at the same time the fiberglass and epoxy fairings are built up over the landing-gear struts. A landing gear installed in this manner is almost indestructible. Bend tail-skid and mount.

I finished my La Jollita with epoxy using the Hobbypoxy "Easy-Fill" method. This adds considerably to strength and gives a



SUPER MONOKOTE IS FOR OUTSIDERS!

If you're an indoor man whose first love is covering and finishing model airplanes . . . if you enjoy spending days and weeks at your workbench, sealing, doping, sanding and polishing . . . chances are even after you've tried Super MonoKote, you'll go back to your old methods. The fact that Super MonoKote is so much easier and faster to apply . . . that it's adhesive and film are fuel-proof, moisture-proof, fade-proof and stain-proof . . . and that there are no irritating odors when you apply it, will probably do little to change your mind.

But, if you're an *outsider* . . . one who likes to spend his time outdoors flying and who looks at finishing as a necessary evil to flying enjoyment, then Super MonoKote is definitely for you! With Super MonoKote, you get a professional-looking finish in about one-quarter the normal time, so you have a lot more time to be outdoors flying.

Why not try Super MonoKote yourself and see why it's been acclaimed as the greatest advance in model-finishing history!

MONOKOTE IS AVAILABLE AT ALL LEADING HOBBY SHOPS.

Super MonoKote (dry adhesive) is available in two metallic, three transparent, and eight opaque high-gloss colors. Regular MonoKote and Trim Sheets (wet adhesive) are available in nine high-gloss colors.

SUPER MONOKOTE™ Pat. No. 3,388,651 from TOP FLITE MODELS, INC.
2635 S. Wabash Ave. • Chicago, Ill. 60616

SUDDEN SERVICE PLANS

Full-Size Plans — Shipped First Class Mail Within 48 Hours — No Extra Charge

No. 0991, Flashby I—Rakish-looking all-balsa ROG by Wayne Brown. For the Tenderfoot. Gives consistent takeoffs on tricycle landing gear.
Price—$.75.

No. 0992, Fouga Cyclone—Scale model of jet-assisted French sailplane, by Nick Ziroli. Gains altitude easily on 09 engine. A two-piece 7-ft. wing.
Price—$3.00.

No. 0993, La Jollita—Profile 15-powered Goodyear control-line racer by James Kloth, is fast, groovy flyer. Even on mild fuel and engine it does 85 mph.
Price—$1.00.

No. 0891, Jungster—Realistic R/C stunter by Leake with swept mid-wing. 60 powered model is smooth flyer through all maneuvers. Plans two sheets.
Price—$3.00.

No. 0892, Taylor Cub F-2—Sport, free-flight scale powered by Pee Wee .020. Stick-and-tissue construction, simple box-like shapes. By Schreyer. **Price—$1.50.**

No. 0893, Martin Mo-1—Rare WW-I era monoplane, carrier-based fighter ideal for Class I Navy Carrier. Uses ailerons to keep lines tight at low speed. By Reeves. **Price—$1.25.**

No.1181, Junkers D-1—Joe Tschirgi 1918 fighter, good proportions/interesting lines for perfect R/C scale. Use .45 engine. Single low-wing has 500 sq. in. area. **Price—$2.50.**

No. 1182, FAI Pussy Cat—On this FAI FF, Earl Thompson combined high thrust-line, rear-mounted fin and clean lines to hurdle climb/transition gap. Hot .15 a must! **Price—$2.50.**

No. 1281, Strato-Streak '68—Frank Heeb's 1/2A FF updated version of the hottest gas model of 1941 era. Uncomplicated pylon design, 275 sq. in. area. **Price—$1.50.**

No. 0191, Curtiss-Wright Jr.—Robert Hawkins transformed open cockpit, pusher aircraft of thirties into single-channel model. First step into R/C scale. Span 44". Use .049-.051's.
Price—$2.00.

No. 0192, Skyraider—Howard Mottin's Navy Carrier model is high speed, light weight design. Flyability with .40's or .60's. Easy construction. **Price—$2.00.**

No. 0193, Cutie Coupe—Coupe d' Hiver FF by Dave Linstrum. Quick to build with all-sheet balsa surfaces. Your first, rubber-powered contest model.
Price—$1.50.

No. 0291, R/C Nobler—Ed Sweeney's conversion of famous C/L stunt ship results in highly maneuverable R/C. Only a .40 for all AMA/FAI stunts. **Price—$2.00.**

No. 0292, Dingus—"Wild Bill" Netzeband's C/L delta ideal for non-scale carrier. Built for competition—fun to fly, good trainer, durable. .40 R/C engine.
Price—$1.50.

No. 0391, El Cochino—Bob Morse included good ideas from past ships. The 57" span, low-wing can be extended 6" as multi-trainer.
Price—$2.50.

No. 0392, Emanon—Lauerman/Delaney AMA Class-B Proto record holder registered over 150 mph from standing start. Really accelerates. Stable. A HOT .29. **Price—$1.50.**

No. 0491, Emeraude—Duke Crow reduced famous home-built to R/C size (65" span). .40 to .60, does complete stunt pattern. Gentle. Two sheets plans.
Price—$3.50.

No. 0492, Biceps—Don Yearout's show Control-Line bipe spectacular performer. .60-powered, flies relatively slow, very maneuverable. Two sheets. **Price—$3.50.**

No. 0591, Small Fry Special—Howard Mottin's Control-Line trainer for the Tenderfoot. Easy to cut out and build. Power an .049. **Price—$ .75.**

No. 0592, Messerschmitt Bf. 109E—R/C, semi-scale design by Munninghoff with lean and mean look of efficient fighter. Plans two sheets. **Price—$3.00.**

No. 0593, Manta—Howard Kuhn's Boost Glider for model rockets easy to build from sheet balsa. Hot performer, a winning design.
Price—$ .50.

No. 0691, Jr. Sky Squire—R/C sport-trainer by Jess Krieser uses .09 to .19 engines and systems from Galloping Ghost to multi-digital proportional. Area 416 sq. in.; span—48"; 3 lbs. **Price—$2.00.**

No. 0692, 1/2A Sky Squire—Small-scale version of famous Sky Squire. Fly 1 ch. rudder-only or rudder, elevator and motor, via Galloping Ghost. Only 22-28 oz.
Price—$1.75.

No. 0693, Mustang—Al Rabe's great, semi-scale C/L stunt machine flys pattern with ease. S.T. .40. Wing span over 57".
Price—$1.75.

No. 1081, Oily Bird—Great FF model for Tenderfoot by Frank Ehling. Easy to build; easy on cost; easier to fly. Uses an .020.
Price—$ .75.

No. 0792, Rivets—Speedy, responsive performing R/C model. Owen Kampen designed for an .020. Adams Baby Actuator for rudder-only control. **Price—$1.50.**

No. 0793, Atom—Howard Mottin's Advanced Training Model for novice, Control-Line. Sheet balsa. Easy flyer. A .15 or .19; convert later to larger sizes.
Price—$1.75.

No. 1183, Corrigan—James Wilson's unique 1/2A C/L stunt model. A canard, flies tail first! Stable like big stunt ships. Easy to build with 23" span. **Price—$1.50.**

No. A693, Sweeper—Windy Urtnowsky's giant, control-line stunt model has 78" span, .60 up front. Design is practical with many trim adjustment features.
Price—$2.50.

No. A695, Lady Maxley—Brian Donn's A/2 Nordic towline glider. Davis 3 airfoil with a Ritz-type construction. **Price—$1.50.**

No. A697, Dwarf Dip III—Easy-to-fly, rubber-powered Coupe de Hiver design by Charles Sotich a winner! Great fun for small fields. Warp-resisting structure.
Price—$1.50.

No. A691, EAA Biplane—Nick Ziroli's flying-scale, R/C model uses .40 engine and full-house gear. 38" span wings, semisymmetrical foil, box-and-stringer type fuselage. Two sheets.
Price—$2.50.

No. A692, Miracle Worker—John Blum's control-line trainer; learn to fly combat, carrier, stunt. Easy-to-build profile model. .35 engine. **Price—$1.50.**

No. A694, Montana Duster—R/C Class-C stunty by Simon Dreese, semi-scale appearance. Foam wings and simplified structure cut assembly to 6 hrs. Two sheet plans.
Price—$3.00.

No. A696, New Englander—George Murphy's 1/2A Free-Flight for competition. Rapid climb, floating glide. Good for the flyer eager to try contests.
Price—$1.50.

AMERICAN AIRCRAFT MODELER
733 Fifteenth St., N.W.
Washington, D.C. 20005

Please send the following plans by First Class mail, at no extra charge. I enclose $____ for payment.

Name _____

Address _____

City _____ State _____ Zip _____

PLAN NO.	COST
#	$
#	$
#	$
#	$
#	$
#	$

Total: $

rying about what his ship will do in a tight spot.

The next item is practice. We developed our patterns for starts and pit-stops during lengthy practice sessions so that each knew what to expect from the other at all times. Contests are too noisy and hectic for voice communication to be a substitute for a well-drilled team. The practice sessions were also used to try out and determine the best fuel, prop and plug combinations for the various weather conditions.

La Jollita seems to do best with a Bartel's $7\frac{1}{8} \times 7\frac{1}{8}$ fiberglass prop borrowed from my team racers. The plug is a Fireball "Medium," though the hot summer may force a switch to the "Cool." Fuel is a blend of K&B Speed Fuel and K&B 100, the temperature determining the percentages from a basic 50-50 blend. This combination has yielded speeds in the 80-85-mph range in practice with a few more mph possible from further experimentation. This doesn't sound too fast when compared with speeds reported elsewhere, but it is an honest speed, established by simulating contest conditions, with no leading or whipping. Hotter fuel could be used, but at the risk of burned-out plugs and tougher restarts at pit-stops.

Engine warm-up is another tactic learned from FAI Team Race, where it is necessary with diesels. This allows establishment of the proper needle-valve setting while the engine is hot to avoid possibility of an over-lean, sagging first run, when the race is started with a cold engine. It could also save an engine from burning up while the pilot nurses a staggering model until the tank runs out. Pit-stops should also be ala FAI Team Race, with the pilot bringing the model back to the pit-man. This, and quick, practiced pit-stops are where you beat the faster flying model.

Now you are ready for competition. Go out and give it your best effort. Don't panic, just do as you practiced. If you don't win, analyze what beat you and work to improve. Maybe you'll want to try a pit glove, better fuel bulb or a different procedure. Maybe you'll even want to spring for that hot Supertigre G15. Above all, have fun, for that is what it's all about.

