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MODEL AIRPLANE NEWS



R.A.F. FE-2B and 2d

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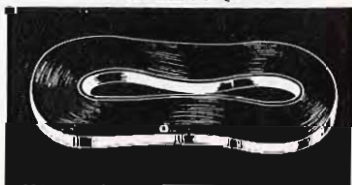
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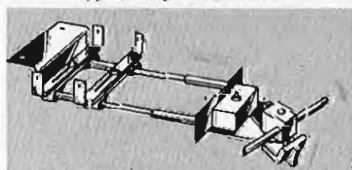
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\$3.50



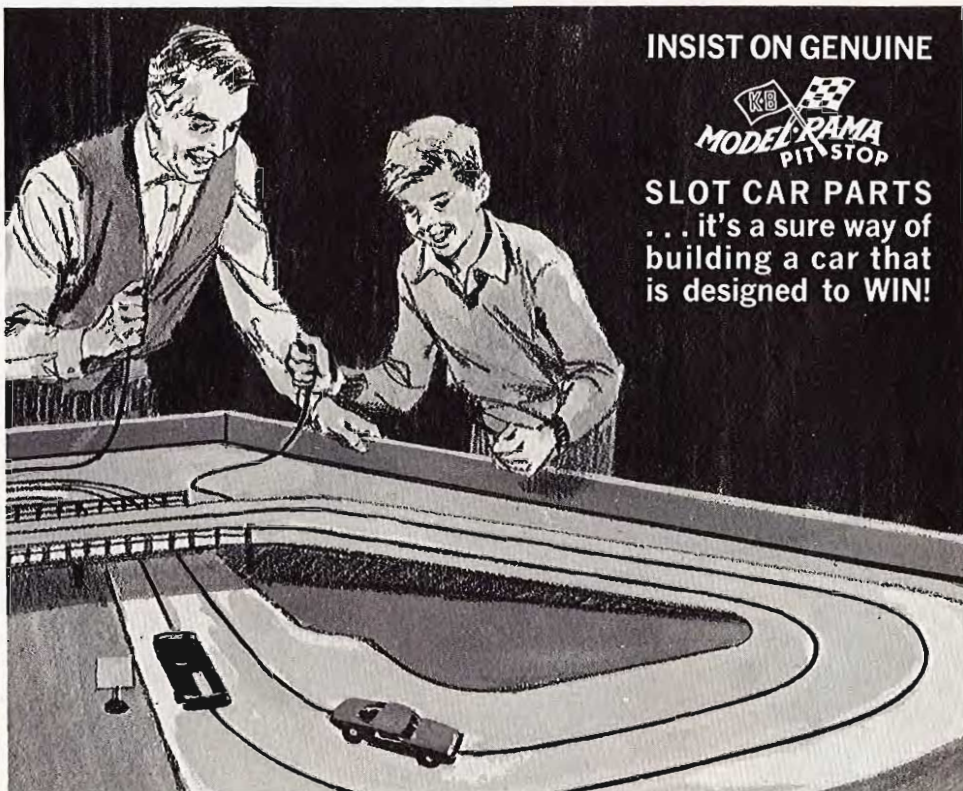
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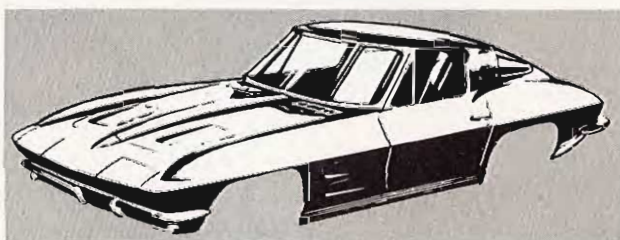
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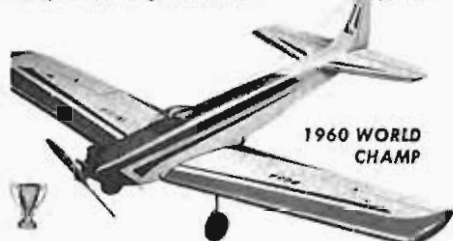
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**WINNER OF THE
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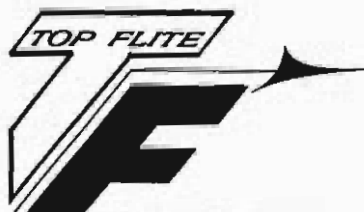
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35th Year of Publication

MODEL AIRPLANE NEWS

JAY P. CLEVELAND, President and Publisher

WALTER L. SCHRODER, Editor

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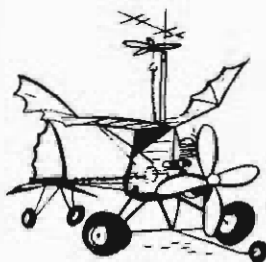
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m.a.n. at Work

by Walt Schroder



► Over the years there have been many problems, very many areas of discussion, considerable hasseling among and between the members of our fraternity but never has seen such interest as that generated for the Junior. That he has somehow now become a small part of, rather than his previous position as a leader in our hobby, is a now foregone conclusion, but that this has been recognized and accepted as a challenge by the leaders of the Academy and the Industry with such speed and dispatch is very heartening.

An incredible amount of manpower has been directed the past few months towards its solution and/or improvement and it has been our good fortune to be able to read and review a good portion of the correspondence to the Academy and to know the industry reaction.

Art Laneau of Ambroid has been the chairman of Model Aeronautics Division of the Hobby Industry Association the past two years and has given of his time and self unselfishly to the detriment of his business. Because of this it was necessary that he step down and asked us to serve as chairman of the nominating committee consisting of Matty Sullivan of Pylon Products, Mike Schlesinger of Top Flite and myself. The combined effort and pressure exerted by the committee succeeded in convincing Irwin Polk of Polk's to accept the nomination for chairmanship. That Irwin is familiar with the subject of the Junior is well known to many of us, but for those who might not be aware of his contributions, need only be told that as early as 1932, he and his brother Nat sponsored and directed many contests on the East Coast. Who can forget their memorable Eastern

States Championships, their indoor activities, their work for the IGMMA, how they helped found the Academy of Model Aeronautics, how Irwin convinced Al Lewis to come down from Boston and take over the directorship of the newborn AMA. This could go on for hours but suffice it to say that Irwin is the one man who can carry on and follow through with the excellent work of Art Laneau who will continue as vice chairman and this old man will be the secretary for Model Aeronautics Division of the HIAA.

Two papers both out of St. Paul, Minnesota indicate just how much thought has been given to this subject and it is our (Continued on page 60)



NEXT MONTH'S COVER
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PLANE ON THE COVER

Two-seater pusher biplane, designed by the Royal Aircraft factory, did good work in a fighter-reconnaissance role in 1916, but was outclassed the following year and its service life nearly over. Plane in background featured Olco-type undercarriage. Night flying variation in front conducted many successful bombing raids until war's end.

New Kit and Timely Addition to Monogram Quarter Inch Scale Aircraft Series!!
This Extra Value Kit Contains Extra Parts for Making the Model in Any
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Famous World War II British Fighter-Bomber
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With Working Action Retracting Landing Gear

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The Hurricane was in service in the battle of Britain and in Russia and throughout the North African, Sicilian and Italian campaigns and against the Japanese.

The Monogram Hurricane is a specially fascinating working action model with fully retractable landing gear. Kit contains precision parts in gray, black and clear plastic and a large decal sheet with variety of markings.

Get this authentic Hurricane model at your favorite store today. Start or add to your own quarter-inch collection. Check list and pictures below for other famous aircraft in this popular scale.

World War II contemporary of the British Spitfire and the German Messerschmitt.



New Idea in Model Aircraft Kits A MONOGRAM FIRST

As with other airplanes, many versions of the Hurricane were made. So the builder can make his choice of five of these versions (Mk IIA, Mk IIB, Mk IIC, Mk IID, Mk IV), many extra parts are included in the kit, along with printed and illustrated directions.

The Extras Include: 1 Tropical Air Filter Scoop—1 Shallow Radiator—1 Deep Radiator—2 Early Exhausts—2 Late Exhausts—2 Bomb Mounts—2, 250 lb. Bombs—2 Rocket Mounts—8, 3 inch Rockets—2, 40 mm Cannon—4, 20 mm Cannon—2, 44 gal. Drop Tanks—1 Decal Sheet With Variety of Markings.

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World War II Fighters and Bombers—United States—British—German—Japanese



F4U-4 CORSAIR



F6F HELLCAT



SB2C HELLDIVER



ZERO (Zeke)



MESSERSCHMITT



Mark IX SPITFIRE



F4F WILDCAT



SBD DAUNTLESS



TBF AVENGER

F4U-4 CORSAIR

Folding Wing. Retracting Landing Gear. Bombs, Rockets, Etc. PA82. \$1.49

F6F HELLCAT

Folding Wings. Retracting Landing Struts. Retracting Tail Wheel. PA80. \$1.49

SB2C HELLDIVER

Folding Wings. Retracting Landing Gear. Drops Bombs. Sliding Canopy. PA69. \$1.49

ZERO (Zeke)

Operating Landing Gear. Three-Blade Prop With Spinner. Belly Tank. PA73. 98c

MESSERSCHMITT

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Blade Prop With Spinner. Machine Guns. PA74. 98c

Mark IX SPITFIRE

Retracting Landing Gear. Four-Blade Prop With Spinner. Cannon. Belly Tank. PA79. 98c

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Wings Fold. Selective Landing Gear. Under-Wing Tanks. Pilot and Crewman. PA66. 98c

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Movable Dive Brakes. Retracting Landing Gear. Drops Bomb. PA54. \$1.49

TBF AVENGER

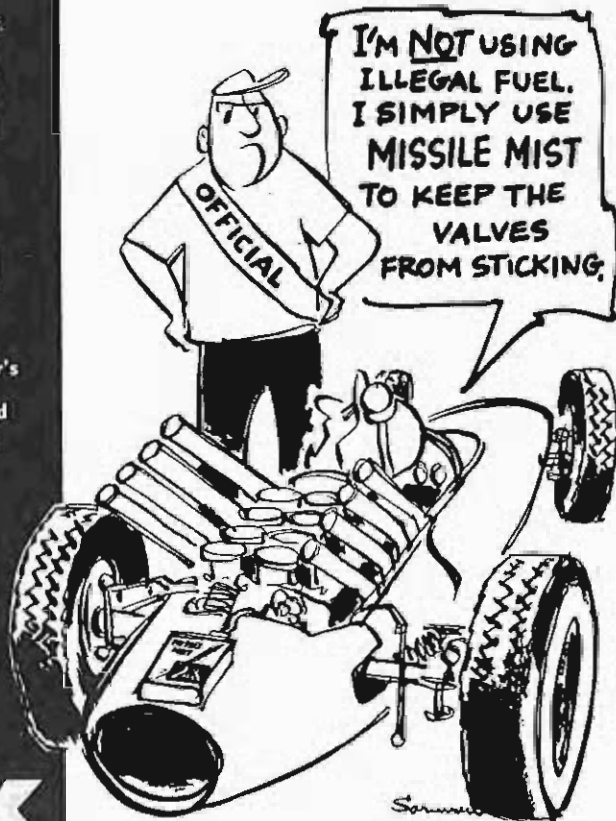
Bomb Bay Opens. Launches Torpedo. Wings Fold. Retracting Landing Gear. PA31. \$1.49

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Foreign Notes

► Delegates from seventeen nations met in Paris on December 3-4 for the annual meeting of the FAI Models Commission. The official report of the meeting had not reached us at the time of writing, but we understood that several resolutions have been adopted which will affect future contest rules. In addition, certain other proposals have been accepted in principle, the details of which are to be settled by the appropriate sub-committees after further consultation.

Of major interest to free-flight contestants is the proposal to reduce the permitted maximum engine displacement for FAI Power, from 2.5 c.c. (.1525 cu. in.) to 1.5 c.c. (.0915 cu. in.) and to raise the power loading from 300 to 500 grammes (17.64 oz) per c.c. For Wakefield models, it has been proposed that the minimum weight should be raised from 230 grammes (8.11 oz) to 280 grammes (9.88 oz) or, alternatively, to reduce permitted maximum rubber motor weight from 50 grammes (1.76 oz) to 40 grammes (1.41 oz).

Full details of the rule changes and their implications will be given in our next Foreign Notes.

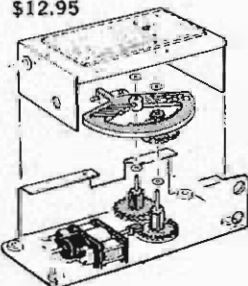
ITALY

A new Italian speed record for jet models has been set up which exceeds the present official FAI world record of 301 km/hr (187.03 mph) held by Russia's Ivan Ivannikov. The new Italian record is 306 km/hr (190.14 mph) and was made by Elio Zanin, who, for many years, has been well known in Europe for his pulse-jet engines and models.

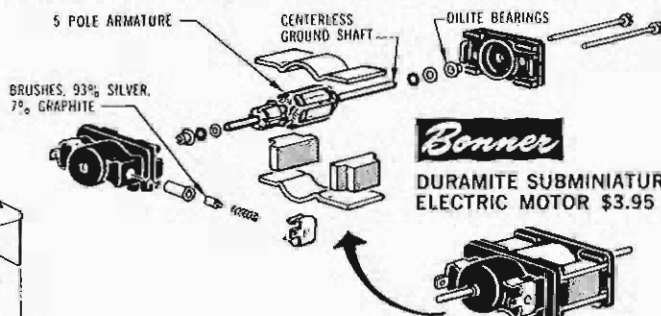
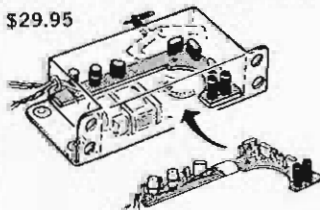
Speeds obtainable with pulse-jet engined models are pretty much limited by the diameter of the combustion tube, so it is not surprising to learn that Zanin's record motor, like the Russian jets, is larger than the popular American Dyna-Jet and its many foreign derivatives. The increased dimensions are especially noticeable in the diameter of the tailpipe, which is 1.7 in., against the 1.25 in. of the Dyna-Jet—an increase in cross-sectional area of 85 percent. The maximum combustion chamber diameter is slightly increased (2.8 in.) and the engine is nearly three inches longer (24 in.). Zanin's model, too, is markedly unorthodox even for a jet speedster. It is an assymmetric design with a half-wing and half-stabilizer on the inside only, but, unlike many European (Continued on page 58)

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\$12.95



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0 to 6 minutes,
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SURGICAL TUBING20c foot

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Cast Aluminum Polished Short or Long beams.
Drilled to fit your engine, foreign or domestic.

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One piece tank and engine mount—cast aluminum. Simply bolt to the firewall. A must for free flight models.



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Pressure fittings 25c each

SPECIFY ENGINE AND
DISP. WHEN ORDERING.

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Completely finished—no grinding or fitting necessary. All holes drilled and tapped. Pans polished to a mirror finish. Tinsalloy castings.



SPECIFY ENGINE
OR UNDRILLED

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A.....\$4.25

B.....\$4.50
C.....\$4.95

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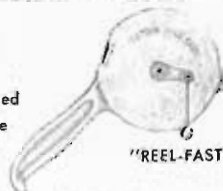
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- 6.5 to 1 Ratio
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Swiss made-jeweled movements. Unbreakable crystal. Dust protected. Anti magnetic. Chrome cases.
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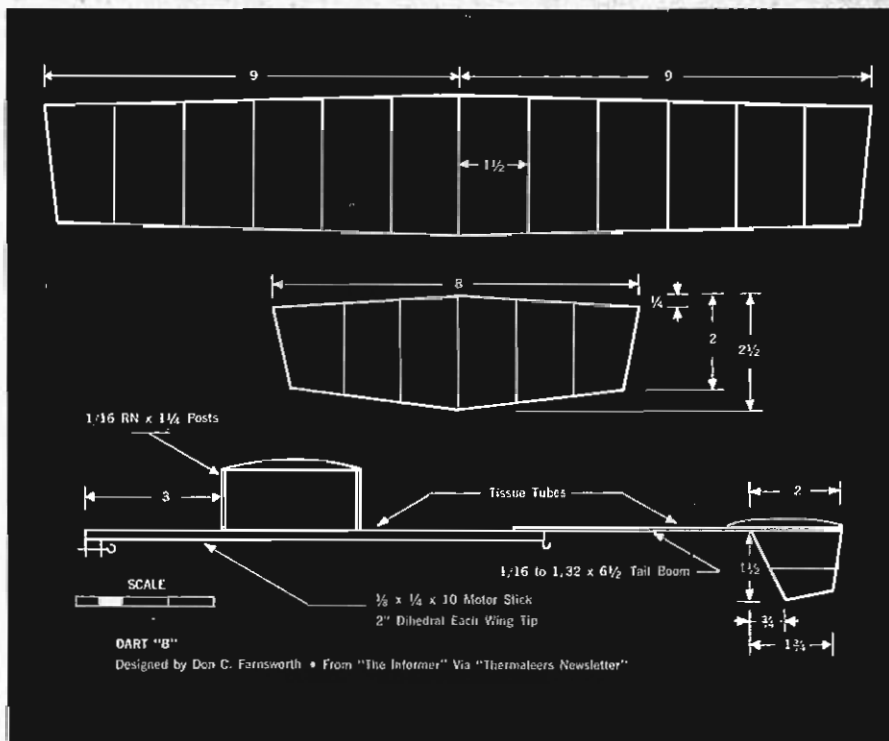
Compact, well made and simple to operate. Chrome case. Registers 0.9999. Instant return to zero. A must for U. Control contests\$5.95 each

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DART "B"

Designed by Don C. Farnsworth • From "The Informer" Via "Thermalers Newsletter"

- Rubber
- Power
- Indoor
- Glider
- Flying Scale

VTO

by
**DICK
BLACK**

HERE WE ARE IN DEAD WINTER AND STILL FREE FLIGHT IS GOING INTO ORBIT ALL AROUND THIS GOOD COUNTRY.

► The indoor model shown in the drawing was designed by Don C. Farnsworth, of Visalia, California, especially for Easy "B" rules and was the winner at a Tulare Sky Kings meet. One interesting feature of this model is the connection of the tail boom to the

motor stick by means of a paper tube socket. This makes replacement of the tail boom simple and permits experimentation with various fin and stab combinations as well as different moment arms. The paper tube doesn't seem to hinder the model's perform-



One of modeling all-time winners and designing greats, Henry 'Hank' Struck. On this occasion Hank just finished winning field competition in Indoor sponsored by So. Conn. Aero Modelers.



Jim McNeill, high point man at Coffee Airfoilers meet at Tullahoma, Tenn., note comical rudder.

ance, Don said.

NIMAS: The National Indoor Model Airplane Society (NIMAS) is starting its third year of existence. Through the untiring volunteer efforts of many of its members, NIMAS has proved an excellent means of furthering the cause of indoor modeling. The Society's monthly newsletter, *Indoor News and Views*, keeps members well informed on activities all around the world. Ably



And still another win for Hank Struck, this time 'Yankee Champ' presented by Ed Dolby of NEWG OFFICIAL U.S. NAVY PHOTO

edited by Bud Tenny, the publication also serves as a sounding board for pertinent rules change proposals, opinions on numerous matters within the hobby and new ideas, along with being the best available medium for technical discussions, plans and practical information.

One of the ideas recently proposed to the mem- (Continued on page 44)



Also, at Tullahoma, Mrs. J. D. Jerguson, College Park, Georgia with TD 15-powered Lightning Rod.

NEW! ... THE CHARGER YOU'VE BEEN WAITING FOR ... THE

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Gives a good safe charging rate...
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FEATURING ...

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Du-Bro COMPAC POWER PAK

Designed to take 5 or 6 nickel cadmium per. cells. Makes a light-weight, compact power pack. #6SP—\$1.35

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BOLT (3-48)
WASHER
SPACER
BLIND MOUNTING NUT



SINGLE PACK 55c

Hardware for one servo. Stock No. SM-55 Packaged 12 to card

FIVE PACK \$2.39

Hardware for five servos. (Ideal for Multi-Channel) Stock No. SM-239 Packaged 3 to a card

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... for any control linkage!



49c

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TRADEMARK registered

Kwik-Link allows easy removal for on-the-field adjustments.

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Permanently pneumatic stronger unbreakable.

2 1/4" (1 3/4 oz.)—\$2.59
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3" (3 oz.)—3.19
3 1/4" (3 1/2 oz.)—3.39
3 1/2" (4 oz.)—3.59



Du-Bro POSITIVE ACTION WHEEL BRAKES

1/2 oz. each. Steel brake drum eliminates scoring. Spring steel control arm.

only \$7.95 pair
WHEELS NOT INCLUDED



Du-Bro DURA-HUBS

Guaranteed unbreakable. Du-Bro brakes function best with Du-Bro Dura-Hubs.

60c ea. for small hub #H1-2 fits 2 1/4" and 2 1/2" tires 1/8" hole in hub
75c ea. for large hub #H3-6 fits 2 3/4" thru and inc. 3 1/2" tires 5/32" hole in hub



Du-Bro TB-2 TRIM BAR

FOR BONNER SERVOS

Can be modified to Anco servos. Designed for inline or side by side hook-up. Lightweight.

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Du-Bro BLIND MOUNTING NUTS

Can be used on 1/8" plywood (without sticking thru) and thicker. 4 per pkg. 3 thread sizes:

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4 EACH 20c

Du-Bro 1/2A KLIP

All—1/2A KLIP only 39c ea.
A12—1/2A KLIP w/cord set 59c
A13—1/2A KLIP w/cord set & batt. klip 79c

Du-Bro KWIK KLIP

K1—KWIK KLIP 39c ea.
K2—KWIK KLIP w/cord set 59c
K3—KWIK KLIP w/cord set & batt. klip 79c



Du-Bro KWIK KEEPERS

Spring steel keeper fits 1/16" wire. Stock. No. KE-25 2 to pkg.

2 EACH 25c



FOR RADIO CONTROL

Du-Bro HOOK-UP WIRE

highest quality
24 ft. ... 8 colors
19 strand ...
Stock No. RCW-1

60c pkg.



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THESE FIVE MODELS EACH SPAN 17-1/2" & TAKE ALL .035 TO .075 ENGINES

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AMBROID SOLVENT: Specially made liquid for thinning or reducing our cement. Available in pint cans, \$1.35

SYNTH-WOOD MENDER AND FILLER
Fast drying & minimum shrinkage. 4 ozs., 40¢

AMBROID PLASTIC CEMENT
This new exclusive formula adhesive is crystal clear and is perfect for plastic models.
28 cc., 15¢

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TOTAL PROJECTED WING AND STABILIZER AREA: 269 SQUARE INCHES
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FOR UP TO .25 TO .35 ENGINES
MOLDED CANOPY
DESIGNED BY DON STILL
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FOR UP TO .35 ENGINES
52" SPAN
FORMED WIRE L/GEAR & LAMINATED WHEEL PANTS
SHAPED AND NOTCHED L.E.'s & T.E.'s
ALL SHEET PARTS RAZOR DIE-CUT
35" x 50" PLANS
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FOR SINGLE CHANNEL R/C
Designed by Milt Boone, this is America's leading rudder-only R/C trainer and contest plane. It's both easy-to-build and easy-to-fly, and at the first Nationals entered, took 1st, 2nd and 3rd places. For 100% accuracy, the flying surfaces are jig-built flat on plans.
390 SQ. IN. WING AREA. UP TO .15 ENGINES
48" SPAN
KIT RC-1
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★ **COMBAT C/L**
Unique and rugged structure make this Nats winner one of the toughest contenders ever to slug it out in the Combat ring.
FOR UP TO .35 ENGINES
DESIGNED BY JAMES COWART
36" SPAN
JIG-BUILT
KIT CC-3
SCRAPPER • \$4.95

AMBROID SUPER WHITE GLUE
Here's a terrific white glue with fantastic bonding power. This new Ambroid product sets rapidly, dries clear and comes in handy plastic squeeze bottles.
1-1/4 ozs., 29¢
4 ounces, 59¢

NEW AMBROID CLEAR DOPE AND DOPE THINNER
Ambroid's special new blend of butyrate clear dope is based on the "full-size" product we have manufactured for 40 years
Cans Dope Thinner
Pints \$1.75 \$1.00
Quarts \$2.75 \$1.75
Gallons \$8.50 \$3.25
(Also 5 Gallon Dope size, \$35)

★ **SPORT C/L**
THE WING IS JIG-BUILT AND FEATURES SHAPED L.E.'s AND T.E.'s
DIE-CUT TAIL SURFACES
COMPLETELY FINISHED FUSELAGE
31" SPAN
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FOR ALL .09 TO .19 ENGINES
WHIPSAW • \$3.25

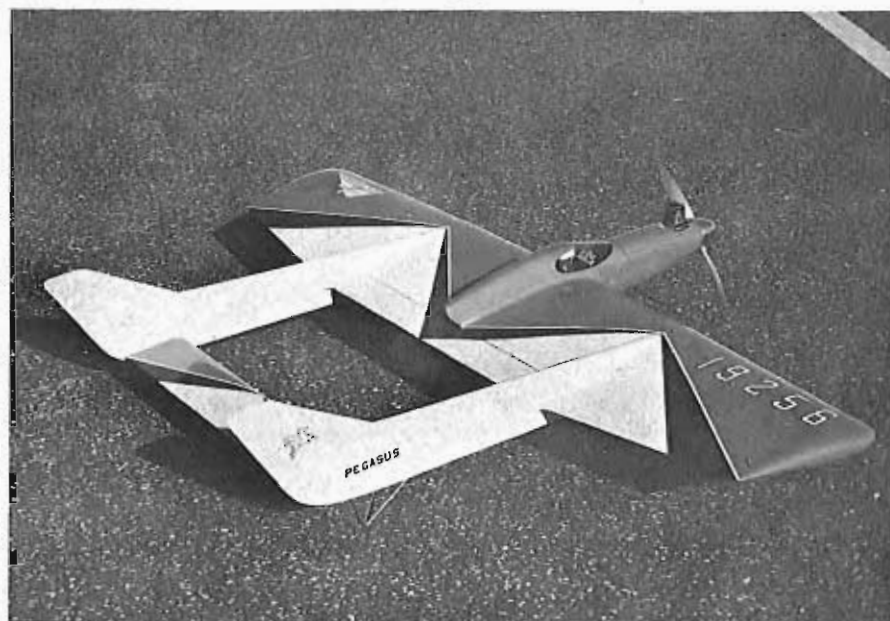
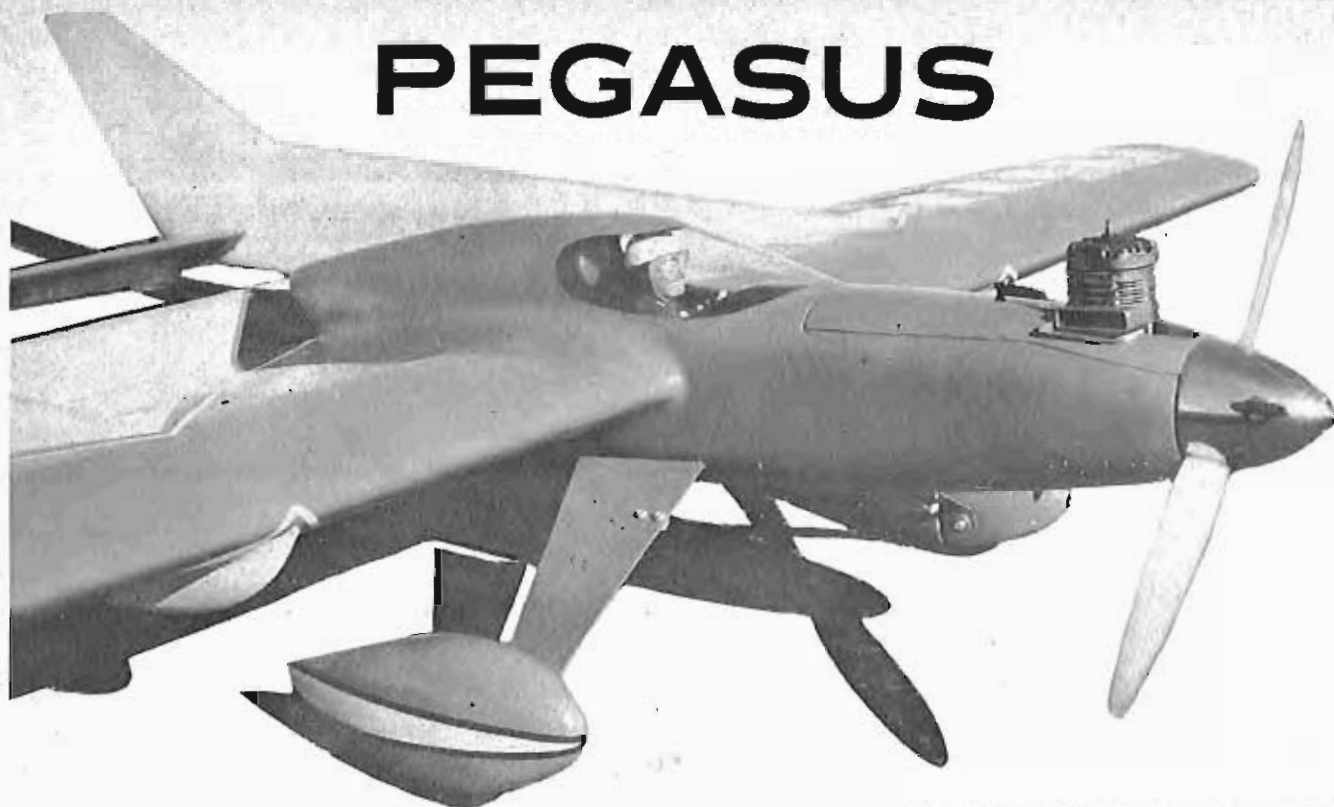
★ **SUPERSCALE C/L**
KIT S-1
CANOPY
Scale replica of Al Williams' immortal Grumman F3F GULF HAWK.
Kit includes fully detailed plans, bent landing gear parts, bellcrank & hardware
23" SPAN
GULF HAWK • \$4.25

★ **REGULAR CEMENT**
The "original" and the best cement available — used by more 1963 Nats winners than all other brands combined
20 cc. Tube 15¢
1-3/4 oz. Tube 30¢
4 ounce Tube 60¢
Pint Can \$1.75
Quart Can \$3.35
Gallon Can \$8.75

★ **EXTRA-FAST CEMENT**
This is the best cement to use for all light-weight models (such as rubber types or small gliders) — and for on-the-spot "field repairs".
20 cc. Tube, 15¢

IN EVERY FIELD THERE'S A LEADER — IN MODEL AVIATION IT'S AMBROID
AMBROID COMPANY • BOX 231 • WEYMOUTH 88 • MASSACHUSETTS
MODEL AIRPLANE NEWS • March, 1964

PEGASUS



Considerable time and effort are expended toward achieving outstanding trim designs and fine

finishes by the top men in control line stunt. Note cockpit complete with instrument pane.

by JEAN A. PAILET

AN OFT TOLD TALE OF THE WINGED FLYING HORSE, BUT NOW WE HAVE SLEEK TWIN-TAILED COUNTERPART CAPABLE OF BLAZING A GOOD CONTEST TRAIL IN UKIE STUNT.

► Peg-a-sus—a winged horse: Webster Dictionary.

This Pegasus, unlike its namesake in Greek mythology, is not a flying horse; nor does it fly as you might imagine a horse would. The original Pegasus model, shown in the accompanying photos, did have one horse-like aspect, however: it was as heavy as a horse. It weighed 56 ounces which is kinda

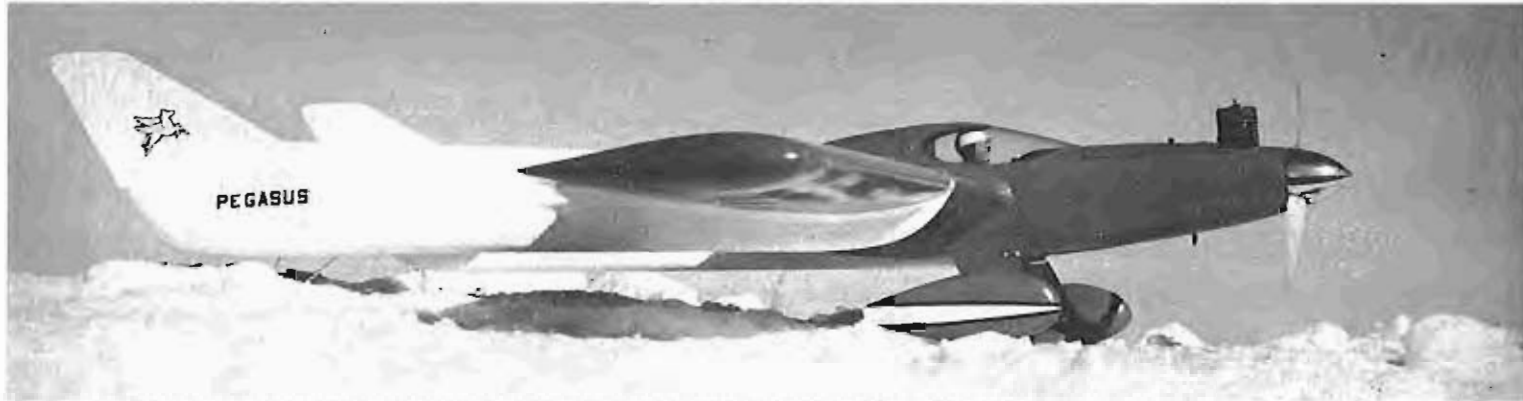
horse-like for a high-performance stunt model. However, in spite of its obesity (probably inherited from the designer), it flew well.

The reasons for the existence of the Pegasus model are the author's desire to determine the merits of a "flying" (or "slab") tail coupled with his naturally rebellious nature. The rebellion, of course, is against the established trend

towards conformity in stunt model design. I'm just plain tired of building the same old model over and over again; which is basically the case, even when there is a bit of variance in the external shape. I, for one, am wholeheartedly for the establishment of a Scale Stunt event and am currently experimenting with a stunter utilizing a biplane configuration with just that kind of event in mind. While I am ready to admit that today's stunt models have been empirically well proven to give the best performance in the event as we know it, what I am suggesting is that what is needed is more emphasis on design originality in the scoring system in order to encourage the stunt fliers to work as hard with their heads as they presently do with their wrists. Ah, but I digress—back to the Pegasus.

As just mentioned, the present stunt rules being what they are, we are forced to conform to a general configuration. Since the Pegasus must compete under these rules, it conforms, generally. I have followed my usual practice in stunt-model design of locating both the wing and tail chord-lines on the engine thrust-line. This tends to make the model fly more symmetrically about the pitch axis, which is of prime concern in stunting. The NACA 63018 airfoil is used with a standard flat-plate flap added inboard of the tail booms. Outboard of the booms the result is a reflex-type airfoil gradually changing to the standard 63018. Therefore, we have what is really a 15 per cent thick root airfoil increasing to an 18 per cent airfoil at the tip section. I've used this arrangement on other models and found it very

(Continued on next page)



Sleek racing machines with thick airfoil sections are the present trend in stunt with emphasis on realism, the pilot looks almost real.

PEGASUS . . . continued

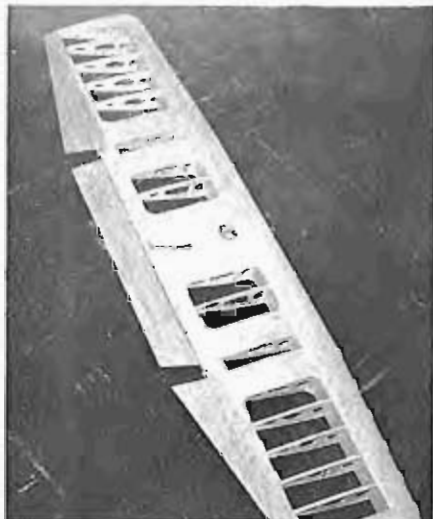
satisfactory.

Construction can begin with the wing and the first step is to cut all the ribs from 1/16" sheet balsa. Splice the 1/16" x 1/2" spars into full span lengths and mark the proper rib locations on them. Notch the trailing edge accordingly and assemble the ribs, spars and leading and trailing edges. This forms the basic framework to the wing. Add the 1/16" x 1 1/4" trailing edge sheeting inboard of tail boom locations. Note that outboard of the booms, trailing edge sheet is cut from 4" wide stock to shape indicated and contact-cemented together. Next add the 1/32" sheet spar-web with the grain vertical (perpendicular to the chordal plane) in order to obtain an extremely strong and warp-resistant

wing. Observe from the plans that the forward lead-out must have a "cross-over" hole provided for it through the 1/32" sheet between ribs C and D.

Provide a 1/8" plywood bellcrank platform between the center ribs and install the bellcrank (nylon preferred) with lead-outs attached. At this time glue on the 1/16" leading edge sheeting and the 1/16" sheeting at the center area and the boom locations, leaving an access hole for later installation of the flap and elevator pushrods. After gluing on the 1/16" x 1/4" cap strips the final step is the addition of the wing tip blocks. These are carved and hollowed from balsa and contain the outboard wing tip weight (I never use any, but if you prefer (Continued on page 48)

Lightweight is important and some weight reduction achieved through lightning holes in wing.