Fouga Cyclone

Continued from page 19

$\frac{1}{16}$" shim under them. Cement S-2 and S-7 in place. Line up even with the plan. Cement the $\frac{1}{4}$"-sq. trailing edge to the ribs. Block up to keep it straight from root to tip. Add the remaining ribs, omitting S-1. Cement the leading edge and top spar in place. Use the angle template to install S-1 in the correct position. Make one right-hand and one left-hand panel. Cement the two panels together at S-1. The angle of the Vee should be 120 degrees. Sheet the bottom and the center section with $\frac{1}{16}$" sheet. Add the tip blocks and sand to shape. The wings and

stabilizer may be final sanded and covered at this point, if desired.

The fuselage sides are made from ¼ x 2 x 36" medium sheet. Cut the two sides from a 4"-wide sheet if necessary. Cement the ⅛ x ⅜" hatch doublers where shown on the plan. Epoxy the wing-tongue braces in place. Use epoxy on all the wing-tongue joints.

Mark former locations on the inside of each fuselage side. Join the sides with formers, F-3, 4 and 5. With these in place, the sides should be parallel and square to each other. When dry, pull together at the nose and tail and install the remaining formers.

Cut the skid from ¼" plywood. Bend the ⅛"-diameter wire wheel mount to shape and secure to the skid with metal straps. Retain the wheel permanently in place. Cover the tape. Epoxy the skid and wing tongues in place.

Cement the ¼" plywood motor-mount plate and lower block in place. The block should overhang F-4 at least 1/16" on either side. Cement the three N-1's in place. Recess the top one to lay along the motor mount. Install N-2 and N-3. Cut out the center of N-2 to accept a wedge tank on edge. Epoxy in place after modifying the filler, vent and feed to suit.

Plank the nacelle and bottom of the fuselage with ⅛ x ⅜" strips. Drill the motor mount for the engine to be used and install with blind-nuts. Remove the engine and cement side block next to the motor mounts.

Trim the sides at the tail so the stabilizer is a good fit. Maintain a zero-degree incidence setting in relation to the centerline. Cement in place, checking all angles to assure it will be on correctly.

Before the top of the fuselage is planked install the servos and pushrods. Get the linkages working as required and then remove the servos. Plank the top with ⅛ x ⅜" strips. Do not cement them to the sides along the edge of the removable hatch. Cover the nacelle pylon with 1/16" sheet with the grain vertical.

Cement the nose and tail blocks in place. When dry, carve and sand the fuselage to shape. Cut the hatch free and remove. Cement the prop-arc block between the planking and to F-3A. Temporarily install the engine and prop. Check that there is clearance through the cut-out for the prop.

Final-sand the fuselage, and finish with whatever material and procedure you prefer. I used a coat of clear dope followed by a couple of coats of dope-talc sealer, sanding between each coat. The fuselage was then covered with light Silkspan and four coats of dope applied again, sanding between each coat. Color dope was sprayed on. Two coats are adequate.

The wing and stabilizer were covered with Coverite, with three brushed coats of clear and two coats of color sprayed on. My model was painted all white with a red and blue stripe on the stabilizer tips. The canopy is metallic blue, and anti-glare panel dark blue. The engine nacelle and pylon should be silver, but I left them white.

When the finishing is complete install the engine and radio equipment. Add weight to the nose if necessary to place the center of gravity as indicated on the plan. Mine did not need weight.

If there are no warps and the C.G. and decalage are correct, test flights should be straightforward. My first flight was made with an engine run about 30 seconds, just in case it was badly out of trim. It is easier to fight the stick for 30 seconds than for two minutes. This first flight proved that the anticipated trim was close enough to try a full tank. The second flight was terminated over a half hour later because I thought my neck was going to break if I had to look up for another minute. After a rest a second flight was made for about 20 minutes.

These two flights alone convinced me I had been missing a lot of fun that gliding has to offer. When I bring the Cyclone to the field now, a chaise longue goes with me.

You Said It

Continued from page 10

magazine on this would, I'm sure, encourage a lot of hesitant newcomers.

My thanks to Heathkit for shrinking their receiver-kit and coming up with a price a lot easier for the beginner to swallow.

Don't ever lose the quality of your magazine.

Jerome Sandon, Billings, Mont.

Any single-channel sets?

I am a modeler, and I am just starting in R/C. I have had a tow-line glider, several control-line planes, and a small rubber-powered plane. AAM is my favorite magazine and I always read "You Said It" twice. I have read things I'd like to ask about.

1) My friend has a 6-channel reed system gathering dust on a shelf. 2) Many old-timers have old single-channel sets sitting on shelves — maybe you or somebody who reads this letter will have an old set to sell. It would be a shame not to have good sets used. Maybe other control-line graduates have the same idea. I'm 13.

Doug Hettinger, Glen Ellyn, Ill.

Someone cares

In regard to the letter entitled "No one cares" in "You Said It" in your May '69 issue, I think it only fair to say that not all R/C modelers are as snobbish as those Robert Hayman encountered in the southern Westchester area in New York.

After I finally assembled a complete Galloping Ghost rig from Ace and World Engines kits, and installed it in a Borans Buggy, I proceeded to slowly destroy the Borans Buggy. I then built an Astra-Mite and installed my gear in it. About that time I found a man in Port Isabel, almost 20 miles away, who flies R/C.

This man, Mr. Keller, invited me to come out the following Sunday to look at his gear and so that he and his friends could see if they could get me into the air.

We went out there and found them, but it was too windy for my plane, and all of theirs, except for a Jenny owned by a Mr. Buehler. He got his plane into the air and then let me fly it, teaching me the fundamentals, such as not over-controlling.

They also checked my plane for defects and found that it was O.K.

I believe that most modelers are friendly like these men were, and the people in Westchester are just the rotten apples in the R/C barrel.

Jim Dabney, Brownsville, Tex.

For model builders?

I am subscribing to AAM after giving up on one of your major competitors as a dead loss. I believe AAM at present is the best of the three major U. S. magazines available in Australia.

I must, however, complain about your March '69 issue. The "So Sonny Soloed" article, in my opinion, has no place in a magazine like AAM. It could have little appeal to model builders in general.

Captain L. E. Willson, Australia

Oh, well! Ed.

SIG FIRST IN BALSA AND MODEL SUPPLIES

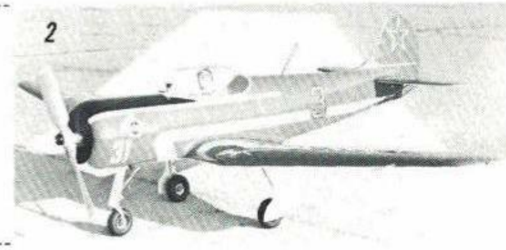
Two more superb SIG Superkits – for your '69 contest and sport flying

DOUBLER Brad Shepherd's hot new R/C Sport design is perfect for either Galloping Ghost or Small Proportional. With minor modifications it makes a fine Quarter Midget Racer. Kit features die-cut Sig grade 'AAA' Balsa and Plywood, Molded Canopy, Color Decals, Formed Landing Gear and Super Detailed Plans. Spanning a compact 37-1/2", this little beauty takes .09 engines. Only $9.95

YAK-18 Claude McCullough's fabulous exact-scale replica of this world-famous aerobatic plane will compete in the R/C Scale Internats in Germany this year. Sig's superkit of Claude's YAK-18 will be available at dealers soon after this ad appears. Spanning 72-1/2", for .60 engines, the kit features 7" x 9" Alum. Cowl, .040" Molded Canopy, Formed Landing-Gears, Color Decals, plus THREE sheets of Highly Detailed Plans (containing ample "scale presentation material" on full-size ship). $45.95

1

2



SIG 'AAA' BALSA — NEW PRICE LIST

SHEETS

36" LENGTHS

1/32 x 2 20c
1/16 x 2 23c
3/32 x 2 26c
1/8 x 2 31c
3/16 x 2 36c
1/4 x 2 46c
3/8 x 2 52c

1/32 x 3 32c
1/16 x 3 32c
3/32 x 3 40c
1/8 x 3 45c
3/16 x 3 54c
1/4 x 3 72c
3/8 x 3 85c

1/32 x 4 45c
1/16 x 4 45c
3/32 x 4 49c
1/8 x 4 63c
3/16 x 4 72c
1/4 x 4 80c
3/8 x 4 1.08

1/32 x 6 98c
1/16 x 6 98c
3/32 x 6 1.12
1/8 x 6 1.17
3/16 x 6 1.26
1/4 x 6 1.40
3/8 x 6 1.70

1/32 x 8 1.25
1/16 x 8 1.25
3/32 x 8 1.35
1/8 x 8 1.40
3/16 x 8 1.55
1/4 x 8 1.75
3/8 x 8 1.95

48" LENGTHS

1/32 x 3 43c
1/16 x 3 43c
3/32 x 3 54c
1/8 x 3 60c
3/16 x 3 72c
1/4 x 3 89c
3/8 x 3 1.24

1/16 x 4 62c
3/32 x 4 68c
1/8 x 4 80c
3/16 x 4 94c
1/4 x 4 1.05
3/8 x 4 1.38

1/16 x 6 1.35
3/32 x 6 1.46
1/8 x 6 1.56
3/16 x 6 1.68
1/4 x 6 1.87
3/8 x 6 2.20

36" LENGTHS

CONTEST 4-6 LB. STOCK

1/32 x 3 37c
1/16 x 3 37c
3/32 x 3 45c
1/8 x 3 50c
3/16 x 3 59c
1/4 x 3 78c
3/8 x 3 92c

C-GRAIN 8-12 LB. STOCK

1/32 x 2 26c
1/16 x 2 26c
3/32 x 2 35c
1/8 x 2 44c
3/16 x 2 49c
1/4 x 2 57c
3/8 x 2 62c

1/32 x 3 36c
1/16 x 3 36c
3/32 x 3 44c
1/8 x 3 49c
3/16 x 3 58c
1/4 x 3 76c
3/8 x 3 89c

V-H STOCK 12 LB. OR MORE

1/16 x 3 36c
3/32 x 3 44c
1/8 x 3 49c
3/16 x 3 58c
1/4 x 3 76c
3/8 x 3 89c

STRIPS

36" LENGTHS

■ 1/16 SQ. 3c
1/16 x 1/8 3c
1/16 x 3/16 4c
1/16 x 1/4 6c
1/16 x 3/8 7c
1/16 x 1/2 10c
1/16 x 3/4 12c
1/16 x 1 15c

■ 3/32 SQ. 5c
3/32 x 3/16 5c
3/32 x 1/4 6c
3/32 x 3/8 7c
3/32 x 1/2 10c
3/32 x 3/4 13c
3/32 x 1 17c

■ 1/8 SQ. 5c
1/8 x 3/16 5c
1/8 x 1/4 7c
1/8 x 3/8 10c
1/8 x 1/2 12c
1/8 x 3/4 16c
1/8 x 1 20c

■ 3/16 SQ. 8c
3/16 x 1/4 10c
3/16 x 3/8 12c
3/16 x 1/2 16c
3/16 x 3/4 19c
3/16 x 1 22c

■ 1/4 SQ. 13c
1/4 x 3/8 15c
1/4 x 1/2 18c
1/4 x 3/4 24c
1/4 x 1 30c

■ 5/16 SQ. 15c
5/16 x 3/8 20c
5/16 x 1/2 25c
5/16 x 5/8 30c
5/16 x 1 35c

■ 3/8 SQ. 18c
3/8 x 1/2 28c
3/8 x 3/4 32c
3/8 x 1 40c

■ 1/2 SQ. 27c
1/2 x 3/4 36c
1/2 x 1 45c

■ 5/8 SQ. 32c
5/8 x 1 42c

■ 3/4 SQ. 42c
3/4 x 1 52c

48" LENGTHS

■ 1/8 SQ. 7c
1/8 x 1/4 10c
1/8 x 1/2 16c

■ 3/16 SQ. 11c
3/16 x 1/2 22c
3/16 x 3/4 26c

■ 1/4 SQ. 18c
1/4 x 1/2 24c
1/4 x 3/4 32c

■ 5/16 SQ. 20c

■ 3/8 SQ. 24c
3/8 x 1/2 37c
3/8 x 3/4 42c

■ 1/2 SQ. 36c
1/2 x 3/4 48c

36" LENGTHS

SHAPED L.E.

3/8 x 1/2 28c
1/2 x 1/2 32c
3/4 x 3/4 50c
1 x 1 72c

SHAPED T.E.

1/8 x 1/2 17c
3/16 x 3/4 20c
1/4 x 1 26c
5/16 x 1-1/4 31c

TRIANGULAR CUT

1/4 SIDES(X) 17c
3/8 SIDES(X) 22c
1/2 SIDES(X) 26c
3/4 SIDES(X) 36c
1 SIDES(X) 48c

BLOCKS

3" LENGTHS

■ 1 SQ. 6c
1 x 2 12c
2 x 2 16c
1 x 3 16c
2 x 3 23c
3 x 3 36c

6" LENGTHS

■ 1 SQ. 12c
1/2 x 2 14c
3/4 x 2 18c
1 x 2 22c
1-1/2 x 2 26c
2 x 2 30c

1/2 x 3 20c
3/4 x 3 28c
1 x 3 31c
1-1/2 x 3 38c
2 x 3 42c
3 x 3 70c

1/2 x 4 30c
3/4 x 4 35c
1 x 4 40c
1-1/2 x 4 52c
2 x 4 62c
3 x 4 90c

1/2 x 6 44c
3/4 x 6 50c
1 x 6 59c
1-1/2 x 6 82c
2 x 6 92c
3 x 6 1.35

12" LENGTHS

■ 1 SQ. 22c
1/2 x 2 28c
3/4 x 2 35c
1 x 2 42c
1-1/2 x 2 50c
2 x 2 60c

1/2 x 3 38c
3/4 x 3 54c
1 x 3 60c
1-1/2 x 3 73c
2 x 3 89c
3 x 3 1.35

1/2 x 4 59c
3/4 x 4 67c
1 x 4 79c
1-1/2 x 4 99c
2 x 4 1.20
3 x 4 1.79

1/2 x 6 86c
3/4 x 6 99c
1 x 6 1.15
1-1/2 x 6 1.60
2 x 6 1.84
3 x 6 2.68

1/2 x 8 94c
3/4 x 8 1.17
1 x 8 1.50
1-1/2 x 8 1.75
2 x 8 2.16
3 x 8 3.10

18" LENGTHS

■ 1 SQ. 31c
1 x 2 63c
2 x 2 90c

1 x 3 92c
2 x 3 1.35
3 x 3 2.03

1 x 4 1.18
2 x 4 1.80
3 x 4 2.70

1 x 6 1.73
2 x 6 2.75
3 x 6 4.00

1 x 8 2.25
2 x 8 3.25
3 x 8 4.65

24" LENGTHS

■ 1 SQ. 44c
1 x 2 84c
2 x 2 1.20

1 x 3 1.20
2 x 3 1.80
3 x 3 2.75

1 x 4 1.58
2 x 4 2.40
3 x 4 3.58

1 x 6 2.30
2 x 6 3.65
3 x 6 5.36

1 x 8 3.00
2 x 8 4.30
3 x 8 6.20

★ SECOND GRADE SHEETS

36" LENGTHS

1/32 x 3 18c
1/16 x 3 18c
3/32 x 3 22c

1/8 x 3 25c
3/16 x 3 29c
1/4 x 3 38c
3/8 x 3 48c

PLANKS

36" LENGTHS

■ 1 SQ. 60c
1/2 x 2 85c
3/4 x 2 1.05
1 x 2 1.26
1-1/2 x 2 1.50
2 x 2 1.75

1/2 x 3 1.08
3/4 x 3 1.62
1 x 3 1.75
1-1/2 x 3 2.20
2 x 3 2.65
3 x 3 4.05

1/2 x 4 1.75
3/4 x 4 2.00
1 x 4 2.25
1-1/2 x 4 2.95
2 x 4 3.55
3 x 4 5.35

1/2 x 6 2.56
3/4 x 6 2.95
1 x 6 3.45
1-1/2 x 6 4.75
2 x 6 5.50
3 x 6 7.00

1/2 x 8 2.80
3/4 x 8 3.50
1 x 8 4.50
1-1/2 x 8 5.25
2 x 8 6.50
3 x 8 9.25

NEW BALSA ADDITIONS

SHEETS — 36" LENGTHS
5/32 x 3 x 36 50c
1/20 x 3 x 36 32c 5/16 x 3 x 36 76c
TAPER CUT SHEETS (TO 1/16" EDGE)
1/4 x 3 x 36 74c 1/4 x 4 x 36 82c
ROUNDED-EDGE PLANKING
5/32 x 1/4 x 36 LENGTHS 8c EACH
ROUNDED-EDGE (Aileron & Elevator)
1/4 x 1 x 36 40c 1/4 x 2 x 36 55c
3/8 x 1 x 36 45c 3/8 x 2 x 36 65c
WING SKINS — 36" LENGTHS
1/16 x 12 x 36 1.75 3/32 x 12 x 36 1.95

SIG SPRUCE

36" LENGTHS

1/16 x 1/8 4c
1/16 x 3/16 4c
1/16 x 1/4 5c
3/32 x 3/32 4c
3/32 x 1/8 5c
3/32 x 3/16 5c
3/32 x 1/4 6c
1/8 x 1/8 5c
1/8 x 3/16 6c
1/8 x 1/4 7c
1/8 x 3/8 9c
1/8 x 1/2 12c
1/8 x 3/4 16c
3/16 x 3/16 7c
3/16 x 1/4 9c
3/16 x 3/8 12c
3/16 x 1/2 16c
1/4 x 1/4 12c
1/4 x 3/8 16c
1/4 x 1/2 21c
3/8 x 3/8 22c

48" LENGTHS

3/32 x 3/32 5c
3/32 x 1/8 6c
3/32 x 1/16 6c
3/32 x 1/4 7c
1/8 x 1/8 6c
1/8 x 3/16 7c
1/8 x 1/4 9c
1/8 x 3/8 12c
1/8 x 1/2 15c
1/8 x 3/4 20c
3/16 x 3/16 10c
3/16 x 1/4 12c
3/16 x 3/8 16c
3/16 x 1/2 20c
1/4 x 1/4 16c
1/4 x 3/8 20c
1/4 x 1/2 28c
3/8 x 3/8 29c

24" LENGTH

3/16 x 3/4 15c

LARGE BUNDLE OF ASSORTED STRIPS — "SHORTS" AND "SECONDS" 79c

BIRCH PLYWOOD

FINEST GRADE — FLAT SHEETS

12" LENGTHS

1/32 x 6 30c
1/16 x 6 35c
3/32 x 6 35c
1/8 x 6 40c
3/16 x 6 40c
1/4 x 6 45c

1/32 x 12 60c
1/16 x 12 70c
3/32 x 12 70c
1/8 x 12 80c
3/16 x 12 80c
1/4 x 12 90c

24" LENGTHS

1/32 x 12 1.20
1/16 x 12 1.40
3/32 x 12 1.40
1/8 x 12 1.60
3/16 x 12 1.60
1/4 x 12 1.80

48" LENGTHS

1/32 x 12 2.40
1/16 x 12 2.80
3/32 x 12 2.80
1/8 x 12 3.20
3/16 x 12 3.20
1/4 x 12 3.60

SIG BASS WOOD

18" LENGTH SHEETS

1/16 x 2-1/2 15c
3/32 x 2-1/2 17c
1/8 x 2-1/2 19c
3/16 x 2-1/2 23c
1/4 x 2-1/2 28c
3/8 x 2-1/2 35c

BLOCKS

1/2 x 3/4 x 6 6c
1/2 x 3/4 x 12 11c
1/2 x 3/4 x 18 16c
3/4 x 3/4 x 6 7c
3/4 x 3/4 x 12 14c
3/4 x 3/4 x 18 20c
3/4 x 1 x 6 9c
3/4 x 1 x 12 17c
3/4 x 1 x 18 26c

3/4 x 2 x 6 14c
3/4 x 2 x 12 27c
3/4 x 2 x 18 40c
3/4 x 3 x 6 19c
3/4 x 3 x 12 37c
3/4 x 3 x 18 55c
3/4 x 4 x 6 24c
3/4 x 4 x 12 47c
3/4 x 4 x 18 70c

SIG BIRCH DOWELS

12" LENGTHS

1/8 dia. 3c
3/16 dia. 4c
1/4 dia. 5c
5/16 dia. 5c
3/8 dia. 6c
1/2 dia. 7c

36" LENGTHS

1/8 dia. 6c
3/16 dia. 9c
1/4 dia. 10c
5/16 dia. 12c
3/8 dia. 15c
1/2 dia. 20c

1/16 dia. available in 12" lengths 1c

SIG DECAL PROOFER

MAKES ALL DECALS FUEL-PROOF & DURABLE (ONLY ONE COAT REQ.) 4 Oz. Jar, 59c 3 Oz. Spray, 59c

SIG MODEL PINS

#8 1/2 Long
#14 7/8 Long
#16 1 Long
#17 1-1/8 Long
#20 1-1/4 Long
#24 1-3/8 Long
#28 1-5/8 Long
#32 2 Long

Pkt. 15c 1/4 lb. $1.15 1 lb. $3.95

MODEL MAKER'S "T" PINS Pkt. 15c 1/2 lb. box (1000) $4.50

SIG RUBBER BANDS

#8 1/16 x 7/8
#10 1/16 x 1-1/4
#14 1/16 x 2
#16 1/16 x 2-1/2
#30 1/8 x 2
#32 1/8 x 3
#62 1/4 x 2-1/2
#64 1/4 x 3-1/2
#84 1/2 x 3-1/2
#105 5/8 x 5
#107 5/8 x 7

PACKETS 15c

ALL SIZES AVAILABLE IN BULK AT: 1/4 lb. Pkg. $1.10 1 lb. Pkg. $3.95

SIG "PETER CHINN" MODEL ENGINE FUEL

FUEL TYPE	Pint	Quart	Gallon
REGULAR	85c	$1.50	$4.95
CONTEST	90c	$1.59	$5.95
GRAND PRIX	$1.00	$1.75	—
R/C SPECIAL	—	$1.39	$4.50

REGULAR HIGHEST QUALITY AND ECONOMICAL GENERAL PURPOSE FUEL FOR .15 - .60 ENGINES. IDEAL FOR .35 - .45 STUNT, .35 COMBAT, .15 - .45 R/C THROTTLE-ENGINES, BREAKING-IN.