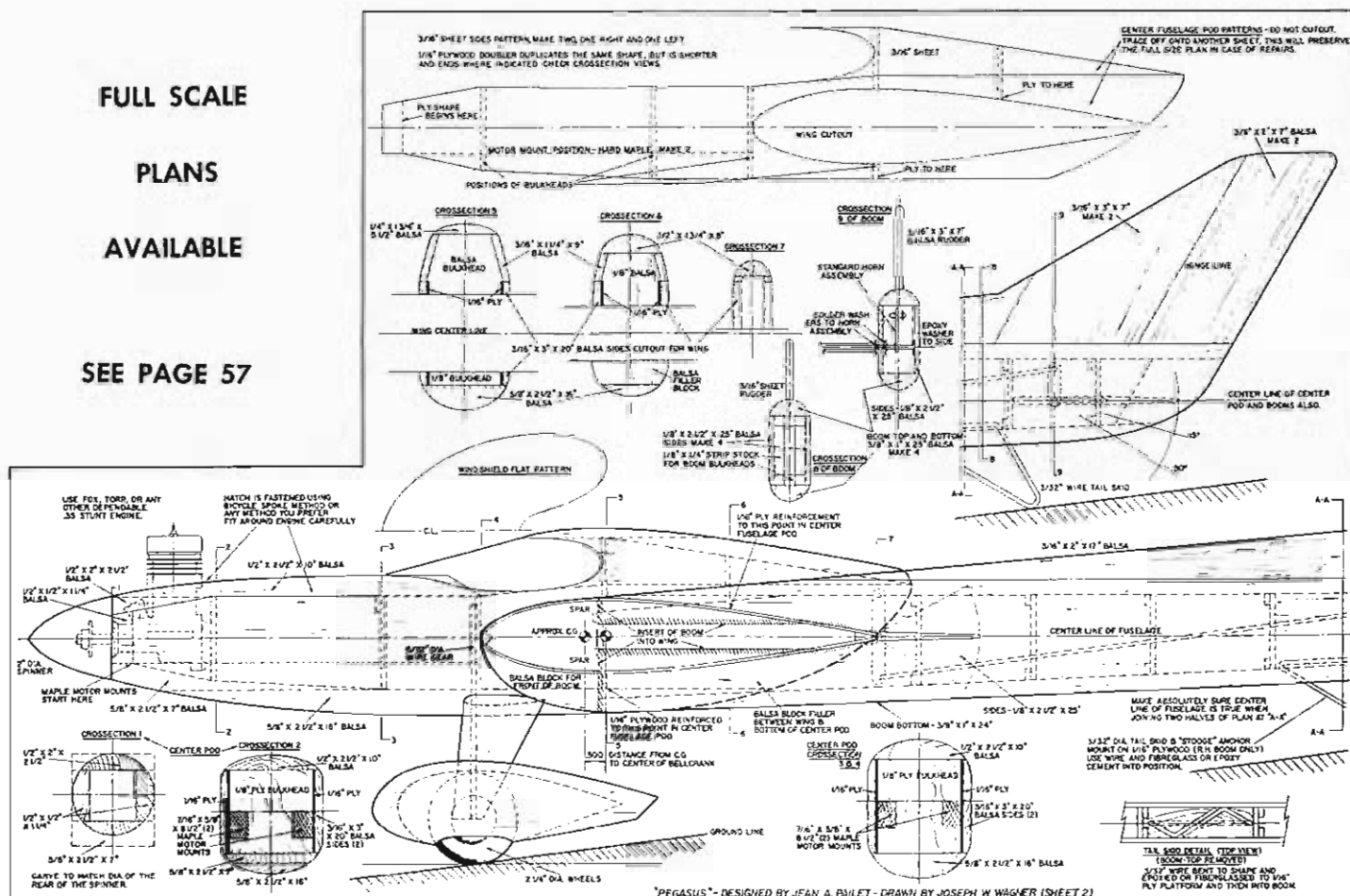


FULL SCALE

PLANS

AVAILABLE

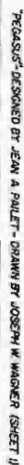
SEE PAGE 57

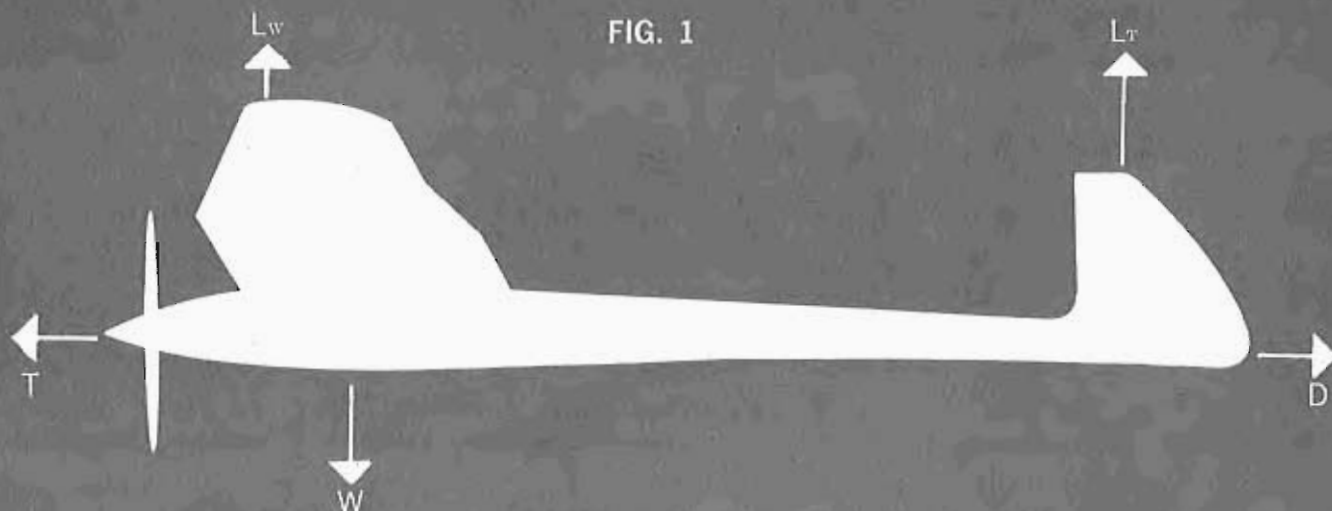


"PEGASUS" - DESIGNED BY JEAN A. PAULET - DRAWN BY JOSEPH W. WAGNER (SHEET 2)



PEGASUS





JUST A MOMENT PLEASE

By **ROBERT L. HAYFORD** . . . A CONSIDERED ANALYSIS OF HOW ONE WOULD DETERMINE AN ORIGINAL FREE FLIGHT DESIGN AND PROVE OR DISPROVE FORCE THEORIES.

► Recently while thumbing over and re-reading some of my older issues of M.A.N., I again read "Watch That CG" (Jan. 1959) written by Messrs. Bill Bogart and Bud Rhodes. This particularly excellent article has contributed greatly to a number of free flight designs. Unfortunately (as we all know), good design data such as these are hard to come by.

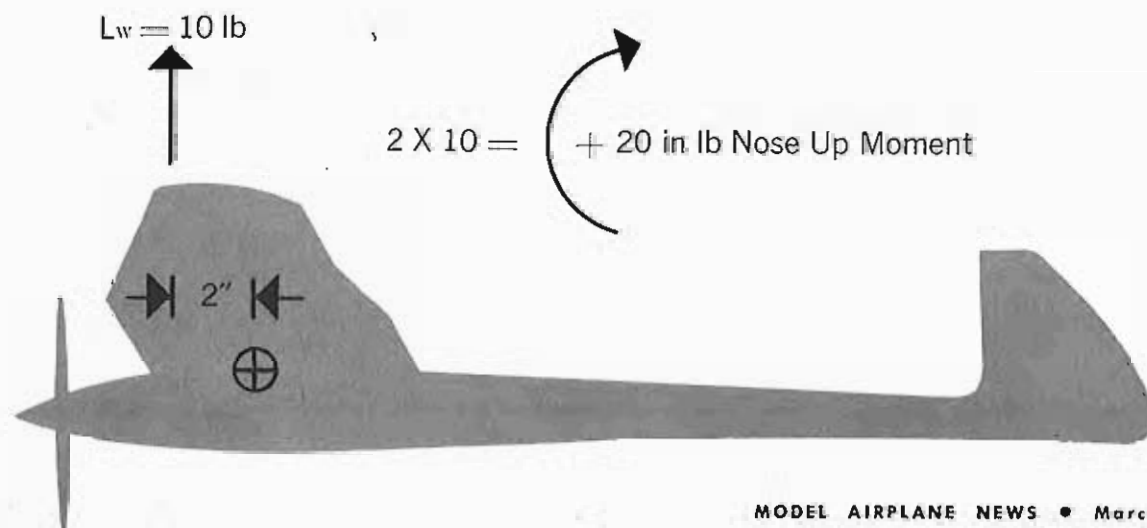
In the first few paragraphs of the article it was stated, "If the CG is too far forward, the airplane will loop under power; too far aft, and the airplane will nose over as it picks up speed and will dive in." At this point I drew up to a sudden stop because I intuitively disagreed with this statement. I felt I could readily show that the opposite results would occur.

After much diagramming, sketching and serious thought, I finally determined that moment diagrams would well serve to prove or disprove my point. I feel that the following method of analysis provides a useful tool to the modeler interested in developing an original design. To my chagrin,

by use of this method I was able to demonstrate that Bogart and Rhodes were 100% right!

To begin with, the forces acting on an airplane in flight should be considered. Most modelers are already aware that these forces are called Thrust, Lift, Drag and Weight (Fig. 1). It so happens that all of these forces do not act through the same central point of an airplane. Because these forces are not acting through a common point then, a turning effect occurs (similar to an unbalanced see-saw). The turning effect about a given point is called the **MOMENT OF A FORCE**. The Moment of a Force is measured by the product of the force and the perpendicular distance of the given point (CG) from the line of action of the force.

Let's stop here and give a short demonstration example. Suppose that the force of Lift (say 10 lb) is located 2 inches in front of a given point (the center of gravity). Further, let's note that a nose-up rotation is positive and a nose down rotation is negative (Fig. 2). This means then



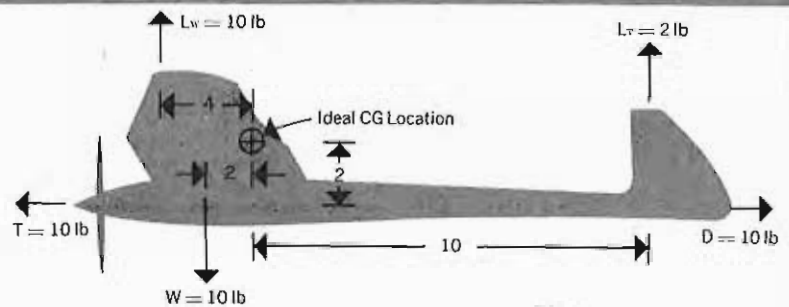


FIG. 3

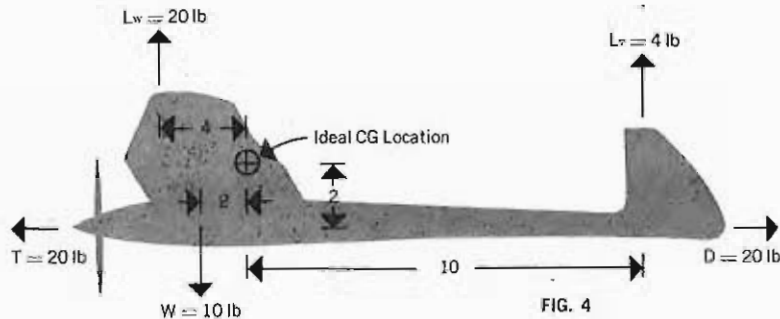


FIG. 4

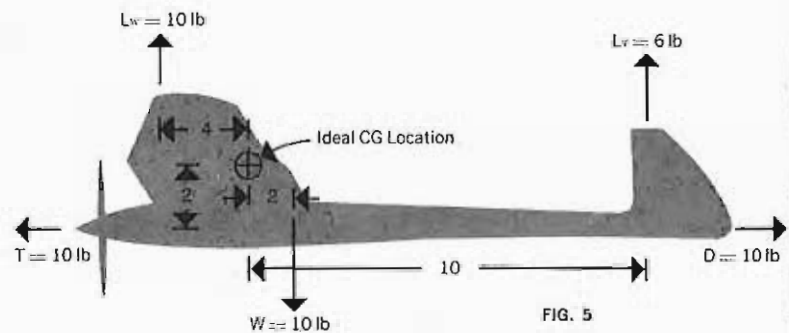


FIG. 5

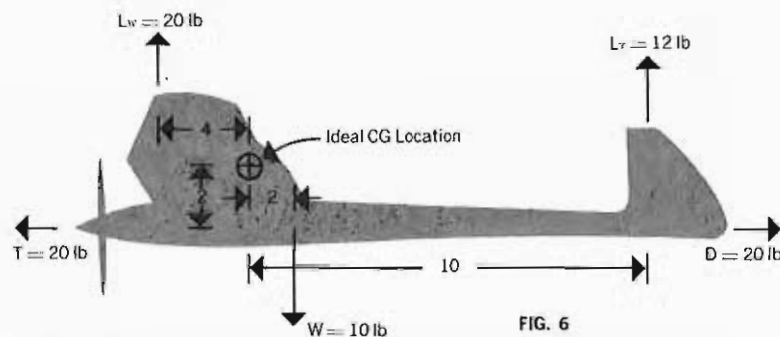


FIG. 6

that the turning effect (Moment of Force) is 2 inches \times 10 lb = +20 inch-lbs. Thus we have shown a nose up (+) tendency, O.K.?

From here on the rest is easy because we simply add up all of the Moments of Force (Thrust, Lift, Drag and Weight) acting on the model to see if a nose up (+) or nose down (—) rotation will occur. What is desired is a sum total of zero (i.e. no climb or dive tendency).

In figure 3 is shown a diagram of an imaginary model with the actual CG (shown as W) located ahead of the ideal CG location. The following round numbers are assumed for simplification:

Forces (power off)	Forces (increased power and airspeed)
	(assumed all double except weight)

T Thrust	10 lb	20 lb
L _w Lift of Wing	10 lb	20 lb
L _r Lift of Tail	2 lb	4 lb
D Drag	10 lb	20 lb
D Weight	10 lb	10 lb

This imaginary airplane can be trimmed for a smooth (though not optimum) glide. Totaling up the Moments of the Forces about the IDEAL center of gravity we find;

T	2 inches	\times 10 lb	= + 20 inch-lbs
L _w	4 inches	\times 10 lb	= + 40 inch-lbs
L _r	10 inches	\times 2 lb	= — 20 inch-lbs
D	2 inches	\times 10 lb	= — 20 inch-lbs
W	2 inches	\times 10 lb	= — 20 inch-lbs

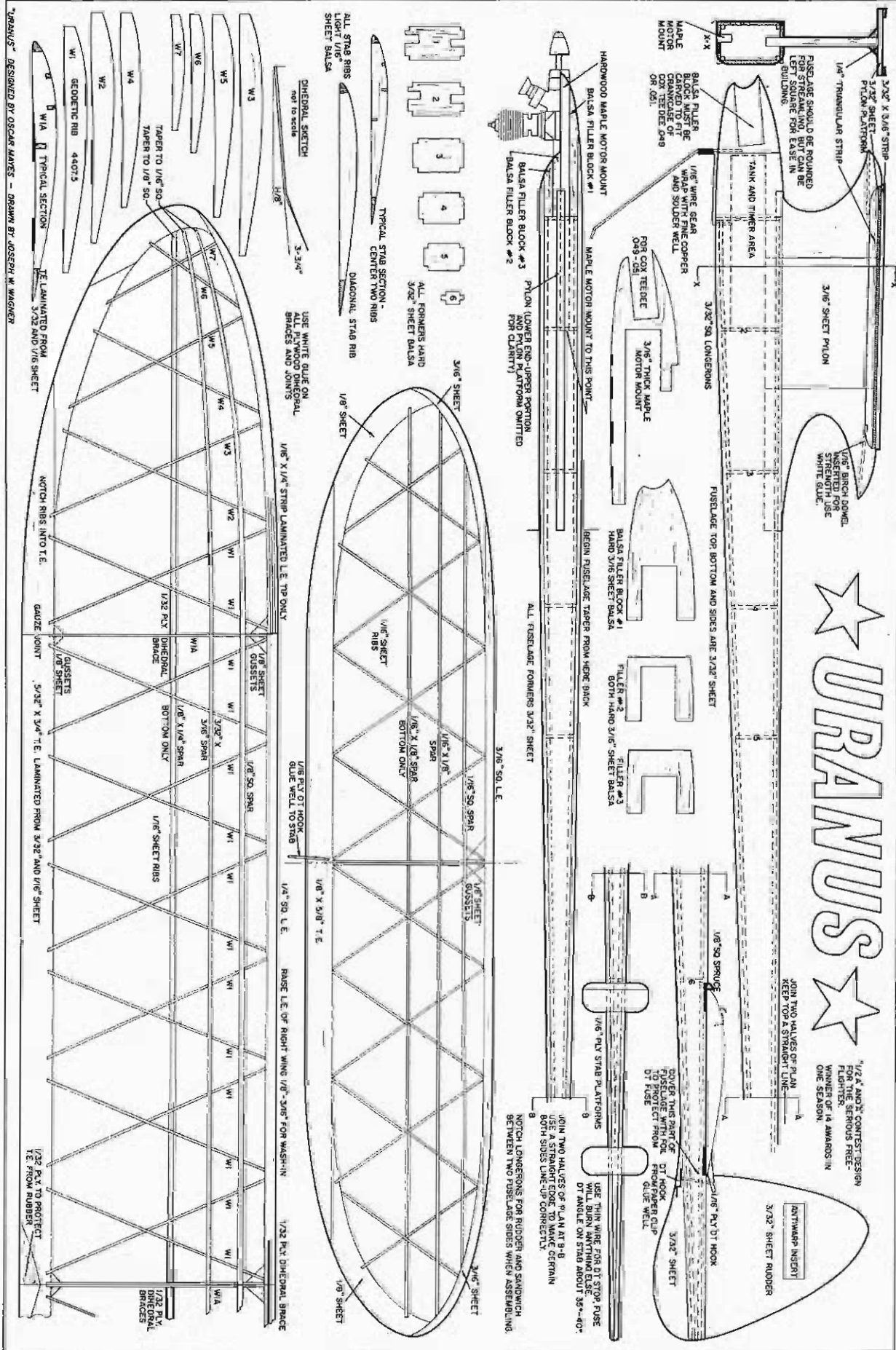
Total = 0 inch-lbs

(remember — sign indicates nose down rotation)

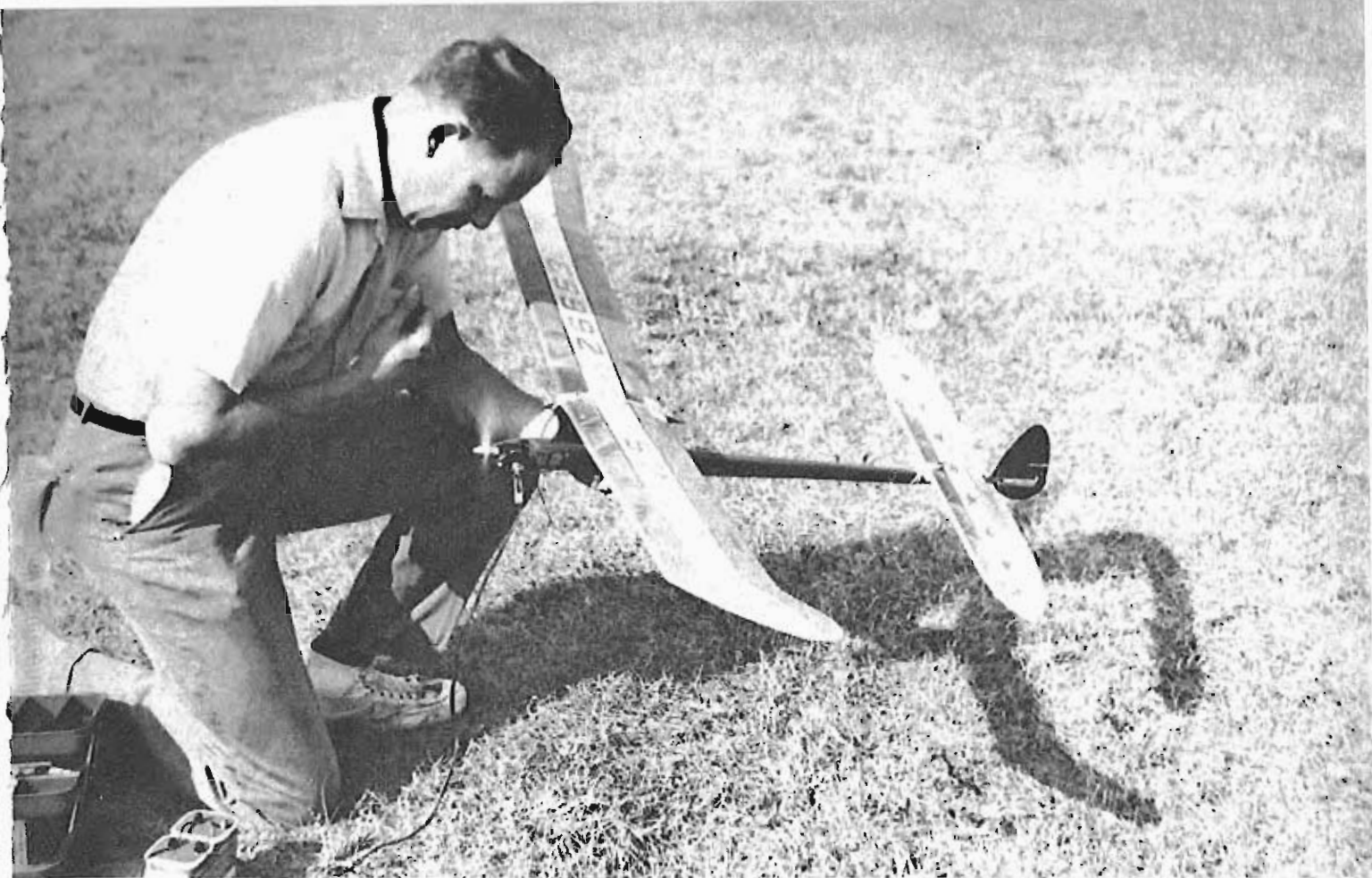
(Continued on page 45)

**"1/2 A" AND "A" CONTEST DESIGN
FOR THE SERIOUS FREE-
FLIGHTER.**

**"1/2 A" AND "A" CONTEST DESIGN
FOR THE SERIOUS FREE-
FLIGHTER.**



FULL SCALE PLANS AVAILABLE—SEE PAGE 57



Pix for this article excellent course for successful free flight—photo above shows best method of starting engine, good fuel, hot batteries.