CONTEST TOP PERFORMANCE, ALL-PURPOSE FUEL FOR .01 - .15 ENGINES. EXCELLENT FOR ALL MEDIUM AND LARGE-SIZE ENGINES (AFTER BREAKING-IN) & WHERE EXTRA POWER IS REQUIRED.

GRAND PRIX ULTRA HIGH-PERFORMANCE (GIVES UP TO 40% MORE POWER) "HIGH NITROMETHANE CONTENT" FUEL FOR ALL COMPETITION AND RACING ENGINES. FOR F/F GAS, C/L RAT-RACING, PROTO-SPEED & SPEED. NOT SUITABLE FOR STUNT, R/C ENGINES OR BREAKING-IN.

R/C SPECIAL ECONOMICAL, "WIDE R.P.M. RANGE" FUEL FOR ALL THROTTLE-EQUIPPED .15 - .60 R/C ENGINES. GIVES ULTRA-SMOOTH RUNNING AT FULL POWER AND LOWEST IDLE — IN ALL CLIMATIC CONDITIONS. ALSO IDEAL FUEL FOR C/L NAVY CARRIER AND C/L STUNT FLYING.

MAXEY HESTER'S FUEL

SPECIAL "N720C" FUEL — PERFECT FOR R/C FLYING: Quart, $1.50 Half Gallon, $2.75 / Gallon, $4.95

SIG WINGSKINS

1/64" BIRCH PLYWOOD (THREE PAPER-THIN VENEERS LAMINATED WITH WATERPROOF GLUE) — CAN BE CUT WITH SCISSORS. PERFECT MATERIAL FOR COVERING FOAM TYPE WINGS 12" x 12", 80c 12" x 24", $1.60 12" x 48", $3.20 24" x 48", $6.40

SIG SUPERFILL

FOR FILLING BALSA WOOD
4 oz. 55c 8 oz. 1.00 Pint 1.59

SIG BUBBLE CANOPIES

PERFECT BUBBLE CANOPIES FORMED FROM TOUGH BUTYRATE* PLASTIC — AVAILABLE IN 13 SIZES IN CLEAR — OR IN BLUE, GREEN OR AMBER
CLEAR: 4" 15c / 5" 20c / 6" 30c / 7" 40c / 8" 50c / 9" 60c / 10" 70c / 11" 80c / 12" 90c / 13" $1.00 / 14" $1.10 / 15" $1.20 / 16" $1.25
COLOR: 4" 25c / 5" 30c / 6" 40c / 7" 50c / 8" 60c / 9" 70c / 10" 80c / 11" 90c / 12" $1.00 / 13" $1.10 / 14" $1.20 / 15" $1.30 / 16" $1.35

'69 SIG MODEL KIT LINE

R/C SCALE:
CESSNA 172 54" Span 14.95
PIPER CUB J-3 71" Span 21.95
CESSNA 170 72" Span 24.95
FAIRCHILD PT-19 72" Span 34.95
T-34 MENTOR 70" Span 36.95
YAK 18 (McCullough) — Coming Soon

R/C:
The BARON'S BUGGY 34" 12.95
PRIVATEER SUPER 15 60" 12.95
MIDGET 450 Racer 50" Span 24.95
STRATUS Class III 70" Span 29.95
SIMCO Class III 68" Span 34.95

C/L SCALE:
N.A. AT-6 31" Span 6.95
FOCKE-WULF 190 26" Span 6.95
SPITFIRE 27" Span 6.95
BEARCAT 26" Span 6.95
SPAD 7 (Combat) 30" Span 6.95
FOKKER D-7 33" Span 6.95
THUNDERBOLT 33" Span 7.95
P-40 WARHAWK 45" Span 9.95
D.H. CHIPMUNK 55" Span 12.95
AG-1 CROPDUSTER — Coming Soon

F/F SCALE:
PIPER SUPER CRUISER 36" 3.95
FAIRCHILD 24 RANCHER 36" 3.95

FREE FLIGHT:
RAMROD 250 40" Span 3.75
WITCH DOCTOR-X 51" Span 3.75
WITCH DOCTOR 800 (Just out) 9.95

GLIDERS:
SINBAD 40 40" Span 1.95
SUPER SINBAD 61" Span 4.95

RUBBER-POWERED:
DELTA DART STICK MODEL — 35c
SIG CUB STICK MODEL 24" 98c

SIG NYLON PUSHROD

COMPLETE WITH THREADED STUD & SERVO CONNECTOR, AVAIL. IN 2 SIZES: 30" Set, 79c / 48" Set, $1.25
BULK PUSHROD (10 Ft. Long): $1.49
PUSHROD STUDS (Set of Three): 10c
PUSHROD KEEPER (Set of Two): 25c

SIG SHEET NYLON

USE .010" THICKNESS FOR HINGE MATERIAL / 1/16" FOR BELLCRANKS, CONTROLHORN EXTENSIONS / 1/8" FOR HEAVY-DUTY BELLCRANKS AND BEARINGS / 1/4" FOR SPECIAL NOSE BEARING BLOCKS AND OTHER ITEMS
.010 x 3 x 4, 25c 1/16 x 2 x 4, 60c
1/8 x 2 x 4, 95c 1/4 x 1 x 4, $1.00

SIG NYLON WING SCREWS

1/4-20 x 1" Package of 4, 39c
1/4-20 x 1-1/2" Package of 4, 49c
8-32 x 1" Package of 4, 35c

SIG NYLON BUSHINGS

THREE SIZES NOW AVAILABLE — AT 15c PER PACKAGE: #4 / #6 / #8

SIG NYLON WASHERS

FOUR SIZES (Inter. Dia.) AVAILABLE AT 15c PER PACKAGE: 3/32" Dia. 1/8" Dia. / 5/32" Dia. / 3/16" Dia.

SIG NYLON ACCESSORIES

SERVO MOUNT. SCREWS, 4 for 29c
R/C 90° BELLCRANK (with bolt), 25c
R/C CONTROL HORNS (with bolts), IN LONG OR SHORT SIZES, 25c ea.

SIG HARDWARE

BLIND MOUNTING NUTS, 4 per Pkg: 2-56 Size, 20c 3-48 Size, 20c 4-40 Size, 20c 6-32 Size, 25c
NUTS AND BOLTS, 4 each per Pkg: 2-56 x 3/8, 15c 4-40 x 1", 20c 3-48 x 3/4, 15c 4-40 x 1-1/2, 20c 4-40 x 3/8, 15c 6-32 x 1-1/2, 25c
3/8" WOOD SCREWS, per Pkg., 15c IN THREE SIZES: #1 / #2 / #3
2-1/2" METAL C/L BELLCRANK, 15c
SPADE BOLTS, Package of 4 for 25c
"J" Type BOLTS, Package of 4 for 25c
THREADED HARDWOOD BLOCKS, IN 2 SIZES, 25c Pair: 1/4-20 / 8-32
ENGINE MOUNT. SCREWS IN TWO SIZES, 6 for 15c: #4x1/2 / #6x3/4
R/C LANDING GEAR (HARDWOOD) BLOCKS (PACKAGE OF TWO), 39c
R/C LINK, WITH 9" LONG ROD, 35c
R/C ROD COUPLERS, Pkg. of 4, 25c
AIRCRAFT TAPE: 1", 20c / 2", 25c
1/2A C/L DACRON LINE (60'), 25c
SOCKET HEAD SCREWS (PKG. OF 4 WITH WRENCH: 4-40 x 3/4", 49c 6-32 x 1", 55c / 8-32 x 1-1/2", 59c
MASKING TAPE (12 FOOT), 15c PER ROLL: 1/8" / 1/4" / 3/8" / 1/2"
HEATPROOF FUEL LINE: LARGE (per foot), 39c / MEDIUM (per foot), 29c

RUBBER LUBRICANT

4 oz. 60c 8 oz. $1.10 Pint $1.95

SIG JAP TISSUE

PRE-WAR QUALITY JAPANESE TISSUE IN ORANGE, YELLOW, RED, WHITE, BLUE OR BLACK. 18 x 20 sheet 7c

BAMBOO PAPER

HEAVIER THAN OUR REGULAR JAP TISSUE — IN YELLOW, RED, WHITE, BLUE OR BLACK. 21 x 31 sheet 15c

SILKSPAN

00 WHITE: 19-1/2 x 24-1/2 sheet 5c
GM WHITE: 24 x 36 sheet 10c
SGM WHITE: 26-1/2 x 33-1/2 sheet 15c

SIGRAY

NEW SIG COVERING MATERIAL — A BLEND OF RAYON AND SILK, IN WHITE, BLACK, RED, YELLOW AND BLUE (36" WIDTH). Per Yard $1.25

SIG NYLON

WHITE, 36x48, IN PACKAGE, $1.25

SIG SILK

FOR R/C MODELS — IN RED, BLUE, WHITE, GOLD OR GREEN (36" x 36") HEAVY $1.75 EXTRA-HEAVY* $2.00 — *EXTRA-HEAVY IN WHITE ONLY

JAP SILK

LIGHT-WEIGHT, FOR SMALL GAS, RUBBER, GLIDER ETC. — IN RED, WHITE, BLUE, GREEN, SILVER OR GOLD. 36" x 36" sheet, $1.50

SIG AIROLAC

OUR NEW HIGH-GLOSS CELLULOSE ACETATE BUTYRATE DOPE FEATURES TRIPLE-GROUND PIGMENTS FOR AN ULTRA-SMOOTH, GLASS-LIKE FINISH. IT'S FAST-FILLING & LEVELING — BLUSH-RESISTANT & FADE-PROOF. NOW AVAILABLE IN 15 COLORS: Lt. Red / Medium Red / Gloss White / Lemon Yellow / Cub Yellow / Gray / Med. Blue / Dark Green / Gloss Black / Sky Blue / Brite Green / Brite Orange / Dark Blue / Brite Silver / Brite Gold
COLOR: 4 oz. 69c 8 oz. $1.19 Pint $1.79 Qrt. $2.98 Gal. $8.95
CLEAR: 4 oz. 59c 8 oz. 98c Pint $1.49 Qrt. $2.39 Gal. $7.19
THINNER: 4 oz. 39c 8 oz. 59c Pint 98c Qrt. $1.69 Gal. $4.39
AIROLAC ALSO AVAILABLE IN PINT SPRAY CANS ($1.49) IN ALL COLORS
SPECIAL AIROLAC FILLER-SANDER: 4 oz. 69c 8 oz. $1.19 Pint $1.79 (Also avail. in Pint Spray Cans, $1.79)

SIG DOPE BRUSHES

FINEST QUALITY CAMEL HAIR — IN TWO WIDTHS: 5/8" 25c 1" 29c

RAZOR PLANE

USES DOUBLE-EDGED BLADES $1.50

R/C FUEL TANKS

NEW SIG DESIGN HAS TWO-PIECE PLUG & LEAK-PROOF SCREW-CAP / PLASTIC CONTAINER AND FLEXIBLE PICK-UP / NON-CORROSIVE BRASS TUBING: 2 oz. 95c 4 oz. $1.05 6 oz. $1.15 8 oz. $1.25 12 oz. $1.40

PRESSURE FUEL PUMPS

FAST, EASY WAY TO FILL BIG FUEL TANKS. AVAILABLE IN: Quart $2.89 Half Gallon $3.19 / Gallon $3.49 Pump Only $2.39 / Primer Bottle 29c

COPPER WIRE

FOR BINDING C/LINES, L/GEAR 15c

SIG EPOXY

STRONGEST GLUE EVER DEVELOPED FOR THE MODELER / COMES IN 2 PARTS (A & B) — IN POLYETHELENE SQUEEZE BOTTLES, WITH SPECIAL NO-DRIP SPOUT: 1-1/2 oz. pack 89c 3 oz. pack $1.39 12 oz. pack $3.95

SIG EPOXOLITE

NEW 2-PART EPOXY PUTTY / LIGHT AS BALSA & STRONG AS EPOXY / QUICK SETTING / EASY TO WORK / LONG SHELF LIFE / EXCELLENT BUTYRATE DOPE ADHESION / CAN BE CARVED, SAWN AND SANDED. 4 oz. Set $1.69 8 oz. Set $2.95

SIG NYLON SHEET

.010 THICK NYLON, MAKES 16 R/C OR C/L HINGES (3 x 4 SHEET). 25c

SIG CONTEST RUBBER

NEW "HIGH POWER" RUBBER STRIP: 1 LB. of 1/8" $5 1 LB. of 1/4" $5

SIG CELLULOID

.008 x 8 x 10 12c .015 x 8 x 10 30c

FLITE-FOAM

WHITE EXPANDED BEAD FOAM (1 lb PER CUBIC FOOT) 12" WIDE PLANKS
1x12 35c 1x36 90c 1x48 $1.20
2x12 69c 2x36 $1.80 2x48 $2.40
3x12 89c 3x36 $2.70 3x48 $3.60

SIG SUPERCOAT FUEL PROOF DOPE

BRILLIANT WHITE • DIANA CREAM POLAR GRAY • BROWN • JET BLACK LEMON YELLOW • TENNESSEE RED CUB YELLOW • ORANGE • MAROON LIGHT RED • SILVER • OLIVE DRAB FOREST GREEN • BRIGHT GREEN DK. GREEN • DK. BLUE • LIGHT BLUE MIAMI BLUE • CLEAR • THINNER

PLUS 5 NEW SUPERCOAT COLORS — GOLD, COPPER, METALLIC GREEN, METALLIC BLUE, METALLIC MAROON

COLOR	CLEAR	THINNER
4 oz. 59c	4 oz. 50c	4 oz. 39c
8 oz. 95c	8 oz. 89c	8 oz. 59c
Pint 1.49	Pint 1.39	Pint 98c
Qrt. 2.79	Qrt. 2.19	Qrt. 1.69
Gal. 7.95	Gal. 6.59	Gal. 4.39

SIG SUPERCOAT IN NEW SPRAY CANS

ALL 19 SUPERCOAT COLORS, PLUS CLEAR, NOW AVAILABLE IN THESE HANDY, LOW-COST SPRAY CANS 3 oz. 49c 6 oz. 79c Pint 1.39

SURGICAL TUBING

THIN WALL, FOR FUEL LINE & USE WITH CLOCKWORK TIMERS 15c FT

SIG FUEL-RESISTANT DECAL SHEETS

BRAND NEW LINE OF 44 DIFFERENT SIG MODEL PLANE DECAL SHEETS
★ SOLID COLORS (CHOICE OF 9): RED, WHITE, BLUE, BLACK, YELLOW, ORANGE, GREEN, GOLD OR SILVER
★ CHECKERBOARD (1/4" AND 1/2" SQUARES): RED, BLUE, GREEN (ON WHITE) • RED, WHITE, BLUE, BLACK, YELLOW, ORANGE, GREEN, GOLD OR SILVER (ON CLEAR) • ORANGE (ON BLACK) • RED (ON YELLOW)
★ STRIPES (1/4", 3/8" & 1/2" WIDTH ON EACH SHEET): RED, WHITE, BLUE, YELLOW, ORANGE, BLACK, GREEN, GOLD OR SILVER (ALL ON CLEAR)
★ STARS (5-PT.): RED, BLUE OR BLACK (ON WHITE) • RED, WHITE, BLUE, YELLOW, ORANGE, BLACK, GREEN, GOLD OR SILVER (ON CLEAR)
TWO 4-1/4" x 11" DECAL SHEETS 45c

SANDPAPER

TEN 4-1/2 x 5-1/2 ASS. SHEETS 15c

GARNET PAPER

FIVE 4-1/2 x 5-1/2 FINE SHEETS 15c

SIG PIANO WIRE

1/32 dia. 6c
3/64 dia. 7c
1/16 dia. 9c
36" LENGTHS
3/32 dia. 17c
1/8 dia. 22c
5/32 dia. 42c
3/16 dia. 55c

SIG-MENT

OUR GREAT NEW "ONE-TUBE A & B SUPER-CEMENT" — FOR ALL MODEL BUILDING AND FAST FIELD REPAIRS — HOT FUEL PROOF, STRONG AND QUICK DRYING — FOR BALSA, PLYWOOD, HARDWOOD, WOOD-TO-METAL, METAL-TO-METAL & CLOTH 2 oz. 25c 4 oz. 49c 8 oz. 69c Also available in Pint size — $1.29

CONTACT CEMENT

ONE COAT INSTANT BONDING FOR ALL WOODS, METAL, CLOTH ETC. 4 oz. 55c 8 oz. 95c Pint 1.50

R/C HOOK-UP WIRE

SIG PACKAGE OF EIGHT DIFFERENT COLOR WIRES, 3-FT. LENGTHS. 69c

Win with SIG at the 1969 Nats...

$200.00 Certificate to any contestant who wins a First Place with a model built from a Sig Kit.

$50.00 Certificate to each National Champion who uses Sig Balsa (or Plywood) in his model.

$20.00 Certificate to each First Place Winner who uses Sig Balsa (or Plywood) in his model.

(these valuable certificates may be redeemed for any of the thousands of different model items available from the Sig Manufacturing Co. Inc. — and will be mailed to all '69 Nats Winners)

SIG MANUFACTURING COMPANY, INC. / 401(A) SOUTH FRONT STREET / MONTEZUMA / IOWA 50171

R/C World

Continued from page 32

local affair. The Nationals will count in the point totals, as will all AMA-sanctioned meets from April 5 through Aug. 17.

Each AMA-chartered club will be allowed one contest for points purposes. Monthly listings will be made available by RCIA of point standings. Flying will take place at the club field of CCRC, which has a paved runway 30 x 300', and all needed additional facilities for a top-grade meet. Events will include Class C Expert Pattern, sport class pylon and probably limbo. Only the top 30 flyers are eligible for Pattern, but all other events will be open. Cash prizes. Len Purdy will be C.D. (he is also VP-Sec. of RCIA). Further info from Harper, or from RCIA Exec. Sec. Ara Palmer (Radio Control Industry Assoc., Briarwood Rd., Oakwood, Ga. 30566).

Contest Calendar

Continued from page 48

Flying Field. A. Schaefer CD, 4206 Virginia Ave., St. Louis, Mo. 63111. Sponsor: **St. Louis Yellow Jackets.**

Aug. 17 — Canton, Ohio (AA) Canton RC Club RC Meet. Site: Sherr Rd. S. E., Club Field. G. Villard CD, 3301 23rd St., N. W. Canton, Ohio 44708.

Aug. 17 — Green Bay, Wisc. August Fun Fly for 4 Spec. Fun Events, at least 1 for Jr. Site: Austin Straubel Field. R. Cowles Jr. CD, 2424 Ducharme Lane, Green Bay, Wisc. 54301. Sponsor: **Green Bay RUF Club.**

Aug. 17 — Lincoln, Nebr. (AA) Aero Design Summer CL Meet. Site: Woods Park, 33rd & O St. J. Mock CD, 851 N. 42nd, Lincoln, Nebr. 68503.

Aug. 23-24 — Orange, Mass. (AA) New England RC Championships. Site: Orange Municipal Airport. A. Bachand CD, 33 Carver Rd., Framingham, Mass. 01701.

Aug. 23-24 — St. Charles, Mo. (AA) McDonnell 12th Annual RC Meet. Site: Conductron Corp. W. Feldmeier CD, 2955 Clearview Dr., Normandy, Mo. 63121. Sponsor: **McDonnell RC Club.**

Aug. 23-24 — Decatur, Ala. (AA) 4th Decatur MAC Annual RC Contest. Site: Courtland Air Base. E. Minter CD, 2317 Calumet Ave. S. E., Decatur, Ala. 35601.

Aug. 24 — Chardon, Ohio (AA) CRC 7th Annual

RC Pattern Contest. Site: Club Field. F. Vidmar CD, 26500 Zeman Ave., Euclid, Ohio 44132.

Aug. 24 — Canton, Ohio (AA) Small Field Fun FF Contest. Site: Frase Farm. D. Assel CD, 1012 Milford St., N. E., Canton, Ohio 44714. Sponsor: **Canton Model Airplane Society.**

Aug. 24 — Wichita, Kans. (AA) Wichihawks 2nd Annual Fall Rally for FF, CL. Site: Wichita Modelers Council Field. J. Mason CD, 2214 S. Pinecrest, Wichita, Kans. 67218. Sponsor: **Wichihawks.**

Aug. 24 — Portville, N. Y. (AA) RC Pylon Meet. Site: 1 mi. So. on Rt. 446 adjacent to gravel pit. G. Flynn CD, Rt. 2 Box 456, Olean, N. Y. 14760. Sponsor: **Olean MAC.**

Aug. 24 — Cincinnati, Ohio (AA) Queen City U-Control Meet. Site: Lunken Airport. J. Ballard CD, 6219 Bona Vista, Cincinnati, Ohio 45213.