After engine is started comes the one factor separating winners from losers, tune the engine until properly peaked, then back off half a turn.

Starting batteries disconnected, now we try engine for surge—stand on end thrust rapidly upward, note if engine continues without faltering.



URANUS

by OSCAR MAYES

1/2A CONTEST WINNING FREE FLIGHTER
APPLY NAMED FOR THE GOD WHO WAS THE
PERSONIFICATION OF HEAVEN AS THIS
IS THE ONE PLACE THAT IT HEADS FOR.

► The Uranus is a high performance contest aircraft designed by and intended for the serious free flier. The construction is fairly simple and any average modeler can manage it. Trimming must be precise and gradual. If you are inexperienced but have flown some free flight, the Uranus will offer you a thrilling challenge and reward; as it is a very stable and exceptionally fast model.

At the end of the 1962 contest season, the Uranus was conceived; when we realized that in order to compete with the high caliber ships brought about by the new rules, it would be necessary to have a design that would climb very well and still have a slow flat glide. To obtain this, we decided on a wing area of approximately 275 square inches, an airplane with little or no frontal resistance and

PICTURES AND TEXT CONTINUED ON NEXT PAGE

URANUS—Continued

lightly loaded, coupled with an airfoil with which we have had good experience and the Uranus exceeded our expectations.

Such functional extras as elliptical surfaces, rudder aft of stab, assymetric fuselage and an NACA 4407.5 airfoil were employed. These all helped to obtain the streamlining, looks and performance we wanted. The airplane also had be rugged for our fields are small and our trees large and numerous.

At the beginning of the 1963 season, the Uranus saw action, and in its first contest with poor weather, and 75 contestants, it was the only model to max out that day. Later in the season, it was to repeat that feat; only this time against a field of 85 contestants. This speaks well for the consistency of the design. The FAI version (still in testing) now holds the Junior National Record for my son, Jim.

To date the Uranus has taken nine trophies and five merchandise awards out of a possible sixteen places. Flown in the late evening, near dark, it consistently averages 3:20 to 3:40 on eight to ten second engine runs. This is because of its flat glide and surprisingly fast climb; due in part to the fine power supplied by the Cox Tee Dee .049. This power is absolutely necessary for good transition from power to glide in all contest ships.

I want to thank Joe Wagner, a fellow modeler, for his helpful advice. His knowledge helped me greatly.

CONSTRUCTION: There is nothing unusual about the construction of the model that the average modeler cannot cope with. The geodetic wing is really quite simple, a little extra work, but it will pay off in strength and a warp free structure in both wing and stab. The side mounting for the Tee Dee .049 is clean and functional, yet is one of the strongest methods there is for mounting this type of engine.

This airplane should be built entirely of contest balsa and our preference is "SIG." Your model, if built according to instructions, and of SIG Contest Balsa will weigh approximately 6½ oz. and be very rugged. Choose your wood carefully for lightness and strength.

Cut out the two sides for the fuselage, add longerons. Cut out balsa filler block #1 and glue to the right hand side. Fit first the three fuselage formers that hold motor mount and pylon in position. Next, cut motor mount out of 3/16" hardwood, preferably birch or maple. Any lumber yard will rip out a piece of maple to this thickness. Drill motor mount to receive motor and cement a brass plate using contact cement to the back side of the motor mount. Solder the four nuts to this brass plate to receive motor bolts. This makes a clean front end, with the motor well faired in, glue this assembly to filler block #1 and into the other three formers using a white glue. Add filler block #2 and #3, then remaining formers. Fit the gas tank (Perfect #17). Glue sides together inserting top, bottom and pylon. Let this dry for at least 24 hours before carving the fuselage round to streamline. Sand pylon smooth and add pylon platform, dowel reinforcement using white glue here too.

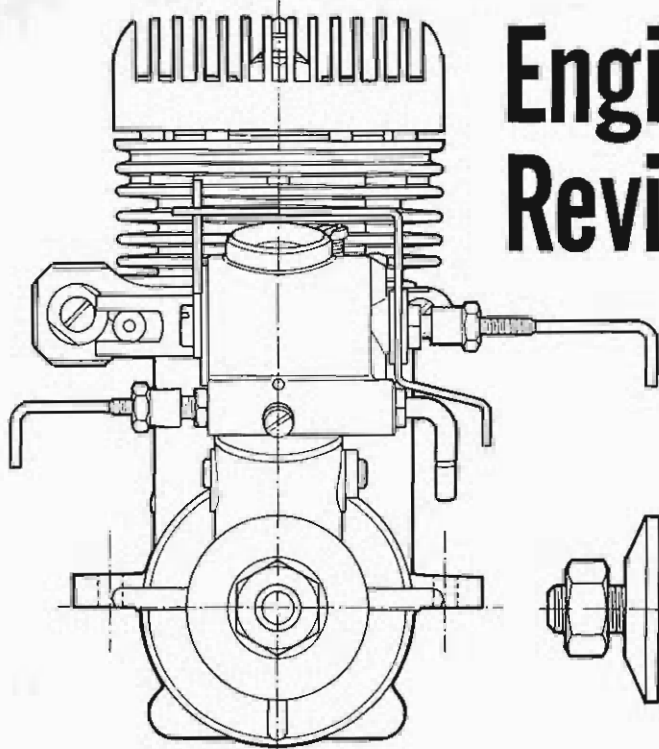
The wing is built conventionally except for the geodetic ribs. Before starting the wing, note that there should be 3/16" wash-in built into the right panel, do this by raising the leading edge at the polyhedral break. First, lay down the outside framework of the wing; for example: leading edge, notched trailing edge, and tips. Next add wing ribs cutting and fitting each one individually, first notching the top of the rib half way down to receive the other crossing geodetic rib. After all ribs are in place double glue each joint, notch ribs and insert spars according to the plans. Your next step is adding dihedral using 1/32" or 1/16" birch plywood for dihedral gussets Use ¼" hard balsa triangular gussets at these (Continued on page 38)



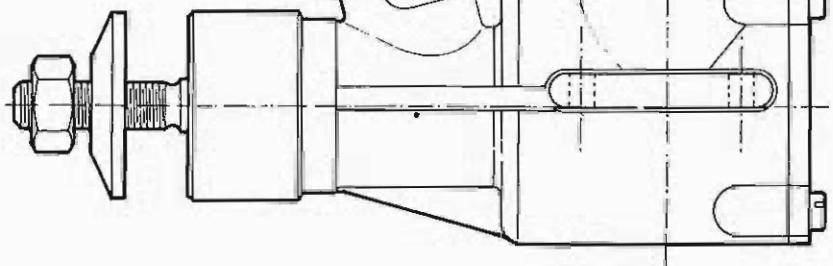
If engine falters, readjust needle valve and try again. If it holds it is now operating at peak. Insert D/T fuse in snuffer and ignite it well.

If fuse is burning well the next very important step is to set fuel-flood off time and release it almost simultaneously with the aircraft.

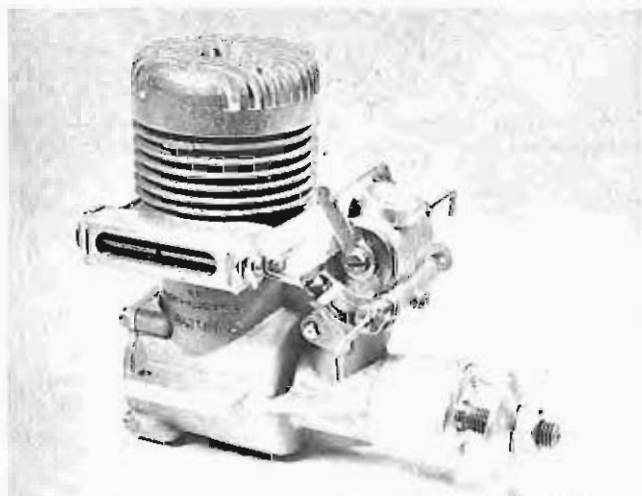




Engine Review

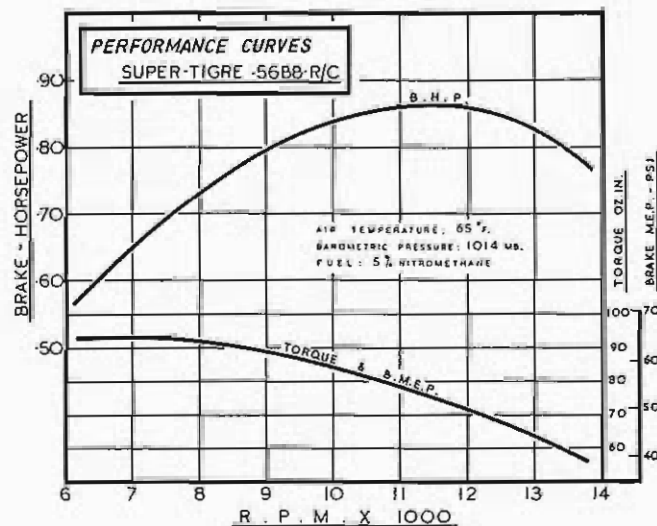


SUPER-TIGRE .56BB



Good for the big stunt multis, bulky scale models and the overweight job. Super-Tigre .56BB R/C is eye-opener turning big props.

Sound design, good materials coupled with a nice finish distinguish all Super-Tigre engines and the new .56BB R/C is no exception.



HI-TORQUE WITH LARGE PROPS IS THE SUCCESS STORY FOR THIS LATEST IN SUPER-TIGRE R/C ENGINES.

By P. G. F. CHINN

► The engine that dominated the 1963 R/C Internationals was, unquestionably, the Veco 45 R/C. No less than nine of the first eleven place winners used Veco 45's, including overall winner Ralph Brooke. Moreover, the top four teams all employed this American engine exclusively. Of course, motors don't win R/C contests (the airplane, radio and pilot also count!) but no one gets to the top with a dud engine, so the mere fact that Germany's Fritz Bosch used a Super-Tigre .56BB to tie with Ralph Brooke for first place, is sufficient to suggest that this is a motor worth investigating.

The Super-Tigre .56BB was introduced just a year ago, succeeding the earlier .51 and .56 plain bearing models which had been fairly widely (Continued on page 54)





FLOYD BENNETT—Floyd Bennett Naval Air Station, New York. American Air Force Bases throughout the world bear the names of a select few among a nation's heroic fliers. Another in a series that compiles the deeds that made these aces of the air immortal.

★

IN THEIR HONOR

★

Written and Illustrated by

BILL FEENY

► When I was a boy in the thirties, my first aviation hero was Floyd Bennett. I knew nothing about my idol except what little I found printed on the back of one of those bubble gum "picture-cards." Bennett himself once admitted that children recognized him from photos more readily than did adults. The reason is simple. Floyd Bennett was not a leader—he was a *doer*. His accomplishments in the Arctic were overshadowed (quite naturally) by the publicity given to the leader of the expeditions—Richard E. Byrd.

Floyd Bennett was born near Warrensburg, New York on October 25, 1890. He quit school at seventeen, worked in a lumber camp, then studied automobile engineering and found employment at the People's Garage in Ticonderoga, New York. He was a conscientious saver and eventually bought half interest in the garage with his earnings.

When the United States entered World War I, Bennett sold his share in the garage and after several months of indecision enlisted in the United States Navy on December 15, 1917, assigned to aviation duty. His experience in mechanics paid off and by the end of his hitch he was rated as a Chief Machinists Mate, Aviation. On July 30, 1919 he was honorably discharged, but immediately reenlisted.

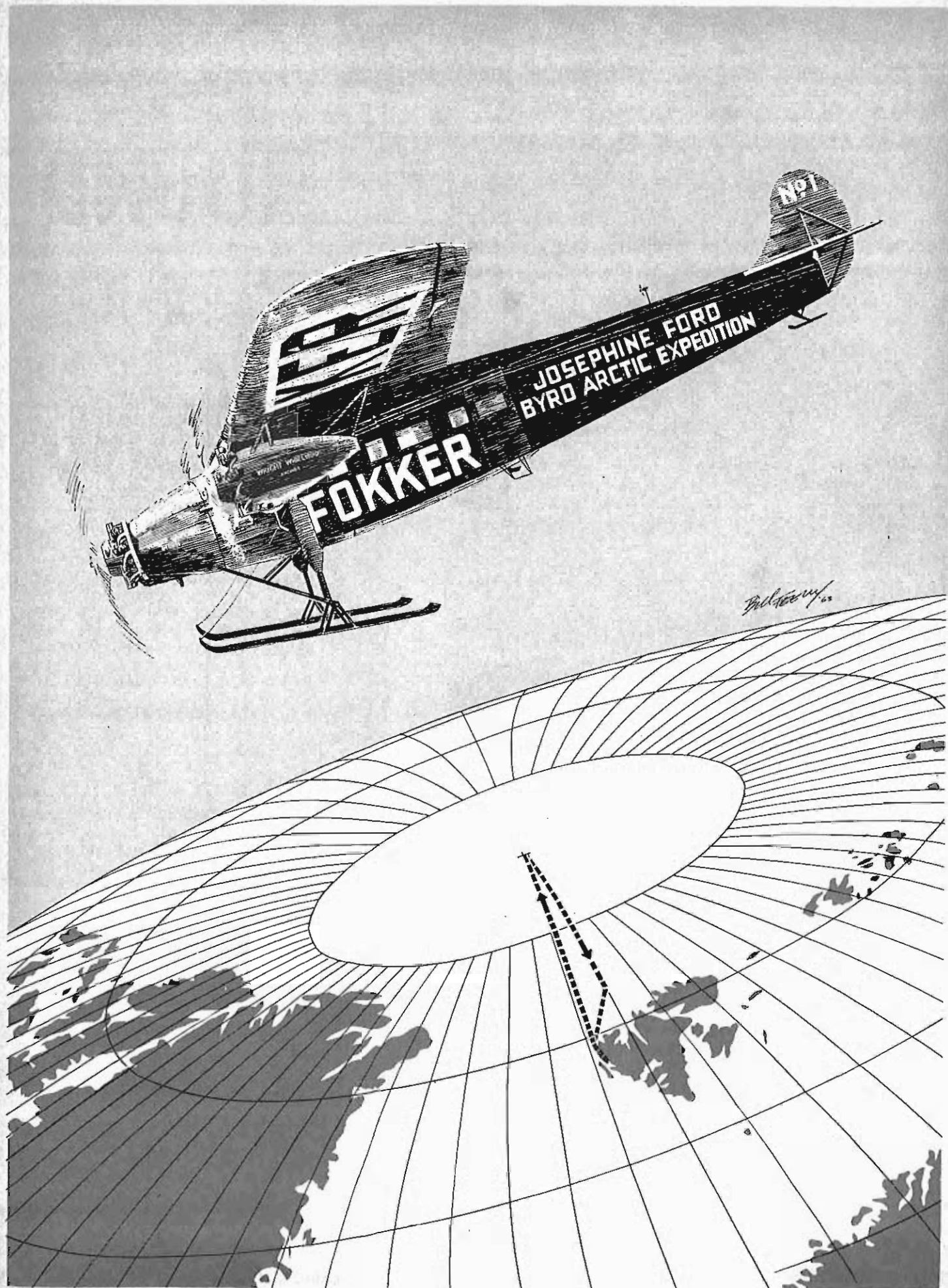
Floyd Bennett took the aviation course at Pensacola, Florida, became an enlisted pilot, and served at Hampton Roads, Virginia for several years. Then he was picked for an adventurous assignment. During 1923-1924 the United States Army was preparing for the Around-the-World flight of four Douglas *World Cruisers*. In connection with this flight, Floyd Bennett was ordered aboard the cruiser USS *Richmond* which steamed north to Greenland. There Bennett and other pilots flew reconnaissance flights, searching for possible landing sites for the Army Around-the-World fliers. During this time his rating was officially changed to Aviation Pilot.

In April 1925, Bennett returned to Greenland with the Naval Air Detail of the MacMillan Arctic Expedition. The Naval Air Detail's mission was to locate lands presumed to be in the Polar Sea northwest of the expedition's base.

It was on this assignment that Floyd Bennett met Richard E. Byrd and the two became fast friends despite the officer-enlisted man social barriers.

Immediately upon arriving at Etah on August 1, 1925, the Detail's three Loening amphibians (NA-1, NA-2 and NA-3) were assembled. Bennett worked without rest. On one occasion NA-1 developed engine trouble and the mechanic-pilot worked on it out in the cold until he got it running on all 12 cylinders. Then he reported to Byrd.

On August 11, Byrd and Bennett flew
(Continued on page 36)





Scott Laidlaw of Synnyvale, Cal., with a T-6 Texan built by father from MAN plan in 5/60 issue.

COMBAT SLOW COMBAT
SPEED STUNT RAT RACING

by WILLIAM WINTER

ROUND & ROUND

DEMONSTRATIONS BY FLYING
GROUPS, BEST WAY TO PROMOTE
FLYING IN ANY COMMUNITY—
READ OUR COMPLETE REPORT
FOR OUTSTANDING FLYING TEAM.

► Accustomed as we are to the nice things that keep happening in modeling, to the many coincidences that so often prove this is a very small world indeed, we were never prepared for the chain reaction on this biplane thing which began about two years ago with a request from Roger George down Maryland way, for a plan of an old deBolt biplane. We don't want to beat a good thing to death but if our seven readers will bear with us—we picked up one more reader in 1963, we should like to top off this biplane story with a unique contribution from Joe Ziomek, of the Livonia Rib Crackers MC (32619 Oakley, Livonia, Mich.).

At one point we had a closet-full of deBolt biplane plans. We've received other biplane pictures and plans and learned discussions of design and force diagrams, and communications more like term papers than letters proving that previously published stuff was way off base, and so on. Somewhere along the line we had mentioned Walt Stevenson's Barnstormers, used in an air show act

which thrilled the Plymouth Internationals one year with an hour-long demonstration featuring the remarkable bipes towing tremendous streamers—as well as with Dynajet stunt models, scale jobs, etc.

So here we are ten years later with another crack Michigan demonstration group, the six-man Rib Cracker team of Joe Ziomek, Dick Ormiston, Andy Sheber, Dave Elsey, Ted Lecureaux, and Bob Warday who put on their first show in 1962 to add interest to local club meets. Flying conventional Ringmasters and Busters, the team put on a program of novelty flying that lasted about 90 minutes. They demonstrated trapeze pick-up of a combat streamer, simultaneous stunting of two ships, one man flying two planes and six-man combat—the latter in three flights spaced throughout the program and easily the greatest crowd pleaser.

This year they switch to bipes for greater spectator appeal. After a particularly successful show at the Michigan State Exchange Club meet at the Ford

Test Track, the boys were convinced that bipes similar to the Walt Stevenson ships of the early 50's would draw even larger crowds. Six big bipes are under construction and will be ready by spring for demonstrations at club meets all over the state.