Aug. 24 — Davenport, Iowa (AA) Fall Annual CL Contest. R. Mairet CD, 3009 Westmar Dr., Bettendorf, Iowa 52722.

Aug. 24 — Hillsboro, Ore. (AA) Nor Westers FF Contest. Site: Cornell Rd. J. Lenderman CD, Rt. 2 Box 460, St. Helens, Ore. 97051. Sponsor: **Nor Westers.**

Aug. 24 — Westminster, Md. (AA) Westminster Aero Modelers CL Meet. Site: Shopping Center. R. Pease CD, 65 E. Main St., Westminster, Md. 21157. Sponsor: **Westminster Aero Modelers.**

Aug. 24 — Bong AFB, Wisc. (A) Flying Fools-NIAMACS Meet. J. Samuels CD, 337 S. 8th St., St. Charles, Ill. 60174.

Aug. 24 — Johnsville, Pa. (AAA) Eastern States FF, CL, RC Championships. Site: NAF. R. Leishman CD, 167 Goldenridge Dr., Levittown, Pa. 19057. Sponsor: **Levittown Flying Bucks.**

Aug. 30-31 — Madera, Calif. (AA) West Coast RC Championships. Site: Airport. R. Francis CD, 1225 Buchanan, Santa Clara, Calif. 95051. Sponsor: **Pioneer RC Club.**

Aug. 30-31 — Memphis, Tenn. (AA) Memphis RC Club Meet. Site: Club Field. L. Hord CD, 5050 Poplar, Suite 319, Memphis, Tenn. 38117. Sponsor: **Memphis RC Club.**

Aug. 30-31 — Three Rivers, Mich. (AA) 9th Annual Multi RC Contest. Site: Airport. C. Groves CD, 1523 Washington Ave., Kalamazoo, Mich. 49001.

Aug. 30-31 — Indianapolis, Ind. (AA) Indianapolis RC Meet. Site: Indpls. RC Flying Field. J. Goad CD, 10906 Willowmere Dr., Indianapolis, Ind. 46280. Sponsor: **Indianapolis RC Club.**

Aug. 30-Sept. 1 — Bong Field, Wisc. 1971 North-Central Area FAI FF Semi-Finals. P. Sotich CD, 3851 W. 62nd Pl., Chicago, Ill. 60629. Sponsor: **Illinois Model Aero Club & Chicago Aeronuts.**

Aug. 30-Sept. 1 — Tulsa, Okla. FAI Outdoor FF Semi-Finals. Site: TGD Field. W. Kehr CD, 4940 N. Johnstown, Tulsa, Okla. 74126. Sponsor: **Tulsa Glue Dobbers.**

Aug. 31 — East Meadow, L. I., N. Y. (AA) NAGS 2nd Annual RC Meet. Site: Mitchel Field. M. Palumbo CD, 201 Martin Dr., Syosset, N. Y. 11791.

Aug. 31 — Fresno, Calif. (A) Fresno Monthly FF Contest. Site: Near Kerman. F. Gallo CD, 1725 Kenmore Dr. W., Fresno, Calif. 93703. Sponsor: **Fresno Gas Model Club.**

Aug. 31 — Chicago, Ill. (AA) Illinois Iowa Aeronautical Assn. CL Meet. Site: Cook County Forest Preserve. G. Johnson CD, 6810 S. Crandon, Chicago, Ill. 60649.

Sept. 1 — Middlesex, N. J. (AA) MMAC 1st Annual CL Contest. Site: Mountain View Park. A. Koenig CD, 1613 Frase St., So. Plainfield, N. J. 07080.

Sept. 1 — Salem, Ohio RC Short Circuits Club Annual Contest. Site: Quaker City Drag Strip. J. Marshall CD, RD No. 5, Lisbon, Ohio 44432. Sponsor: **RC Short Circuits Club.**

Sept. 6-7 — Fiskdale, Mass. (AA) 4th Annual N. E. Hydro Radio Plane RC Championships. Site: Brimfield Dam. J. Ross CD, 19 Sterling Dr., Dover, Mass. 02030. Sponsor: **New England RC Modellers.**

Sept. 6-7 — Amarillo, Tex. (AA) ARKS 9th Annual RC Meet. Site: Club Flying Field. B. Irwin CD, 3302 Lewis Lane, Amarillo, Tex. 79109. Sponsor: **Amarillo RC Society.**

Sept. 6-7 — Chesapeake, Va. (AA) TRC 4th Annual AA RC Meet. Site: Fentress Naval Air Field. M. Woolard CD, 4122 4th St., Chesapeake, Va. 23324. Sponsor: **Tidewater RC.**

Sept. 6-7 — Dayton, Ohio (AA) Dayton Buzzin Buzzards CL Meet. Site: Municipal Flying Circles. J. Martin CD, 551 Aberdeen, Dayton, Ohio 45419. Sponsor: **Dayton Buzzin Buzzards.**

Sept. 6-7 — Nedrow, N. Y. Syracuse RC Fly-O-Rama E. Izzo CD, 3950 Highland Ave., Skaneateles, N. Y. 13152. Sponsor: **Syracuse ARCS.**

Sept. 7 — Parkersburg, W. Va. Skysharks Fun Fly. Site: Club Field. G. Villard CD, 3301 23rd St. N. W., Canton, Ohio 44708. Sponsor: **Vienna Skysharks RC.**

Sept. 7 — Bong Field, Wisc. (AAA) 26th Annual Midwestern States FF Championships. P. Sotich CD, 3851 W. 62nd Pl., Chicago, Ill. 60629. Sponsor: **Chicago Aeronuts.**

Sept. 7 — College Park, Md. (AA) Eastern U. S. Indoor Championships. Site: Cole Field House, Univ. of Md. G. Buck CD, 4215 Howard Rd., Beltsville, Md. 20705. Sponsor: **DC Maxecuters.**

Sept. 13-14 — Marietta, Ga. (AA) Masters RC Tournament and Air Races. Site: CCRC Field. L. Purdy CD, Rt. 1, Oakwood, Ga. 30566. Sponsor: **Cobb County RC.**

Sept. 13-14 — Atlanta, Ga. (AA) Southern RC Trade Show. Site: Mariott Motor Motel. L. Purdy CD, Rt. 1, Oakwood, Ga. 30566. Sponsor: **Cobb County RC.**

Sept. 13-14 — West Suffield, Conn. (AA) NCRCC 5th Annual RC Contest. Site: NCRCC Field. R. Bernier CD, 761 Mather St., Suffield, Conn. 06078. Sponsor: **Northern Conn. RC Club.**

Sept. 13-14 — Tahlequah, Okla. 1st Annual All Oklahoma State Meet for FF, CL, RC. Site: Municipal Airport. J. Wingo CD, 2615 Elgin, Muskogee, Okla. 74401.

Sept. 13-14 — Conklin, Mich. (AA) Grand Rapids & Seaway Annual RC Meet. Site: Den Hoff Farm. J. Wolflin CD, 3971 Causeway Dr., Lowell, Mich. 49331. Sponsor: **Grand Rapids RC Club & Seaway RC Club.**

Sept. 13-14 — Denver, Colo. (AAA) 4th Annual Rocky Mountain FF Championships. Site: East Colfax Airport. G. Larrabee CD, 3203 W. Saratoga, Englewood, Colo. 80110. Sponsor: **Magnificent Mountain Men.**

Sept. 13-14 — Bossier City, La. (AA) SHARKS Annual for RC. Site: SHARK'S Field. J. Monk CD, 574 Janet Lane, Shreveport, La. 71106. Sponsor: **Shreveport Area RC.**

Sept. 13-14 — Rhinebeck, N. Y. (AA) World War I RC Jamboree. Site: Olde Rhinebeck Aerodrome. B. Blake CD, 12 Shale Dr., Wappinger Falls, N. Y. 12590. Sponsor: **IBM RC Model Club.**

Sept. 14 — Pensacola, Fla. Pensacola Aero Modelers Fly for Fun RC Meet. Site: Corry Field. W. Davison CD, 4422 W. Jackson St., Pensacola, Fla. 32506. Sponsor: **Pensacola Aero Modelers.**

Sept. 14 — Fountain Valley, Ga. (A) Orange County Thunderbugs CL Monthly. Site: Mile Sq. D. Esslinger CD, 6631 Oxford Dr., Huntington Beach, Ca. 92647. Sponsor: **Orange County Thunderbugs.**

Sept. 14 — Cleveland, Ohio (AA) Cleveland Recreation & Lakewood Flight Masters CL Meet. Site: Cleveland Model Flying Field. A. Montagino CD, 3911 Daisy Ave., Cleveland, Ohio 44109.

Sept. 14 — Portland, Ore. (AA) Falcon Annual Invitational for CL. Site: East Delta Park. V. Matheny CD, 75 N. E. Going St., Portland, Ore. 97211. Sponsor: **Falcon MAC.**

Sept. 14 — Sioux Falls, S. D. (AA) 11th Annual Sioux Falls Gas Model Club RC Meet. D. Lilyquist CD, 1315 S. Norton Ave., Sioux Falls, S. D. 57105.

Sept. 14 — New Castle, Pa. PORKS 10th Annual Open RC Contest. Z. Allerton CD, 124 Richelieu Ave., New Castle, Pa. 16101. Sponsor: **PORKS, Inc.**

Sept. 14 — Downers Grove, Ill. (AA) Treetown Modelairs 3rd Annual AA CL Meet. Site: 39th & Fairview Park. R. Phillips CD, 4431 Stonewall Ave., Downers Grove, Ill. 60515. Sponsor: **Treetown Modelairs.**

Sept. 14 — Bong Field, Wisc. (AA) 9th Annual I.M.A.C. Invitational FAI FF Contest. P. Sotich CD, 3851 W. 62nd Pl., Chicago, Ill. 60629. Sponsor: **Illinois Model Aero Club.**

Sept. 14 — Ft. Wayne, Ind. (AA) Flying Circuits 15th Annual RC Contest. Site: Smith Field. J. Smith CD, 2925 Ridgeway Dr., Ft. Wayne, Ind. 46806. Sponsor: **Flying Circuits Club.**

Sept. 20-21 — Huntsville, Ala. (AA) Rocket City RC 9th Annual RC Contest. Site: Old Huntsville Airport. C. Scholefield CD, 2709 Briarwood Dr., S. E., Huntsville, Ala. 35801.

Sept. 20-21 — Turlock, Calif. (AA) Western States Pylon RC Championships. Site: Airport. L. DeLateur CD, 2655 Wright Ave., Sunnyvale, Calif. 94087. Sponsor: **Pioneer RC Club.**

Sept. 20-21 — Billings, Mont. (AA) Billings Flying Mustangs RC Meet. Site: Mustang Field. A. Darnielle CD, 3043 Bartonia Blvd., Billings, Mont. 59102.

Sept. 20-21 — Flying Aces Annual RC Meet. W. Johnson CD, 62 Widrig Ave., Jamestown, N. Y. 14701.

Sept. 21 — Odessa, Tex. Odessa-Midland 13th Annual FF Contest. Site: Ector Airport. L. Hood CD. This contest which was previously scheduled has now been cancelled.

Sept. 21 — Hempstead, L. I., N. Y. (AA) 11th Annual LIDS RC Meet. Site: Mitchel Field. A. Van Wymersch CD, 1280 Shaw Pl., Seaford, N. Y. 11783. Sponsor: **Long Island Drone Society.**

Sept. 21 — Lafayette, Ind. (AA) Lafayette C. J.'s Annual Fall CL Fly In. Site: Market Sq. R. Ramsey Jr. CD, 223 Main St., Lafayette, Ind. 47901. Sponsor: **Lafayette Cloud Jockeys.**

Sept. 21 — St. Charles, Mo. (AA) McDonnell 1st Annual RC WW I Meet. Site: Club Flying Site. A. Signorino CD, 11959 Glen Valley Dr., Bridgeton, Mo. 63942. Sponsor: **McDonnell RC Club.**

Sept. 21 — Alliance, Ohio Balsa Bees RC Contest. Site: Rt. 225 No., Club Field. G. Villard CD, 3001 23rd St. N. W., Canton, Ohio 44708. Sponsor: **Alliance Balsa Bees.**

Sept. 21 — Bong Field, Wisc. (AA) 7th Annual Chicago Aeronuts Fall Old Timers' FF Contest. P. Sotich CD, 3851 W. 62nd Pl., Chicago, Ill. 60629. Sponsor: **Chicago Aeronuts.**

Sept. 21 — Taft, Calif. (AA) OT Scale, Unlimited Antique & 30 Sec. Antique Meet. Site: Gardner Field. G. Wallock CD, 220 LeRoy Ave., Arcadia, Calif. 91006. Sponsor: **SCAMPS.**

Sept. 27-28 — Tullahoma, Tenn. (AA) 10th Annual RC Meet. Site: Airfoiler Flying Field. J. Robinson CD, Rt. 1, Tullahoma, Tenn. 37388. Sponsor: **Coffee Airfoilers.**

Sept. 27-28 — Fresno, Calif. (AA) Fresno's 29th Annual FF Contest. Site: Near Kerman. F. Gallo CD, 1725 Kenmore Dr. W., Fresno, Calif. 93703. Sponsor: **Fresno Gas Model Club.**

Sept. 28 — Hastings, Minn. (AA) 10th Annual Upper Midwest FAI FF Championships. Site: Weber's Airport. W. Anderson CD, 300 Park Ave., Elk River, Minn. 55330. Sponsor: **Minneapolis MAC.**

Sept. 28 — Dallas, Tex. (AA) Annual Fall Bash FF Meet. Site: Great Southwest Site. B. Wilder CD, 2010 Boston St., Irving, Tex. 75060. Sponsor: **Dallas Cloud Climbers.**

Sept. 28 — Brooklyn, N. Y. (AA) East Coast RC Scale Championships. Site: Riis Park, Queens. J. D'Amico CD, 9224 Rost Place, Brooklyn, N. Y. 11236. Sponsor: **Penn. Ave. RC Soc.**

Sept. 28 — New Phila., Ohio (AA) Area III RC Championships. Site: Club Field. G. Villard CD, 3301 23rd N. W., Canton, Ohio 44708.

BAT 1,000 from now on
Zip Code ALL your mail
When new Postal Regulations go into effect, your mail will be delayed if it doesn't show your Zip Code. Start *now* to give *your* Zip Code as part of your address on ALL your mail.

Longster

Continued from page 17

Long put it this way: "When you take this 1025 thin-wall steel tubing, later on it tends to crack around the weld because it gets too hot. Brazing can be done at a lower temperature and it doesn't hurt the metal." When you consider the loading of this structure, the unsophisticated materials, plus the bone-rattling vibration of the engines in use at the time, you have to agree with Long's philosophy. He proved his design by many hours of trouble-free flying.

His method of attaching the landing gear and wing struts was different but also successful. Sheet-metal disks were drilled in the center like a washer, slipped over the longerons and brazed in place. They were then drilled to take the strut bolts. Simple, clean and strong.

The empennage was a combination of wood and steel tubing. Spruce was used in the wire-braced, stationary surfaces, and the movable elements were built of ¼"-diameter tubing. The brazed-tube struc-

tures were combined with the wood by means of clips and nails.

The wing used a Clark Y section and was constructed mostly of spruce. Rib gussets were 1/16" plywood. The spars were 3/4" spruce and of standard construction. The two wing panels were joined at the apex of a razor-back support, like the early Aeronca's, and aligned by the streamlined flying and landing wires.

The fuel tank nestled between the pylon atop the wing and held at most three or four gallons of fuel. That little Henderson didn't use much anyway. Remember, it was a converted motorcycle engine.

The landing gear was a tripod of steel tubing and used rubber biscuits for shock absorption. The wheels were usually any light-weight wire wheel that could be found. Sometimes they were surplus from WW I, sometimes they were pulled from an old motor bike. Always, they were without brakes. The tail-skid digging into the sod did the braking.

The seat was 1/4" plywood as was the floorboard. The rudder-bar support was mounted on the tubing which holds the firewall on modern aircraft. However, during this period there was no FAA and many airplanes had no firewall. The Longster was one of them and it solved a leg-room problem.

The instrument panel was rather simple and typical of the period. A full-panel in those days had an array of, maybe, four instruments. The Longster possibly had a "standard panel" which included: 1) Switch; 2) Tach.; and 3) the Throttle. All were from an old motorcycle most likely.

This then, was the early homebuilt bird. A handcarved prop in front of a screaming Henderson that pulled a bed-sheet-covered airframe along at 50 mph, no radio, no OMNI

no ATC, no windshield most times, but plenty of fresh air and satisfaction.

The number of real airports in Oregon in 1933 could probably be counted on your fingers. So, a cross country usually began and terminated in the pea patch or a pasture. Flying was *flying* then and there were no knob-twiddling side sports, just flying for the love of it. During this time, Oregon was the only state in the union that allowed homegrown airplanes and Les Long made the most of it.

Men like Les Long and Ed Heath had to come along during the early '30s, the dark hours of private aviation, to keep the sport alive. They designed and flew their own airplanes in spite of the depression, the restrictions imposed by the government, and a shortage of decent engines.

The Longster would be a good little airplane today, using the same materials and techniques as Long did 30-odd years ago. However, the Henderson could be improved upon and it just so happens that there is a little aircooled 1600-cc automobile engine that is built in Germany. . . .

Getting Started in R/C

Continued from page 38

can be very detrimental to the radio gear. The moisture can "short" out the receiver or servos to cause immediate control failure. And it can over a period of time cause severe corrosion of many parts. Fortunately, these problems are pretty well taken care of by that most pressing problem: waterproofing the R/C gear.

While no builder expects his boat to founder, quite a few do. Also, hulls, prop shafts and other parts can leak, and water can get into the boat interior in rough seas. Boatmen generally apply gaskets to hatch covers and use all possible means to keep water out of the hull. But it does sneak in. Thus, radio parts are often carried in a sealed watertight box of their own.

Such a box might hold the *entire* radio installation — receiver, all servos, batteries, connectors and power switch. It is no great problem to seal the holes in the box required for a wire to operate the power switch (or you can get waterproof toggle switches), and for the pushrods to servos. The box makes a very handy "unit installation"; it is easily removed to allow you to work on the equipment, or to shift the installation from one boat to another. At the very least, the receiver and other parts should be put in heavy plastic bags, with emerging wires and linkages tightly wrapped when the end of the bag is closed, and bound with rubber bands.

Thus, we can see that model boating can in general utilize the same equipment and techniques which have been so well proven in the plane field. But this watery hobby has its own special problems to set it apart from model aviation. The fields are similar enough, however, that many hobbyists are very active in both.

INDEX TO ADVERTISERS

QUALITY HOBBY SHOPS

Quality Hobby Shop spaces are sold on a six-month basis at $7.00 per month, payable in advance. All insertions must be consecutive. No mention of mail-order business is permitted. Closing Date: 10th of third preceding month.

MASSACHUSETTS—CAMBRIDGE
Model planes, motors, railroads, ships, radio control equipment and accessories — also slot racing supplies. Open 9:00 a.m. to 5:30 p.m. daily & Thurs. evenings.
CROSBY'S HOBBY CENTRE
1704 Massachusetts Ave. (617) 547-4389

OHIO—CLEVELAND
We carry the most complete line in Ohio for your model airplane hobby. Also large HO train dept., boats, R/C, slot racing, motors, parts, supplies, dope, balsa, tools, books, magazines, etc.
NATIONAL HOBBY INC.
5238 Ridge Road 749-4750

OHIO—CLEVELAND (Zip: 44133)
Ohio's largest model rocket center. Complete line of Centuri and Estes parts and kits, try us first! We are open 7 days a week until 10:30 p.m.
TOM THUMB RACEWAY
13803 Ridge Road (216) 237-6440

HONG KONG—KOWLOON
The most complete stock of aeromodelling and hobby supplies in the Far East. Sole Agents for Graupner, O.S. and Min-X and agents for Veron, Frog, Solarbo and many others.
RADAR CO., LTD.
2 Observatory Road Kowloon, Hong Kong
K-680-507

MICHIGAN—DETROIT
Trains, planes, stamps, coins. R-ways. Over 50,000 items for hobbyists. Mich. largest antique train collection. Look for our 55' RR crossing sign. Arnold Rapido.
MODELS HOBBY CENTER
22524 Woodward Ave. LI 3-2242

CLASSIFIED ADS

Rates: 30c per word (including name and address). Minimum—14 words. Send remittance with copy and order to: AMERICAN AIRCRAFT MODELER, 733 Fifteenth St., N. W., Washington, D. C. 20005.