The old Stevenson circus consisted of 26 men with 75 airplanes! Walt flew a scale Stearman of 450 sq. in. area, with a pressurized Atwood 60 turning a 10-8. On 70-foot lines it hit 80 mph with a pull of 50 pounds. Weight was 2½ pounds. (Walt used his stunt flight as his scale qualification flight.) The Rib Crackers bipes have almost double that area and benefit from Walt's tips based on five years of biplane piloting.

Specs: 850 sqs., Fox 59 RC., weight 4¾ lbs., span 51 and 46, chord 9 3/16 in., giving an 18% thick airfoil. Speed is five miles less on the same lines and with the same pull. On Roberts controls the big biplane flies flawlessly, including three-point landings. It has full stunt ability and does a spectacular wingover only 10 feet after takeoff.



"Foxy Special" held by honorary member, Janice Kozak. Livonia Mich. Rib Crackers will fly 6 of these models at statewide demonstration in '64.

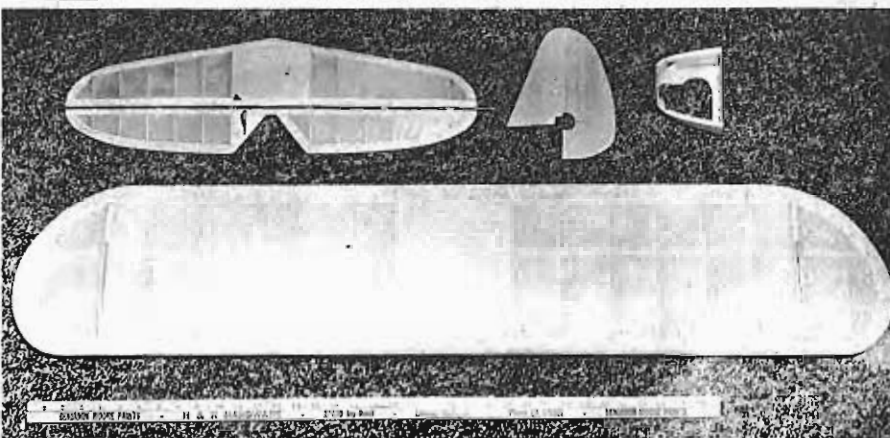
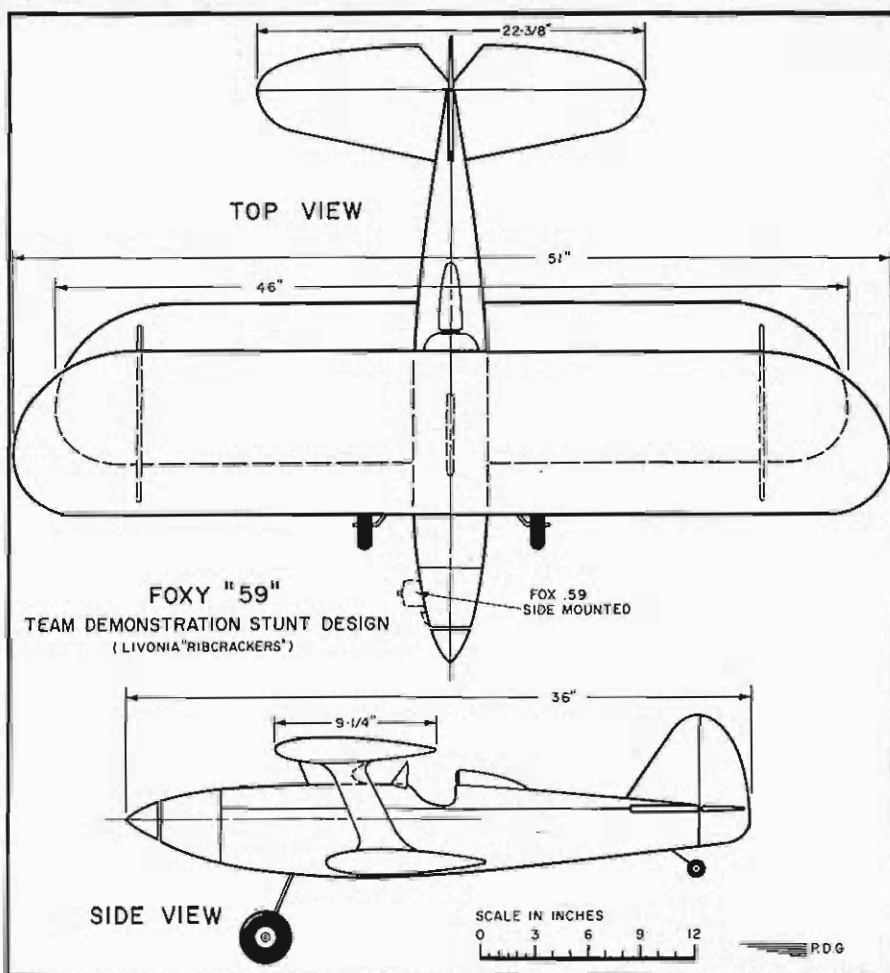
"With these six big biplanes engaged in six-man combat," Ziomek tells us, "the Livonia Rib Crackers expect to put on some tremendous displays of airplane stunting and to promote a lot of interest in the hobby."

R&R wonders if this wouldn't be a fine act on closing day at the Nats? One wonders how these guys get through a season of six-man combat on six ships (do they rehearse?). And finally, we submit that this wonderful biplane—see three-view—should end reader arguments about "two-winger" design. (You can get plans for \$2.00 by writing Joe Ziomek at the above address.)

The requirements of the science-mechanical magazines and the projects you get into—should interest you ukie guys. Whereas the model mags publish plans because an airplane is good, or because they want to help the beginner or please a scale fan, the science books go in for occasional world record jobs (which their readers could never fly) racing hydroplanes (boats) and, much more often, the off-heat stuff, the freaks and novelty items.

There was the time we interested a national magazine in a radio-controlled duration model. The editor said, "Fine, now I'm goantotellya what I want you to do. You fly this thing from Chicago to New York and you've got it made!" Now that you have the general idea, should like to tell you about a delta ukie—a perfectly sane project by the way—because it highlights the rather scanty info available for such designs, and some in-

(Continued on next page)

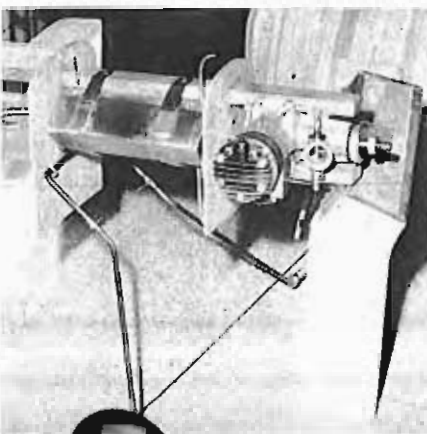


All wool and more than a yard wide! Two wings like this add up to more than 850 square in.

Mounts for Fox 59RC also support tank and box for center-section strut. Note 3 line ballcrank.

of wing area. Component construction details indicate care in building. Weight is 4 1/4 lbs. total.

Centersection strut is plywood with deep slots for top wing spars. Detachable cowl for engine.



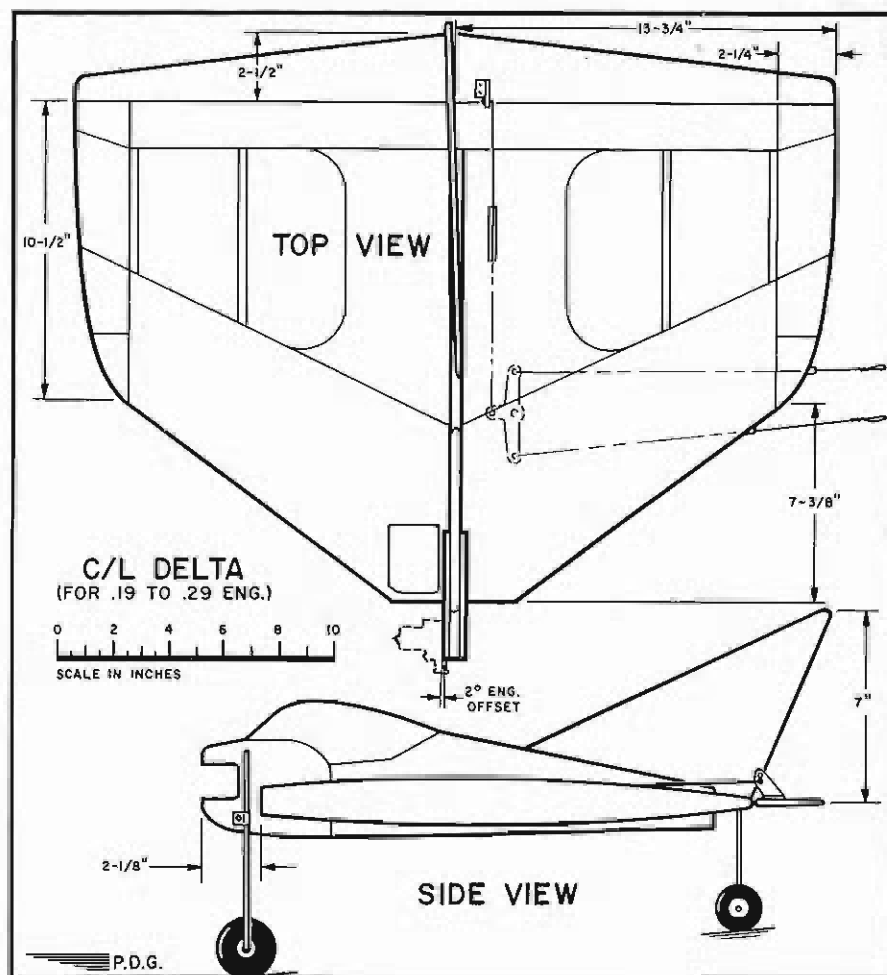
ROUND AND ROUND Continued



teresting problems possibly pertinent to one of your own future projects.

To begin with, this thing had to have a side-mounted engine which would permit a slab profile suggestive of full-scale jets. Model deltas invariably have upright engines—the R/C Hustler which holds the world speed record for example. But if you hang the engine in front of the wing you risk getting the thing too nose heavy—at least you can't get the area far enough forward unless the ship is too big. So you cheat a bit on sweep, for a somewhat spanwise stretched out affair, then chop off the tips to hold down total area. This job also had a trike gear. Now, if you keep to a simple structure, the normal position for the main gear means stiffeners, mounting plates, etc.

Could the main wheels be attached to the trailing edge? This compromise means that the craft cannot be rotated for take-off with up elevator simply because you can't push the rear of the wing closer to the ground—or raise the nose if you will—and thus cannot effectively alter the angle of attack for lift off. A long nose-wheel strut, however, would position the craft at a sufficient angle of attack for automatic take-off—which works except when the grass is too long.



When you eyeball this thing for area and proportions that provide a sufficiently far forward disposition of wing area, you've got a pretty big machine—for a .19 to .35, after we cut off the pointed tips, ended up with a bat-like configuration of some 26 inches span. This looks small on paper but it yields a pretty big ship which, power-off, does not maintain comforting tension on

lines beyond 60 feet. You can't hang weight on the outboard tip because this automatically makes balance critical with respect to bellcrank location. You can put the weight at half-span, at the leading edge, which keeps it in line with the aircraft CG. The side-mounted engine helps, as it does on combat, since the engine is outboard of the centerline toward (Continued on page 48)



Excellent control scale that is tops as an ukle stunter. Kitted by Midwest, this Fairchild PT-19 has detailed windcreens and exhaust stacks.



J. W. Burns of Cut Back, Montana is making comeback after a fire that ruined his fleet of planes—his Saffire made from MAN plans Sept. '59.

OBJECTIVE STUNT JUDGING

... DREAM OR REALITY?

by CLAIR SIEVERLING



Our author, prominent Southwest stunt pilot and designer, poses with his Phoenician, MAN 11/61.

STUNT JUDGING IS VERY MUCH LIKE THE WEATHER AS WE ALL TALK ABOUT IT BUT DO LITTLE TO CORRECT OR IMPROVE ITS QUALITY OR TRAINING OF THE JUDGES.

PARAGRAPH 21.11 of the Control Line Precision Acrobatics Regulations of the AMA begins, "There is no substitute for experienced judges." The final sentence of paragraph 21.11 is, "As scoring is very important for this event, the committee is constantly looking for improvements." Truer words were never spoken.

What do we do, however, when there are no highly experienced judges available? And perhaps even more important, how can we minimize the human error effect on stunt scores judged by competent and earnest judges? I am satisfied that there is an answer to these questions, but before we investigate the possibilities, let's consider judging as it is normally done at most contests.

The AMA rule book allows 40 points for each maneuver. The flyer performs the inside loops, for instance, and the judge makes a decision as to whether the maneuver falls into the poor, fair, good, or excellent categories, and informs his assistant to write down a score corresponding to his mental selection of the maneuver. At this point our poor judge has inadvertently left himself wide open for errors and inconsistencies unless, of course, he is very experienced (highly experienced judges are rare animals indeed, pamper them thoroughly!) Why is our hero in a spot? Well, he just judged John Doe's loops as being worthy of 32 points, but an hour earlier he scored Richard Roe's loops at 34 points. Roe's loops were more round, true, but then Doe *might* have been closer to the five foot bottom required. By the time he finished thinking it over, if he takes the time to, six maneuvers have been done without our hero judging them. At this point he swears off judging and Doe switches from stunt to speed where his performance can be objectively calculated by a little miracle, the stop watch.

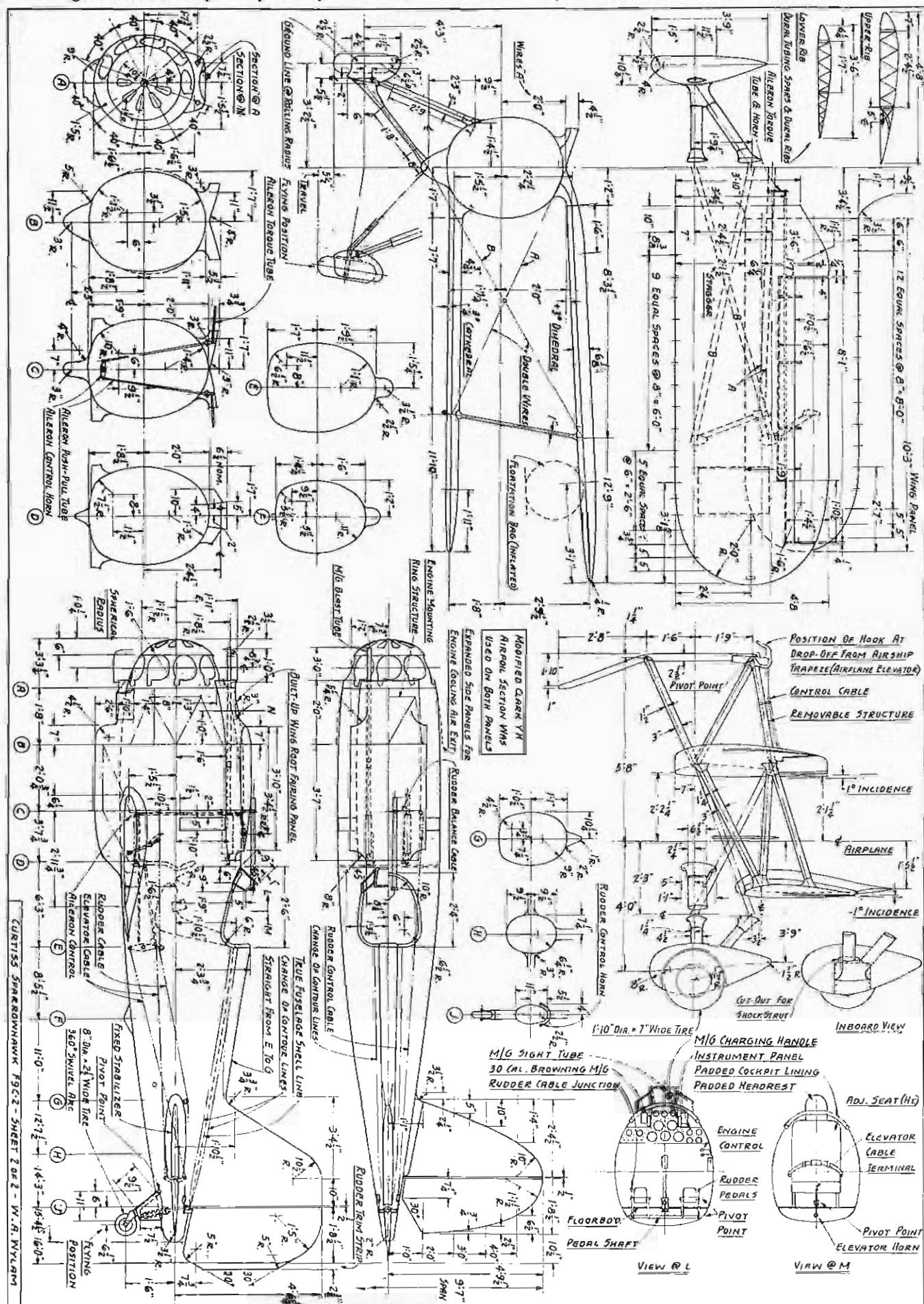
In all seriousness now, how many of you have been in one or more of the three-party triangles illustrated above? I think I have felt the effects from all three angles at one time or another—(1) I have outscored flyers whom I was sure outflown me, (2) I have been outscored by flyers whom I was certain I could beat (this seems to bother me worse than situation (1) for some reason!), and, worst of all, (3) I have judged contests when I felt that my scores did not represent the true winners.

So much for explaining the problem, now to explain what I believe to be a solution... the "deduction method" of scoring. I make no claim to having "discovered it"—when I first heard of it, it was casually being used by Alden Tysor, one of the better judges I've been fortunate enough to fly under, and it is so obvious and simple I'm amazed that it isn't in widespread use today. It boils down to this—the rule book defines how a given maneuver is to be executed, and then it lists errors that may be made in executing the maneuver. So instead of looking at John Doe's loops, and making a general decision that they are worth 32 points, let's sit there and *count* his errors and deduct them from the 40 points possible. We all know an error when we see one, even if we are inexperienced, and we can all count, so doesn't this make our event scoring far more objective?

Let me give a good example, the horizontal square eight. Counting entrance and exit corners, there are 18 corners in this maneuver, the two eights must be properly proportioned, at proper altitudes, and must be flown in identical paths. Doe and Roe are competing in a close fly-off and tension is high. Doe flies a beautiful eight, except that the bottom of his maneuver was ten foot off the ground and he rounded (Continued on page 39)



then redesigned for airships trapeze operations, which were very successful.





A perfect peg—Armand Zambardi launches Anthony Pignone's class A speedster. Some speed men prefer hand-launch to dollies for take-off.



Another hand-launch in speed, this time a bit up but was successfully recovered. Laird Johnson of Philly launches Rog Hebner's class C model.

AIRWAYS—EAST COAST

By **RAYMOND JUSCHKUS** . . . HERE AGAIN WE HAVE THE HAPPY RESULTS OF CO-OPERATION BETWEEN CLUB, MODELER AND INDUSTRY. INDUSTRY IN THIS CASE, ONE OF THE COUNTRY'S OUTSTANDING AERONAUTICAL SCHOOLS: THE ACADEMY OF AERONAUTICS.



This kind of co-operation you can't be without, wives of Flushing club members ready for influx of hungry contestants, looks good from here.

► On July 7th and 14th, 1963 the Flushing Model Airplane Society held its Fourth Annual Model Meet sponsored by the Academy of Aeronautics School at its Athletic Field near La Guardia Airport, New York.

Weather was a major problem, especially winds of 20 mph with gusts up to 30mph. The following week we had rain; a downpour would really be an understatement.

NAVY CARRIER: Carrier had large turnout with strong winds as a handicap. Bill Kohler of the Deer Park Carrier Team took top honors.

SPEED: This event was run smoothly under the guidance of Flushing's speed flyers headed by Frank Garzon. Cliff Telford and his group from Virginia were the winners in speed.