FUEL — Nitrated. $5.00 gallon. Dealer inquiry invited. **"HOT ROD CITY," 2930 Sepulveda, Torrance, Calif. 90503.**

BACK ISSUES Air Trails, Air Progress, Aero Digest, Flying, Flying Aces, Popular Aviation, Aeromodeller, Airnews, M.A.N., all model, pulps, etc. **AVIATION MAGAZINES, 24248 S. Crenshaw Blvd., Torrance, Calif. 90505.**

FREE CATALOG, 1,000 aviation books. Many with scale drawings and 3-views. **AERO PUBLISHERS, 329 M Aviation, Fallbrook, Calif. 92028.**

MONEY? Save lots of it. We know of nobody who beats our prices. Write for free R/C-Kits-Supplies List. **PUGET SOUND R/C ELECTRONICS, 1547 Hoff Rd., Bellingham, Wash. 98225.**

INDOOR KITS AND SUPPLIES, Nichrome wire, micro-film, parts, indoor balsa. Send stamped addressed envelope for free literature. **MICRO-DYNE, Box 2338, Leucadia, Calif. 92024.**

NEWEST AND WIDEST variety of plastic models from the world over. Send 10c for list. Visit our complete hobby shop. **BAYONNE HOBBY SHOP, 815 Broadway at 37th St., Bayonne, N. J. Telephone 201/437-0005.**

SCALE R/C FLORIDA SWAMP BUGGY PLANS, .19 to .23 **$5.00. MY HOBBY SHOP, 24621 Baseline St., San Bernardino, Calif. 92410.**

ENGINES, IGNITION, JET, DIESEL, GLOW. Lists 25 cents. **HOYT, Box 1146, Decatur, Ga. 30031.**

FOR SALE. Large collection of Aviation magazines from 1935 to 1968. M.A.N., Air Trails, Flying Models, Popular Aviation. Send 25c for list. **DONALD KIRKPATRICK, 160 Main St., East Hartford, Conn. 06118.**

1946 BILL WINTERS' PLANBOOK, 130 pages. Great plans, articles, ads. Perfect condition. $4.00. **J. J. GREAVES, 8 Joan Drive, Newtown, Conn. 06470.**

AEROTEC MODEL ENGINEERING COMPANY, 76 Condit St., Harrison, N. Y. 10528. SCALE 2" to 1' Model plans you build from, not just drawings.

	Plan	Cut out Rib & Former Kits
S.P.A.D. 13	$7.95	$21.00
Albatros DV/DVA	$7.95	$19.00
Eindecker E-111	$6.95	$15.95
Fokker Triplane	$7.95	$19.00
American Thomas Moorse S-4c 1917 Fighter	$7.95	

SAILPLANE MODEL KITS. Send for free illustrated literature. **AWARD MINIATURES, Box 3127-A, Federal Way, Wash. 98002.**

HOBBY SUPPLIES — All popular lines at discount prices. Send for free price list. **LAWCO SALES, Box 244, Walpole, Mass. 02081.**

REDUCED PRICES! PLANE, BOAT, R/C KITS. Get the Green Sheet Specials. A periodically printed FREE bulletin offering special prices and new items, combination ready-to-fly deals. Send request to **STRATMAN CRAFT KITS COMPANY, P. O. Box 1528, Altadena, Calif. 91001.**

DIESEL FUEL: Distributor and dealer inquiries invited. **AIRBORNE MODEL PRODUCTS, 164 Keswick Dr., East Islip, N. Y. 11730.**

HELP WANTED — World Engines is always on the lookout for talented modelers in drafting, die making and electronics. Let the hobby support you for awhile. Work here part time while you get educated at one of Cincinnati's fine colleges. Resume to **John Maloney, 8960 Rossash Avenue, Cincinnati, Ohio 45236.**

WANTED: Ducted Fan Kits. State model, manufacture, and price. Write to **C. ZEMBROSKI, 494 Glenbrook Rd., Stamford, Conn.**

MODEL ROCKETRY Launch Control Units. Free catalog. **MORTON APELAS, 2412 W. Buckeye, Phoenix, Ariz.**

Billing Boats

PROUDLY ANNOUNCES

BLUENOSE

The most exciting new model we've had yet. The original schooner, "BLUENOSE" was launched in Nova Scotia in 1921, and was meant as a fishing boat, but was so fast that she won all the classic races in U. S. east coast events of her time.

This kit is 1:75 scale, 35" long, 27" high with a 5½" beam. All Planked Hull Construction and full set of turned brass fittings. Complete, even to sail cloth, masts, spars, etc. ---------- $52.00

Presented By
Billing Boats
"Denmark's Finest Models"
See Your Hobby Dealer

. . . or send $1.00 for Colorful Catalog. Dozens of beautiful models; some advertised in recent issues of this magazine. If dealer does not stock, send check or m.o. for direct, prompt shipment. Calif. orders must add 5% sales tax. Satisfaction guaranteed.

KAYEFF, INC.
511 Campesina Road
Arcadia, Calif. 91006

Available in Canada
Through Canadian Hobbycraft Ltd.
24 Ronson Dr. Rexdale 603 Ontario

What's The Big Noise About . . . . ?

SILRON

. . . . That's What

The most unique and established name in model covering materials. Since its introduction there have been many substitutes in both name and material trying to imitate and duplicate the Silron material and trademark. But in spite of these efforts, Silron continues to set the market pace in both quality and sales. Silron is a true advancement in covering material and we invite you to try this new innovation when covering your next model airplane.

1. **Composed of a blend of wonder fabrics and silk**
2. **Seals with one coat of dope**
3. **Will not separate when wet**
4. **Light weight and durable**
5. **Saves covering time**
6. **$1.25 per yard for white and colored**
7. **Available in one yard, two yard and five yard packages**
8. **Colors: white, red, blue, gold, green, light blue, pink, silver, turquoise, orange, fuchsia and black**

JUST ABOUT EVERYBODY USES SILRON . . . DO YOU?

ROYAL'S EXCLUSIVE SILK

√ EXCELLENT QUALITY **√ HEAVY DUTY** **√ CLOSE WEAVE**
STRONG AND DURABLE **√ $1.79 PER YARD**

We Guarantee There Is No Finer Silk Available Regardless of the Cost

AVAILABLE IN ONE, TWO AND FIVE YARD PACKAGES

★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★

TWELVE BRILLIANT COLORS

- WHITE
- BLUE
- ORANGE
- PINK
- FUCHSIA
- TURQUOISE
- RED
- GOLD
- GREEN
- SILVER
- LIGHT BLUE
- BLACK

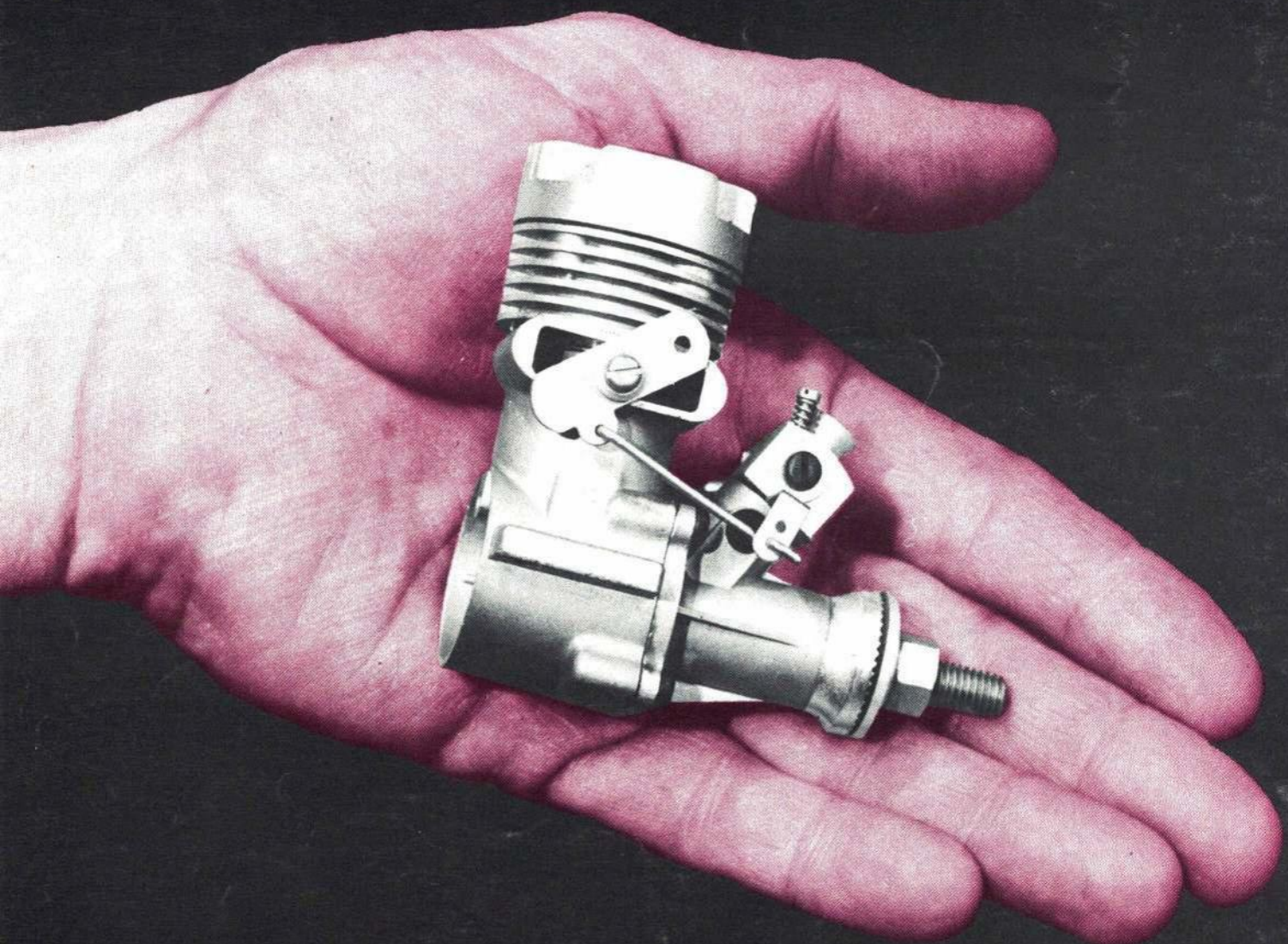
DEALER INQUIRIES INVITED

Royal Products Corporation

6190 EAST EVANS AVENUE, DENVER, COLORADO 80222

MRC-ENYA .19V TV

Primary design consideration in the New MRC-Enya 19V engine is given to easy starting and handling, speed, control and long lived, reliable performance. This new family member of The World's Champion R/C Engine line is perfectly suited to power your .19 size digital proportional plane straight to the winner's circle! Control Line stunt competitors will discover exceptional control power surge in this easy handling new design. MRC-Enya Engines are proven champions—The New 19V (both TV and regular) is ready to win for you now—At your Dealers—Regular, $15.00—TV, $17.50—Marine, $20.25.



HOLD IT!

HERE'S MORE POWER FOR YOU FROM THE WINNING MRC-ENYA ENGINE FAMILY

MODEL RECTIFIER CORPORATION • EDISON, NEW JERSEY 08817