ROCKETRY: Fred Kupersmith won first place in Rocketry. Fred is the Editor of the New York Association News Letter.

STUNT: Edward Elasick, 17, who seems to have a habit of winning, was first in the Jr. and Sr. division. Ronald Pavloer won the open class.



Nine-year-old Karl Scholz of Fairfield, Conn. appears to be hanging on for all he's worth, he managed Mac .60-powered Carrier job quite well.

SCALE: Judged by the critical eyes of Warren Kohler, Scale was flown in a torrential downpour. They made every effort to get those big multi and single engine jobs off in almost 6" of water. Some were successful while others sure did try.

COMBAT: Combat did have its problems. Can you imagine trying to keep wet streamers in one piece!

The members wives were on hand to serve food and refreshments to contestants. In the heat, wind and rain, the women didn't have a single complaint.

Mr. George Brush of the Academy of Aeronautics School was on hand to award the trophies. In all, 48 trophies were given to the winners.

Association with the Academy has been good and we hope will continue. The Academy of Aeronautics School has been in operation for over 30 years. And approximately 25,000 engineering technicians have been trained for the Aviation/Aerospace industry. Three courses are offered in the day and evening divisions: Aerospace Design Technology, Aerospace Electronics Technology and Aerospace Maintenance Technology. The Academy's location at La Guardia Airport provides an ideal backdrop for training tomorrow's technicians. Many of the Academy's most successful students started their careers as model builders.

The Flushing Model Airplane Society was formed in 1957 by a handful of Sunday sport flyers. It has grown into a highly competitive and active club. In 1959 the club, through the efforts of George L. DeAngelo, negotiated with the Academy of Aeronautics School to run its annual contest. We were then given

(Continued on page 39)



Another picture of Karl, this time a bit more composed and with his model, a Martin Mauler. His dad and uncle also competed in carrier event.



Carrier's biggest moment, a good arrested landing. Here we have a Martin Mauler landing on the deck which was built by the Flushing Club. One of the country's top speed men, Cliff Telford of Virginia starting up his class C speed model. Rog Hebner, also of Virginia, holding the wing.





Wish you could see Hans Petri's modified Mighty Mambo in all its colorful glory of red, blue and white. Hans, winner of the Citizen-Ship merit award, tells that 2nd is lowest place yet.



Sampey's New Starlite 200 transmitter and receiver with DDM-1 (Demodulation Discriminator Module) for single channel proportional operation. Prices: DDM-1 \$12.95; Rcvr \$49.95 and transmitter \$59.95.

RADIO CONTROL NEWS

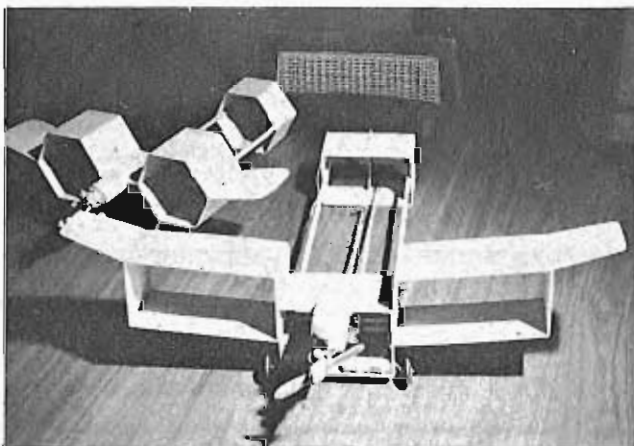
By **EDWARD J. LORENZ** . . . HOT STOVE LEAGUE COOKING UP NEW DESIGN IDEAS, SOME PRETTY FAR OUT, FULL PROGRESS REPORT FOR THE FCC COMMITTEE, CLUB NEWS.

► This month, we'd like to bring you up to date on the latest AMA-FCC Committee activity and information available at the time of writing.

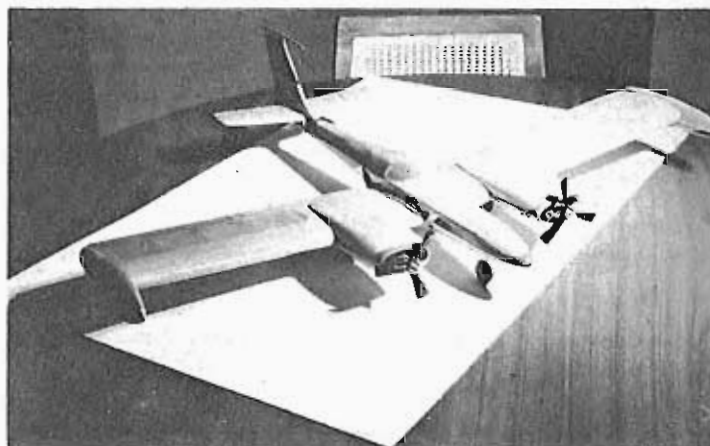
As of December 11th, the contributions amounted to \$3344.50. This money has come from manufacturers, clubs and individuals and as you know is to be used to pay the expenses to alleviate the interference problem that now exists. The first approach has been to have a communications lawyer, Mr. Jeremiah Courtney, prepare dockets for the FCC. Two filings were made on October 1, 1963, Docket 15131 proposing the use of a number of frequencies in the 72-73 and 75.4-76mc band. Power was not to

exceed 1 watt. On November 4th these frequencies were contested by the Association of Maximum Service Telecasters, Inc., on the basis of interference to TV channels 4 and 5. This was not unexpected and certainly is a legitimate concern.

The other frequencies requested are those which fall in the guard band spots and which could possibly be made available for our use when the Commission's narrow band equipment standards become universally applicable. These are: 35.20mc, 35.68mc, 43.20mc, 43.68mc, 152.00mc, 152.240mc, 152.48mc, 152.84mc, 157.74mc, 158.10mc, 158.46mc and 158.80mc. Some of the arguments in favor



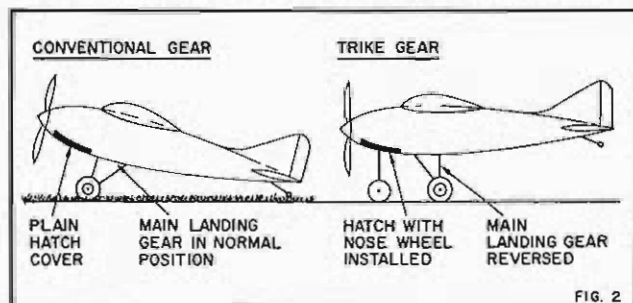
We have to take Ed's word for it as he says they fly very well. Hexy, in background, is patterned after a free-flighter seen in Aeromodeler.



Don Blessing, big twin engine man from Logan, Utah, sent along his twin .010-powered single channel plane for checking and review by RC editor.



Modified Viscount with Taurus type wing, fin and rudder by Bob Clemens of Evansville, Ind. Powered with Super Tigre .40 and uses Orbit 10.



of additional frequencies were: Operation of Part 15 units in close proximity to RC operations, off-frequency Class D operation and the increasing number of Class D stations, which if within their modus operandi do not cause undue trouble or loss of equipment. Mr. Courtney's work will cover not only the preparation of documents to be submitted to the FCC, but the interpretation of various rules, regulations and proposals as they affect both Class C and Class D stations.

Hints and kinks from the various club papers: Middle Tennessee RC Society says not to stretch SILRON too tightly when covering or successive coats of dope might overstress the fabric, causing it to split. This happened to a Perigee when the sun heated the wing. From the ZEPHYR we learn of the tungsten-carbide file made by SKIL. Bronze in color and available in two grits, (permanently bonded and non-clogging), it sells for \$1.50 at local hardware stores that sell Skil Saws. Trade name is Perma-Grit band file. Said to be excellent for fiberglass, roughing balsa and putting the right angle on rib joints for dihedral. The Tropic Aero Club of Miami says Mylar film has the following advantages for covering: Light weight, puncture resistant, fuelproof, requires no doping (good for people with lung trouble), extremely smooth surface, less sagging between ribs. Can't be that good you say? Right, here's what is not so good. Structure must be strong, difficult to use on compound curves and a new covering technique is needed. *Evostick* is the best adhesive they have found.

Cut Mylar larger than frame, apply cement to frame and roll frame over Mylar which has been laid on a flat surface. To tighten, subject to heat, anything up to about 250 F. With the new construction techniques coming out, a new covering material might be in order, especially for covering Styrofoam wings, etc. The last item is again from the Middle Tennessee group and concerns a 'new material'. Instead of using 3/32 or 1/8" sides, do the following: Use one piece of 1/16" sheet and spread a thin layer of white glue or Ambroid over it. Smooth a piece of nylon onto this sheet and then laminate a piece of 1/32" sheet



New model MC #2 Nickel Cadmium battery charger is announced by Ace Products. New and better, it is lower in price at \$4.95, instead of \$6.95.

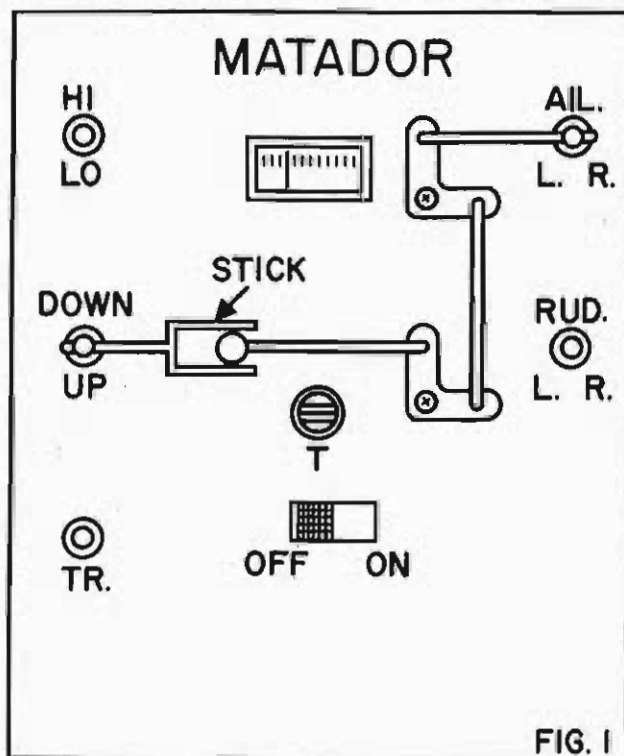


FIG. 1

over this. Allow to dry with weights on top or carefully pin down to assure good contact and no warps. Mr. E. Floyd of this club built an Aero 15 fuselage with this composite. The plane came straight in from 200 feet onto an asphalt runway with practically no damage.

Al Rosen of the Mars Pulse club (Montreal) got tired of hitting the wrong switch so he came up with the scheme shown in Figure 1. Bellcranks are used to transfer the aileron control to the stick just right of the elevator control. Used on his Matador transmitter, the idea looks good and maybe this will trigger some new ones for you. Ray Kirkland of this club suggests the use of 'New Johnson's Jubilee Cleaner' for cleaning fuel soaked planes. Says it works better than detergents and leaves a nice shiny finish.

Figure 2 comes from the DCRC Newsletter and shows the method used by Fremont Davis to convert from conventional to trike gear, from grass to concrete runway work. The main gear is formed of wire (we see no reason it could not be a dural sheet job) in such a manner that when placed on backwards the wheels are behind the C.G. The nose gear is installed on a hatch cover that fits into an appropriate opening. Another plain hatch cover is used when the regular gear is used. (Continued on page 34)

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to you the highest quality receiver kit at the lowest possible price. Our ability to buy in fantastic quantities make this price possible. The K3VK kit now features a brand new set of instructions which are very complete, including valuable trouble shooting information, and contains the same quality of components as previously. PC board is completely drilled, coils are wound. Designed for 400 to 450 CPS audio as put out by the KT1K Kraft transmitter kit. Not recommended for use with transmitters of higher CPS. Just it for Compact planes, recommended for use with 6 to 8 ohm escapements.

Measures 1 11/16 by 1 1/16 by 3/4. Weight 3/4 ounce. Uses 2.4 to 3.6 volts for receiver and escapement, 26-28 megacycles only. Temperature stable from 40 to 90 degrees F.

No. 12B10—K3VK Kit, Now ONLY \$9.98

ACE R/C

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No. 24A11—H26 Lt Blue,
1/4 pint 2 can prepack 1.80
No. 24A12—H33 Stinson Green,
1/4 pint 2 can prepack 1.80

HOBBYPOXY TACK RAG

From HobbyPox comes word that to achieve a high gloss, dust free finish using HobbyPox, a thorough cleaning with a "tack" rag is necessary. Since a "tack" rag is something new to most of the modelers and

HOBBYPOXY solves your finishing problems forever! Check these amazing features—Really hot fuel proof!—Superior covering properties!—Finishes balsa and silk FAST with only 3 coats!—Exceptional high gloss finish!—Far less cost with much less weight!—Clear overcoating not required for high gloss or fuel proofing!—Brushed or sprayed easily!

HobbyPox will be carried in 1/4 pint cans for the colored and clear initially; in 1/2 pints for filler and 1 pints for the thinner. Thinner and Filler are complete. Clear and Colors require 1/4 pint can EACH A and B. Price given is COMBO price. Pre-pack contains 1A and 1B. MUST be mixed. (Other source may list single price—ours is COMBO 2 can price.)

No. 24A1—H-07 Thinner, 1 pint \$1.00
No. 24A2—H-90 Filler, 1/2 pint90
No. 24A3—H-08 Clear, 1/4 pint 2 can pre-pack 1.80
No. 24A4—H-10 White, 1/4 pint 2 can pre-pack 1.80
No. 24A5—H-65 Brt Red, 1/4 pint 2 can pre-pack 1.80
No. 24A6—H-49 Cub Yellow, 1/4 pint 2 can pre-pack 1.80
No. 24A7—H-56 Intl Orange, 1/4 pint 2 can pre-pack 1.80
No. 24A8—H-81 Black, 1/4 pint 2 can pre-pack 1.80

is somewhat difficult to find. Ace R/C is stocking tack rags. These are for use with HobbyPox, although they will also help out on any type of finishing product where dust free cleaning is absolutely essential.

No. 24A10—HobbyPox Tack Rag, each 35 cents.

KRAFT CUSTOM 10 AND 12 CHANNEL REED UNITS

These finest reed units are available on a drop ship basis from the factory. Highest quality and dependability and reasonable price. Increased production means quicker shipment. For 1964, the finest in reed equipments carries the Kraft label. Reeds offer dependability and expandability and lower cost. Superhet—all five frequencies available, please specify.

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Superhet 12 Channel Receiver . \$99.95
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NICAD RECHARGEABLE BATTERIES

Here are the only GENUINE NICAD (Trade Mark Registered)—batteries distributed by Gould National—a top name in batteries in the world. We are offering their two button type cells first, but will add others during the year. These are high rate units—and are ideal for R/C receiver uses. GENUINE NICAD Construction offers the best mechanical type of seal we have seen. Offered with solder lugs to make it easy to connect. (Do NOT solder directly to the case of any NICAD.) 500 BH is 500 mah. Size is 3/4" thick by 1-23/64" dia., fits nicely into Medco PM5 case. With solder lugs. With full charging instructions. No. 38A38—Nicad 500 BH \$2.50
226BH is 225 mah. Size is 23/64" thick by 1" dia. With solder lugs. Charging instructions included. No. 38A39—Nicad 225 BH \$1.75

NEW—From ACE R/C

Special Edition Plans announces their Galloping Ghost Control Coupler. KIT CONSISTS of two completely jig formed 3/64 inch wire elevator tie bar, universal coupling is already on the tie bar. Wire and bolt are joined under slightly more than three tons of pressure prior to being soldered. Kit also includes the master crank ready to be soldered to models torque rod, thrust eyelets, etc. The Modeler has an almost infinite degree of variation to get more or less control from the GG Control Coupler Kit. This accessory pack of completely finished parts is almost ready for instant installation. Priced at only \$1.00! This should please the pulse fans!

NiCd CELL CHARGER



ELEVENTH YEAR OF FAST RELIABLE SERVICE!

NEW! NEW! From ACE R/C

ORBIT ELECTRONICS is listed in the Ace 1964A catalog. This NEW CATALOG is just off the press and contains many other fine prestige R/C items.

RESIST INK FOR PC CIRCUITS

HERE IS A BRAND NEW PRODUCT which will find extreme favor with the do-it-yourselfer. If you've been looking for an ink which is easy to apply and forms a hard resist for etching copper laminate for one or two bases at a time, this is it. The Tate Resist Ink is available in 1 oz. and 2 oz. bottles.

VERY EASY TO APPLY with a speedball type pen, Ink-O-Graph or other pens of this nature. Dries hard and forms the resist pattern for your developmental PC boards.

Your workshop is not complete without this handy and easiest of all resist inks. Much easier to use than tapes and other methods.

1 oz. Polyethylene Tate Resist Ink 55 cents
2 oz. Polyethylene Tate Resist Ink 75 cents

NEW—From ACE R/C



MC NICAD #1 CHARGER REDUCED!

MC MANUFACTURING & SALES of Kansas City, Missouri, announces the volume purchasing of components as used for their MC Nicad #1 Charger. This has enabled them to pass on substantial savings to you. This former \$6.95 seller, will be only \$4.95 for 1964! This has a potentiometer with a variable charge rate from 0 to 250 millamps, and is just it for charging nickel cadmium batteries. Comes with a sheet of instructions which completely detail where to set the pointer now for charging whatever battery of the nickel cadmium type up to the 2.5 amp per jobs. This is a new model and is housed in a smaller and better metal case than the older MC #1. This represents a real buy at \$4.95.

THE CHART CHARGER HAS BEEN AN INSTANT SUCCESS and the manufacturers have improved the introductory model even more. Now it will charge up to 10 cells at a full 250 mil rate. The range has been extended beyond what the introductory model had, and the new model is an improved version. Will now come with a pilot lamp to determine on and off. Charging is still very simple with the Chart Charger, since you simply select the number of batteries and the rate of charge and turn the pointer.

Unit is housed in a molded bakelite instrument case, with an etched aluminum front panel. Measures 3 3/4 by 6 1/4 by 2 inches. Completely assembled. Catalog #34B12, Nicad Cell Chart Charger \$9.95



NEW—From ACE R/C PHELPS PULSER KIT

For some time the Phelps Pulser has been used in various forms by modelers throughout the country with outstanding success. John Phelps, Applications Engineer for General Electric, has updated the design and we are proud to bring you this first in a series of Phelps' Kits, which will be added to the ACE LINE during 1964. Using a unijunction transistor, this pulser may be used for rudder only or for Galloping Ghost. Has both rate control and width control, and rate and width trim. Is temperature stable from 140 down to 10 degrees. Uses new silicon GE devices. Kit comes with the spring centering protrol dual stick assembly so that you have a self-centering snappy action on the box.

THE DELUXE KIT contains all components required and is highly prefabricated, and instructions are exceptionally complete and profuse.

#15A11—Phelps Pulser Kit \$28.95



KRAFT SINGLE CHANNEL—STILL GOING STRONG!

THE KRAFT SINGLE CHANNEL RELAY RECEIVER has been the most popular receiver in our almost ten year history. It has been responsible for a satisfying radio control experience for more fans than any other single receiver. Even with the popular relayless receivers going for the smaller jobs, the KRAFT enjoys a continued high sales volume to satisfied customers for the following reasons: No. 1, it is easiest of all receivers to put together, and the easiest to get into operation; No. 2, because of the fact that it uses a relay it has more versatility and can be used in many more systems of all kinds, and does not require any gadgetry to achieve stable and consistent results. Housed in a high impact plastic box, the unit is light enough for almost all R/C installations except the compacts. Superregon and requires 1 1/2 volts of A and 22 1/2 volts of B. Requires 400 to 600 cycles per second tone, which may be had from the KTRX transmitter kit. If you've been looking for a reliable and sure fire performer for any R/C application, this job is for you. KTRX 25-20 mc version \$19.95. KTRX 50-54 mc version \$21.95.



NOW! YOU CAN
OWN A RELIABLE
MULTITESTER
AT A VERY
REASONABLE
PRICE!

At last! Here is a Multitester for the R/C fan at a price that is reasonable. Imported from Japan, this meter has 0-1, 10, 100 ma milliammeter readings; 0-5, 50, 500 volt reading; and measures DC resistance from 0 to 100K and 0 to 1M. One percent precision resistors and a switching arrangement used. Complete with test leads and priced at only \$9.95.

NICKLE CADMIUM CHARGER PACKAGE

Requests from the field make this basic nickel cadmium charger package available. Comes complete with 9 volt transformer for complete isolation from the AC line, UL approved line cord, and 500 MA 400 PIV silicon rectifier. Also included are complete instructions and schematic for charging 1 to 6 Nicads at a 2.2 MA or a 5 MA trickle rate, or 22 MA or 50 MA 14 hour rate. May be housed in a case of your choice, and resistances are given so that a fixed resistance may be used for a one type battery box charge set up. This is a once in a lifetime opportunity, and when the quantity of these packs is exhausted, the offer can not be repeated. The transformer is a surplus item, but is brand new and has never been used. If you were to purchase this quality of transformer by itself, it would cost you more than the cost for our basic parts package kit.

Basic nickel cadmium charger kit #2 1.39



NEW EDITION R/C HANDBOOK
Most popular R/C book ever published. The Gernsback Library-Radio Control Handbook, by Howard G. McEntee. This one is practical, and will offer a lot of meat to the advanced R/C modeller. Completely revised—the original sold over a printings. Assumes you know theory and concentrates on advancing the RC art by offering circuits, ideas and data on receivers, servos, pulser, and transmitters and all other R/C details. Gernsback Library #93, 304 pages. Well worth the price. P.P. \$4.95



R/C PRIMER
At long last—a new R/C book with the beginner in mind. Published by Kaimbach Publishing Company. Written by the old master, Howard McEntee, this takes a beginner through the maze of electronics and helps him to know where to begin and what to do. 8 1/2" x 11" book, full color cover. Price is low considering the wealth of information it contains. \$2.00

NEW GERNSBACH LIBRARY BOOK.

"HINTS AND KINKS FOR RADIO, TV AND AUDIO," features 280 ways to make your hobby more fun. 280 ingenious ways to use paper clips, cork screws, tape, drinking straws, grommets, tooth paste caps and hundreds of other likely and unlikely articles to make your R/C hobby easier and more enjoyable. Carefully selected from Radio and Electronics magazine. The book is edited by Martin Clifford, and has many hints that are useful for the hobbyist. Order Gernsback Library No. 103, 128 pages, only \$2.35.

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RADIO CONTROL NEWS CONTINUED

All gears are held on in the regular manner with rubber bands.

One of the newest club papers, the Zephyr shows indications of a fairly technically minded club. Frank Colver came up with the circuit in Figure 3 for operating a Bellamatic servo from single channel receivers, in a multi channel manner. It can also be used to obtain an extra channel from a multi channel receiver. The decoder uses no relays and can be operated from any relay or relayless receiver that has an output that goes from *negative to positive* when a command is received. No changes are required in the Bellamatic servo (Bellamatic II). One pulse will drive the servo in one direction, two pulses and hold will drive it in the other direction.

The maximum load on the decoder circuit is 300ma. Frank built his unit on a 1/32" epoxy glass etched circuit board measuring 1" x 1 3/4". You may get boards for this for \$2.95 by writing to: Frank Colver, 434 Lenwood Drive, Costa Mesa, California.

From the Printed Circuit (North Jersey RC Club) comes word that a California flyer was clobbered by a passing train. Not the flyer, but his plane which apparently had its receiver blanketed by the train's radio communication system. They also point out that a Pacific northwest club had advocated splitting Class I into two sections. One in accordance with AMA rules. The other one to revert to escapement control systems, single channel etc. This would allow the less well heeled modeler to compete with others in his class. As said before, rules are made by those who speak up, and are AMA members.

We regret that we are unable to answer inquiries about the Phelps' Pulsar Circuit which was published a few months ago. This circuit has appeared in a number of club papers, however it was without the knowledge of and consent of Mr. Phelps. We use material from club papers unless they state otherwise.

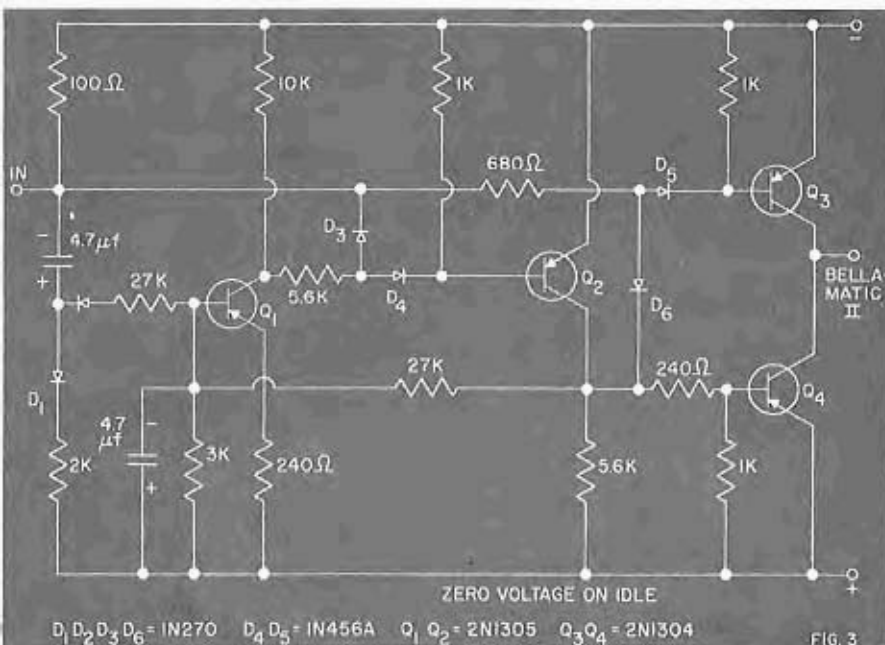
NEW ITEMS

While on the market for quite some time, we recently received a VK Challenger kit. This 60" beauty is well engineered and the quality of wood remains at a very high level. Many of the balsa and hardwood parts are not only sawn to shape but precision sanded. The gear is exceptionally sturdy and the kit is complete with nylon parts and metal hardware. Suitable for single channel with .19 to .25 engines and for multi (10-channel) with .29's and up.



Rudder-Only winners at recent Aeroguidance Society contest at Endicott, New York included

two Juniors which is good going when you consider they were competing against Open fliers.



Many excellent reports have come in on this model not only from this country but also from abroad. VK Model Aircraft Co., Williamsville, New York.

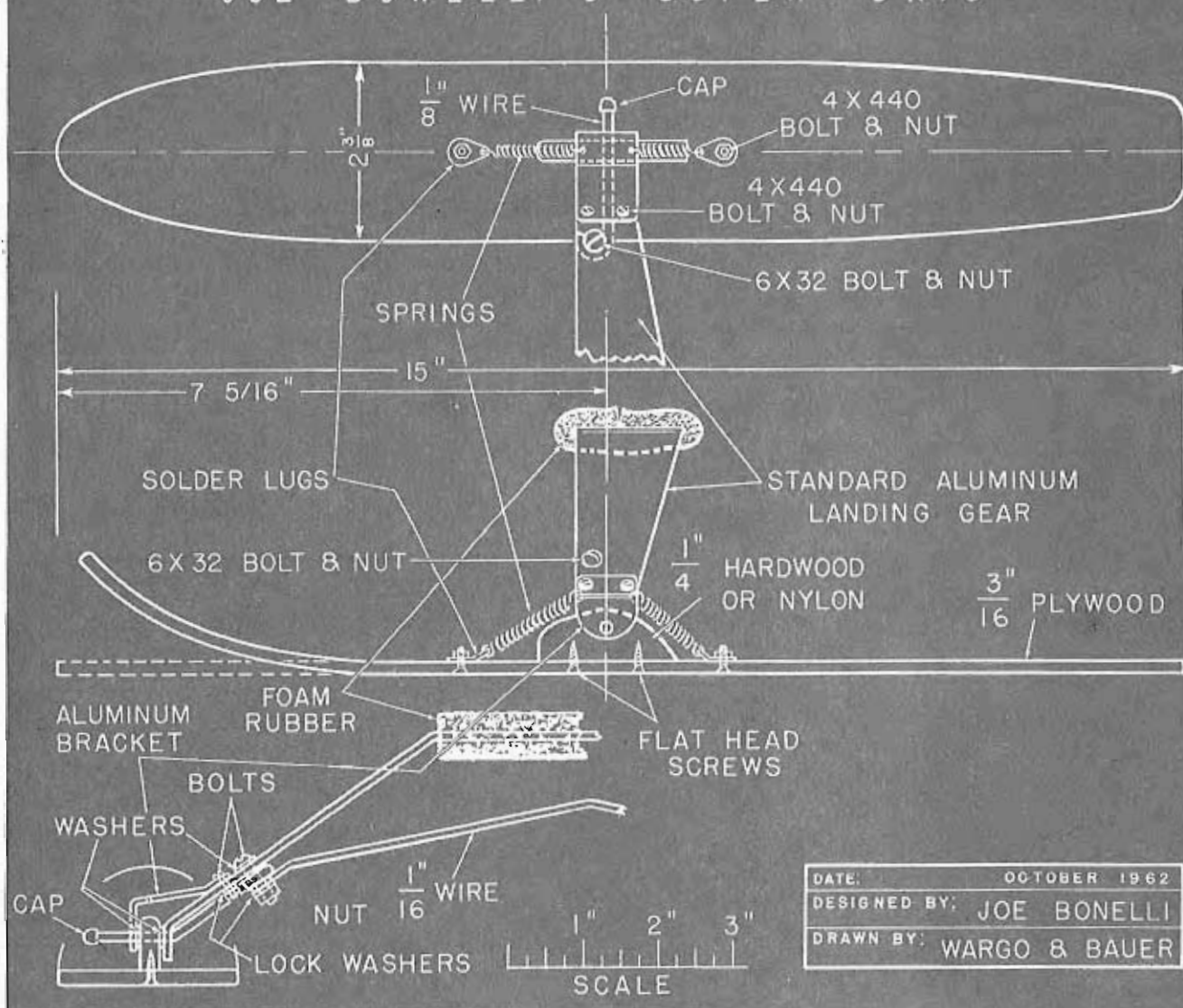
DeBolt Model Engineering Co. has a 6 page brochure describing their products which range from kits to fuel tanks, gears, canopies and other items. Should be of interest to the beginner since it lists various planes and the number of radio channels generally needed for each. Incidentally, the Live Wire Trainer is still listed. This was one of the most popular models introduced to the RC field and is still being built and flown in goodly numbers around the world.

See photo of the new Home Work-

shop Cleaning Tool by The Eraser Company of Syracuse, New York. The anodized aluminum case carries a bundle of stainless steel wires which may be extended or retracted to suit a particular job. The unit is especially useful for cleaning surfaces and component leads prior to soldering and afterwards. The brush can be replaced when needed. This company makes a number of similar cleaning tools for industry. We find it well suited for printed wiring work.

The new ACE R/C 1964 Catalog carries a wide line of plane kits, equipment both in kit and ready built form, cells and batteries and many unusual components. (Continued on page 40)

JOE BONELLI'S SUPER SKIS



SNOWBIRDS

By FLO CERWIN . . . NOW, ALL OF US CAN FLY 365 DAYS A YEAR. A DISTINCTION CLAIMED SOLELY BY OUR CALIFORNIA BRETHREN. MIGHT BE WETTER AND COLDER BUT FLYING IS STILL THE SAME.

C.R.C.M. members: E. Helfert left and John Cacciatore flying Joe Bonelli's ski-equipped Smog Hog.



► The Californian R/C Modelers lay claim to being able to fly three-hundred-sixty-five days a year. Here in the Midwest, specifically Chicagoland, Winter has been a deterrent but this has not dampened the enthusiasm of the Chicagoland Radio Control Model boys, who have flown in the winter, at zero temperature, providing, of course, that a reasonably level surface is available. This is a problem, for the wind shifts the snow around on our field and a runway for wheeled-ships depends on the wind, which in most cases and most days, shifts from direction to direction. A hand-launch is possible, but as the footing become hazardous because of the ice-coating, the boys become grounded.

The simple answer to continued winter flying was skis for the ships. A most hardy and dedicated group of C.R.C.M. members could be found at the snow-covered field each week-end last winter and in zero weather, barring snow, sleet or rain.

(Continued on page 60)

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with the **MODELER IN MIND!**

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Yes! . . . the Modeler who "knows" . . .
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reliability . . . **LOW PRICE**—is a user
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Each set of stainless steel control-line cables come packaged on a new compact plastic control-line storage reel. This set comes in both instant use and in kit form. (This is a small version of our popular storage reel). Reel comes complete with metal clip to hold cables in place. This reel is 4" in diameter and will fit in your tool box or pocket easily, and can be used over and over again.



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- First Used by F.A.I. Team Racers

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In Their Honor (Continued from page 20)

NA-1 northward in an attempt to locate a landing site between Etah and the Polar Sea that would be suitable for an advance base. The three amphibians took off at 10:40 A.M. By 12:45 they were out over the eastern end of Bay Fiord. The clouds thickened and visibility was further reduced by mist. NA-2 disappeared in the clouds. NA-3 turned back with engine trouble. Bennett and Byrd bored ahead and found a landing area on the northern shore of Bay Fiord.

On the following day the two fliers flew to forbidding Ellesmere Island and made a safe landing in the water. An extremely rough sea prevented them from taxiing ashore, so they took off again, drenched by the freezing salt-water spray.

During a week of flying and keeping the plane in good mechanical condition, Bennett got little rest. On August 16 he insisted on flying (Byrd did the navigating). Bennett headed northwest until fog forced him to land between the canyon-like cliffs of Sawyer Bay. The airmen waited for the weather to clear, eating a midnight lunch of pemmican, and took off again at 5:00 A.M. They crossed a range of mountains and flew out over unexplored Grinnell Land. The air was extremely turbulent and it took all of Bennett's skill to keep the Loening flying. Below were jagged pinnacles of ice. A landing would have been unthinkable. Up ahead—another range of mountains, their peaks hidden in clouds. Bennett tried to find a way through but it was useless. They turned around and fought their way back to Etah.

Byrd and Bennett wanted to return to Sawyer Bay, where they had cached a supply of gas, and from there fly northward as far as the Loening's range would permit. But the short Arctic summer was almost over and MacMillan refused to risk the flight.

On August 22, the two made their last flight over the Greenland ice cap. When the level reached 10,000 feet, the NA-1 could climb no higher, so they flew back to Etah.

Under Floyd Bennett's care, the NA-1 had successfully flown more than 2,500 miles in the Arctic in all kinds of weather and when the expedition was completed it was in much better condition than the other two amphibians. "Floyd Bennett . . ." said Byrd ". . . was a good pilot and one of the finest practical men in the Navy for handling an airplane's temperamental mechanisms, and above that real man, fearless and true—one in a million."

The airplane has proven to be a reliable method of polar exploration, and after returning to New York on October 1st, Byrd and Bennett began to discuss privately the possibilities of reaching the North Pole—by air.

Naval duties kept both men busy until late 1925. Then they went on leave and the new expedition began to take shape. The purposes of the polar flight were "(1) to discover new lands or unexpected scientific phenomena, and (2) to accelerate public interest in aviation." Of the three possible bases (Point Barrow, Alaska; Etah, Greenland; Kings Bay, Spitzbergen), Kings Bay was chosen because it was relatively ice-free, being warmed by the Gulf Stream, and it was closest to the North Pole.

They obtained a Fokker F.VIIA-3M which had already flown 20,000 miles, and named it the *Josephine Ford* in honor of sponsor Edsel Ford's three-year-old daughter.

Byrd and Bennett arrived in Spitzbergen on April 29, 1926. There, too, was

the Amundsen-Ellsworth-Nobile expedition which hoped to conquer the Pole in the dirigible *Norge*. The *Josephine Ford* was floated ashore amid floating ice and assembled in the 15-degree-below-zero cold. On the first three take-off attempts the skis were broken and new ones had to be fashioned out of oars, the only hardwood available.

On May 8, the aircraft was fully loaded and hot oil was poured into the pre-heated engines. But the plane was too heavy to fly. They lightened the cargo, lengthened the runway and tried again. Although Floyd Bennett hadn't slept in 36 hours, he skillfully nursed the tri-motor and its 10,000 lb. load of the snow and headed north. It was just after midnight, May 9, 1926.

Bennett and Byrd took turns piloting the *Josephine Ford*. When Bennett was at the controls, Byrd navigated, using a sun compass because a magnetic compass is useless in the Arctic. When Byrd took his turn in the pilot's seat Bennett began emptying 5-gallon cans of gasoline into the main fuel tank. After tossing the empty cans overboard he would figure the gas consumption and then return to the cockpit to fly again. "I would rather have Floyd with me," Byrd said later, "than any other man in the world."

The North Pole was only an hour away when the starboard engine began leaking oil. Their goal was too close to consider turning back. With one eye on the oil pressure gauge and the other on the leaking engine, Floyd Bennett flew on.

At 9:02 AM the *Josephine Ford* arrived over the North Pole and Bennett circled while Byrd took sun readings to double-check their position. With each complete circle they lost a day, then gained it back again as they crossed the International Date Line. After almost 15 minutes over the Pole, they headed back to Spitzbergen.

Suddenly the plane lurched. The sextant slid off a table and shattered. Without it they'd have to find Spitzbergen by dead reckoning. Easy? Just fly south? But at the North Pole every direction is south! Fortunately, the oil leak had stopped, but the fliers were exhausted. Nevertheless, they found Spitzbergen without mishap and landed, earning world-wide acclaim.

Upon his return to the United States, Floyd Bennett received the Distinguished Service Medal and was promoted to officer rank (Warrant Machinist) by Act of Congress. On February 19, 1927, President Coolidge awarded him the Medal of Honor for ". . . the first heavier than air craft flight to the North Pole and return."

After his Polar flight, Floyd Bennett flew the *Josephine Ford* on a tour of forty-four cities without missing a single engagement, earning a letter of commendation from the Secretary of the Navy.

Now Richard Byrd was planning a trans-Atlantic flight with Bennett as pilot. Their plane, the *America*, was a Fokker C-2, a large version of the F.VIIA-3M. But Fate intervened. On April 20, 1927 the *America* crashed on its test flight and Bennett was so badly injured that he was unable to make the trans-Atlantic flight. His place in the cockpit was taken by Bernt Balchen.

Byrd's next venture was to be a flight to the South Pole in 1929. He named Floyd Bennett as his second-in-command and placed him in charge of all transportation matters.

Meanwhile, on April 12, 1928, two Germans and an Irishman left Dublin for New York, attempting the first east-to-west crossing of the Atlantic by an airplane. The two Germans were Capt. Herman Koehl, chief pilot, and Baron Ehrenfried Gunther von Huenefeld, sponsor. Capt.

(Continued on page 38)

AIRFIX Adds 5 Great New 39¢ Airplane Kits

*In 1/72 Constant Scale
For Authentic Realism*

Count on Airfix to bring you the newest in model airplane kits. These latest additions to the Airfix line, as are all Airfix model airplane kits, are in 1/72nd constant scale . . . precise in detail to make them perfect authentic miniature replicas. Each kit comes with display stand. Instructions are more simplified . . . easier to follow.



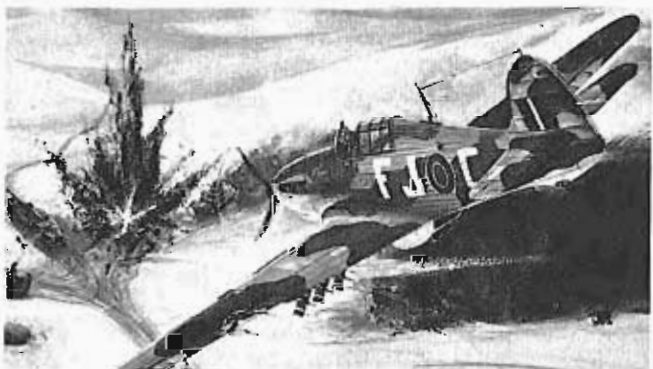
THE MESSERSCHMITT ME 262 A — The ME 262A was powered by two Junkers Jumo turbojets giving a maximum speed of 540 mph and a range of up to 625 miles. Armament consisted of four 30 mm cannons and carried in addition two 1,100 lb. bombs. #11-39 **39c**



NORTH AMERICAN HARVARD II — Designed originally as a basic combat trainer, the Harvard was an extremely versatile aircraft, capable of being armed with machine guns, bombs or rockets. It had a maximum speed of 212 mph and a range of 870 miles. #9-39 **39c**



THE HAWKER TYPHOON IB — The Typhoon IB was powered by a 24 cylinder Napier Sabre of 2,130 hp giving a maximum speed of 374 mph at sea level. Armament consisted of four 20 mm cannons and underwing loads of bombs, mines or rockets. #10-39 **39c**



HAWKER HURRICANE IV R.P. — The Hawker Hurricane was primarily a ground attack aircraft, its rockets particularly effective against armored vehicles and strong points. Armed with eight rocket projectiles, the Hawker had a maximum speed of 340 mph. #13-39 **39c**



MIG 15 — Probably the best known of all Russian aircraft, the MIG 15 is powered by a highly developed Rolls-Royce turbojet with a maximum speed of 660 mph. It is armed with two 23 mm NS cannons and one 37 mm cannon. #12-39 **39c**

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98c
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In Their Honor

(Continued from page 36)

James Fitzmaurice, second pilot, was the Irishman. Bucking strong headwinds, they reached the vicinity of Newfoundland only to lose their bearings in a snowstorm. The flight ended in a crash landing on Greenly Island, a barren strip of land in the Strait of Belle Isle.

Floyd Bennett and Bernt Balchen took off to rescue the downed fliers. Both men were suffering heavy colds when they left Detroit on April 20. By the time they reached Lake Ste. Agnes, Bennett was too ill to proceed and was rushed to the Jeffrey Hale Hospital in Quebec. Richard Byrd flew serum from New York to Quebec in an attempt to save his friend's life, but it was too late. On April 25, 1928, Foyd Bennett died of pneumonia with Richard Byrd at his side.

On November 28, 1929, a Ford Trimotor flew over the South Pole. Lettered on its fuselage under the cockpit window was the name FLOYD BENNETT. As it passed over the Pole, Byrd dropped an American flag weighted with a stone from Bennett's grave.

Floyd Bennett Field, the U. S. Naval Air Station in Brooklyn, New York, is named in his honor.

Uranus

(Continued from page 18)

joints and gauze well. Use white glue on the plywood dihedral gussets.

The stab is built exactly as the wing. The rudder is cut out of 3/32" sheet balsa and is inserted between the two fuselage halves when gluing them together. Don't forget the anti-warp strip inserted in the rudder. Before covering, dope all surfaces with at least two coats of 50-50 fuelproof

dope, we prefer three or four. After this and sanding, cover both the wing and stab with SIG Superfine Tissue.

We covered our fuselage with silk. This adds tremendous strength with little or no extra weight. Finish fuselage with four coats of dope and talc, sanding after each coat. Use 2 or 3 coats of color dope, your preference. Next, add two coats of very thin clear dope, work fast and flow it on. For fuelproofing, use three coats of "Comet Fuel Proofer" thinned with regular dope thinner; this helps it adhere to the doped surfaces better. After this has dried, give the fuselage a light rub down with rubbing compound and then wax it several times with Simoniz, especially around the motor area. This will do a good job of fuelproofing the model.

The wing and stab are doped with eight coats of 50-50 (50% dope-50% thinner) butyrate dope. Let the airplane cure for several days and then steam out any warps that may have appeared, leave the 3/16" wash-in in the right panel.

FLYING: First glide the airplane after having balanced it at 1 1/8" forward of the rear of the trailing edge of the wing. Add stab tilt for glide turn, (right side high looking from the rear of the model) and adjust glide by adding plus or minus incidence in the stab. You will find the transition from power to glide best in a tight right pattern. The glide will amaze you if your ship came out under 7 oz.

After you are satisfied with the glide, try a short engine run of not more than 3 1/2 sec. If you have the necessary wash-in (3/16" in right wing panel) according to the plans and all surfaces are warp free, the model should fly right off the bench. It should climb extremely fast at about a 70 degree angle making one or two spirals during a ten second engine run.

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Kit A10-149
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98c
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WHEN IT'S MADE BY STERLING, IT'S UNCONDITIONALLY GUARANTEED . . . IN WRITING!

If the model tends to go straight up and over on its back, or to the left add a little right thrust—note the word: *little*. All adjustments should be in small amounts and never make two adjustments at the same time. Keep adding slight changes in thrust until the ship has the proper climb to the right.

If the model has a winding tendency to the right under power but the glide is okay, add slight left rudder, remembering the rudder adjustments are extremely sensitive and dangerous. If the model winds to the right under power but the glide has a stall then add positive incidence in the stab instead of adjusting the rudder. You should have little or no trouble if you carefully follow the instructions.

Watch out. Be sure to fuse this model even with short motor runs during testing. This model will scare you with its climb until you are used to it. Lots of luck.

Airways—East Coast

(Continued from page 29)

permission to use the School's athletic field for model flying on weekends.

The Academy put up funds for us to construct a beautiful concrete circle. The entire membership spent two months working on this project of which we are all proud. Another club project was to build its own carrier deck which is used all season by the members.

The Club is very active in competing at contests in the tri-state area, specializing in Carrier, Speed, Scale and Stunt events. Nats record is 17 places in the past 7 years. In 1961 at Willow Grove, Pa., we had first, second, third and fifth place in open Navy Carrier. Also second in B speed and second in Proto speed. In Chicago in 1962, we had first, fourth and fifth place in Navy Carrier and first in B speed. Also third and fourth in C speed.

The Club's roster now stands at 40 strong and with hopes of increasing in the future. Anyone wishing to attend a meeting may write to the President of the Club, John Fichter, 157-04 Northern Boulevard, Flushing 54, New York.

Objective Stunt Judging

(Continued from page 25)

corners 5, 9 and 14.

Roe flew a very smooth eight also, but the second eight varied from the path of the first one by a scant few feet, and he tried too hard to fly smooth and as a result he rounded corners 3, 10, 13, and 16. Our newly enlightened hero, the judge, using the deduction method, counted off 4 errors against Doe and 5 against Roe and is secure in his feeling that his score is correct. But in a close example such as this, and supposing the two flights were anywhere from one to four hours apart, could anyone but a very experienced judge come up with a consistent and objective score under the old method? I think not, and the following incidents serve to substantiate my opinion. At the '63 Nats, an experienced judge who has used the deduction method for some time, judged approximately a dozen of the better stunt flights in all three age categories, and then compared scores with scores judged by several other highly experienced judges using the old method. The two types of scoring results were then compared to the official posted scores. The scores obtained by these unofficial judges using both methods were similar and bore a direct relationship to the quality of the flight being judged. This, I believe, speaks not so much for the old system as it does for the high degree of experience of those applying it. When, however, the scores were compared to the official posted scores, no correlation could be established at all, and "error values"

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(discussed below) varied as much as two points from flight to flight.

The second interesting incident to ponder is this: during the Walker fly-off, young Cipra flew his two official flights under the same judges in a period of thirty minutes or less, and under identical wind situations. His first flight registered a posted score of 422; his second flight resulted in a score of 472. Let's not kid ourselves, a flyer of Cipra's ability, flying a pattern which he practices numerous times weekly, doesn't vary by 50 points between flights! I am *not* criticizing the Navy judges, but I *am* criticizing the system given to them to use.

Now for the mechanics of the deduction system. Two points per error is a common value to use, although other values may be assigned as long as consistent values are used at any one contest.

Using two points per error, the better flyers will fly patterns of 500 to 550 points which falls between the "good" and "excellent" categories on the AMA score card. While total points mean little as long as scoring is done consistently at a contest, scores of 500 to 550 for top Nats winners are more realistic than scores in the low 400's anyway. A low figure in itself doesn't guarantee sound judging! For those who feel the system will break away from the AMA score card categories on certain maneuvers within a pattern, a different error value can be used for these

maneuvers. Keep in mind however, that we are seeking *consistency* and *objectivity*, and therefore I see no need for varying from the standard error value of 2 for all fifteen maneuvers. In other words, who cares whether the AMA score card labels a 5 error takeoff as "good" or "poor" as long as scoring is based on *actual errors counted consistently* throughout the contest? The "good", "fair", etc. categories are no longer necessary and can be ignored.

The application of the method is simple and the standard AMA score sheet can be used. The judge counts three errors on take off—"two, four, six" and his assistant enters the six on the score card. Six errors noted on the wingover results in an entry on the card of twelve. At the end of the flight, the total error points are deducted from the total points possible of 600 (15 maneuvers at 40 points each) to determine the in-flight score, to which appearance, pattern, and starting points are added in the normal manner to arrive at the final score.

In the interests of promoting control line precision acrobatics, I hope everyone interested in the event will seriously consider this method, and I hope I have converted some of you who floundered with the judging duty before. But even if you are unimpressed at this point, the next time you do any practice flying, try it out on each other—I think you'll agree that it's a step in the right direction towards more objectivity and consistency in judging control line stunt flying.

I would be pleased to answer any questions concerning this article. I may be contacted through this magazine or by writing me direct at this address: 3807 W. Myrtle, Phoenix 21, Arizona.

Radio Control News

(Continued from page 34)

To our knowledge, Ace R/C, in business for over ten years, is the only supplier of such a wide and complete range of hard to get parts and equipment.

Motorola Semiconductor Products has a line of RF transistors for transmitter use. They range from single TO-5 package types which are good for 1/2 watt up to larger sizes suitable for 40 watts at 50mc (two in parallel). Prices are quite reasonable. See your local Motorola District Office or distributor.

CLUB NEWS

The four winners in Class I at the 8th Annual Aeroguidance Society Meet in Endicott, New York a week after the Nats,

are left to right: John Schroder—1st, John Rohrback—2nd, Frank Romano—4th (hurray, a young'un) and R. Correy—3rd. This was the second first for John Schroder in two weeks of major competition and John Rohrback managed a 1st in Scale and 3rd in Pylon at this meet, said to be one of the best of the season in the East. In Class II it was George Plummer, P. Weigand and A. Turner. Class III was Ed Izzo, H. deBolt, Lou Fameghetti and Ed Keck. Pylon was taken by J. Wagner (1:20:8), P. Reed (1:24:2) and J. Rohrback (1:27:2). The wind kept contestants down to 32 but 4000 spectators showed up.

From the EBRC Carrier, former launching pad of Don Blessing, now of Logan, Utah, comes a resume of how Don won first place at the Brigham City air show, or "It Was Easy." Don's modesty prohibits our going into the problems he had in competing in the Open Expert class with a mere twin engined job. But he did get a plaque which was larger than his plane, and all for being the only contestant. Don wanted to send in a photo of his job but he went one better and sent us the entire model. This 29" beauty has an area of 134 square inches and is powered by two .020's. A Citizen-Ship escapement, their MDL (Postage stamp) receiver and an Otation switch take care of the RC installation. Beautifully built, there are practically no signs of the wear from its one hundred flights. The Cox .020's are said to be too much power but if the right engine cuts first, left engine flight is still excellent. Not said to be true for vice versa. This is a scaled down version of Don's multi job, plus an extra engine.

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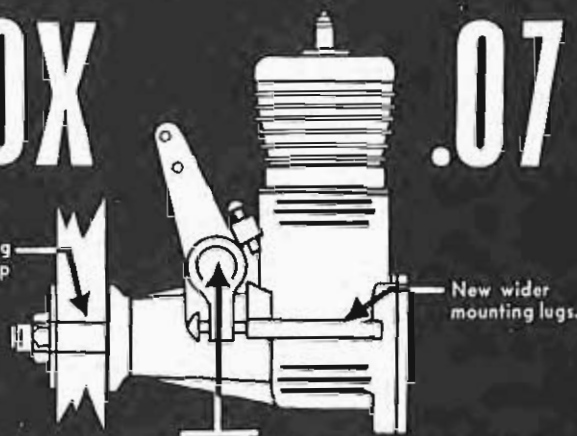
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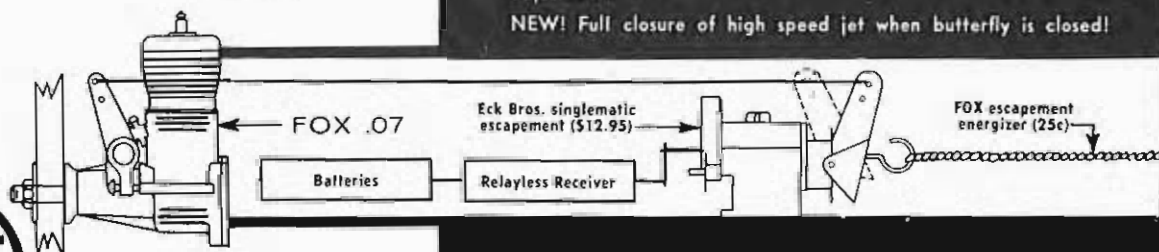


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Also from the Carrier comes news that the Southern California LARKS have a branch nest in the north, the LARKS (Livermore Area Radio Kontrol Society). This group has kicked around some ideas on scale flying which go something like this: The builder doesn't have to fly his model and the model must fly according to the full scale design (anyone see a B-29 do snap rolls?). No maneuvers would be judged and scale points would be judged as a group,—no actual points but rather each model in relation to one another. Another event would be the semi-scale, wherein the model need only look like a real job but would fly the regular stunt pattern. These jobs might not make out with regular contest models but an award would be given to the club member that makes out best in the semi-scale ships entered. They are trying to work up interest in this idea and welcome comments, members, etc. Contact Jerry Nelson, 6036 Telegraph Avenue, Oakland, California for further information (Editor of EBRC Carrier).

Heinz Petri of San Antonio tells us of his modified Mambo, Citizen-Ship equipped and with Bonner servos. Modifications include a trike gear with rubber band loaded nose gear, a fully symmetrical enlarged stabilizer, a longer nose moment and wider fuselage. Uses a Veco 35 and the rudder was redesigned to prevent a nose down tendency on gradual turns. The Citizen-Ship 6-channel equipment is used on rudder and engine with the other two channels being used to release a skydiver and parachute. This 4-pound job has never placed lower than 2nd during 1963 competition.

We're still fascinated by the soaring news from the Zephyr (Dale Willoughby, 14695 Candada Place, Tustin, California). Early this year they plan an altitude event, allowing ten minutes for the climb and

landing within a one hundred yard circle five minutes after that time. Plans include the use of the I.M.P. Altmaster weighing 3/4 ounce and having a range of 0-8000 feet. All this without an engine. Interesting comments on the ability to pick thermals by following the birds. Should be a lot of neurotic birds, ducks or what-have-you out that way with these guys sneaking up on them without a sound.

Robert Clemens of Evansville, Indiana shows us his Taurcount. This job is a Viscount with a Taurus type fin and rudder. Equipment is Orbit-10 superhet, Bonner servos and an ST-40. This ivory, black and rose job is said to do vertical 4-point rolls with no trouble. Esquires and Stormers are the favorite of the Evansville area flyers. These flyers pay about \$50 a year for liability insurance on a 40 acre field owned by the Evansville Industrial Foundation.

The following comments are made, based on our own thoughts and observations and from letters and club papers. They concern the increasing wonderment about the future of RC as far as the beginner is concerned and especially the younger flyers. The first item is how to differentiate between the Novice and the Expert. A letter from Mel Santmyers of Warren, Michigan, points out what has been attempted in the Detroit area. Although the AMA does not have a Novice class in RC, the Detroit RC Club, in 1963, had the following rules: Any novice, or beginner, who wins a first, second or third place in ANY contest becomes an expert. While this did not throw the beginner directly in with the more advanced flyer, it was found that after the novice became an 'expert' he no longer showed up. Why? As in most cases, he just wasn't ready for the tight competition he had to face. In view of this, the following rules have been adopted: Any flyer who has not won a

first, second or third place in THREE separate contests is still a Novice. This means that if the flyer is good enough, the transition period will be short so no one will be able to stay on and clean up in the Novice events. It is admitted that this will not work without the support of all clubs in the various contest areas. Mel admits there is probably a better solution but at least this is a start.

The other item comes from the MARS Pulse of Montreal, Canada. It concerns the lack of young modelers in the RC competition picture. The use of unlimited equipment can now mean that even fewer youngsters can be expected in Class I. Mr. Richard Baylis, writer of the commentary, points out the high level of popularity and skill found in Nordic A/2 glider events. In this case, the world champion would have to stretch it a bit to spend more than \$25 on his model. It is his belief that if RC is to continue to be a popular competition sport, the manufacturer and user must be encouraged to use single channel gear. Handicapping or re-classification is also thought to be the only real solution. True, a smooth flying multi job in the hands of a good flyer is really impressive. On the other hand, who will take his place when he is gone?

The British magazine, Aeromodeller, presented a most unusual free-flight design. After making it slightly larger and cutting the power in half, we built two RC jobs, one 22" wing span, .020-powered, and Hexy, flying wine crate or what-have-you, is .010-powered, is small and has a 15" span. Our unit uses an Ecktronic escapement tucked under the motor pod, the batteries (two E-91's) between the gear and a Citizen-Ship MDL receiver inside the motor pod. It flies well and is guaranteed to turn heads.

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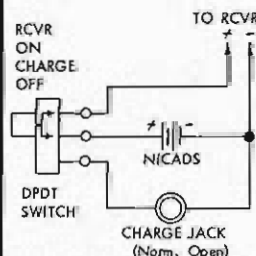
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Voltage: 4.5 volts
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Submitted By: Ed Bradley
714 Boschert Dr.
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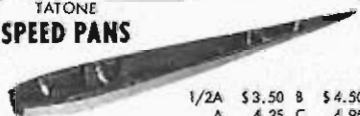


MARK V
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VTO

(Continued from page 9)

bership is the establishment of a series of NIMAS Achievement Awards. As Tenny put it, "... There just isn't any kind of recognition available for those who devote extra effort toward improving their models and technique. Some will say that our system of national records does just that —and in a sense they are correct. However, many of the records have been pushed to the point where it takes a happy combination of a good model, excellent conditions and luck to exceed them. This is especially true in Category I, where all the stick records are beginning to creak from old age. It's a pretty fair accomplishment to have a model miss hanging up and miss collisions for 12 minutes, let alone 14 or 15 it would take for a new national record. In fact, Cat. I flights over 11 minutes are pretty rare, and anyone who manages it has done well.

"We offer this possibility as food for thought," he continues. "Set up three awards called (for example) Silver, Gold and Diamond. The Diamond award could be won by a 15 minutes flight in Cat. I, 30 minutes in Cat. II or 42 minutes in Cat. III. On the other end of the scale, the Silver award could stand for 11 minutes in Cat. I, 20 minutes in Cat. II, and 30 minutes in Cat. III. A similar award for HLG could be based on time/ceiling height, or rate of sink."

NIMAS, of course, is intended to work within the framework of the AMA as a supplement to that organization. One example of this is the fact that a short time ago a committee of NIMAS members, with Tenny as chairman, was appointed to study the existing indoor rules and make any necessary recommendations on changes, additions, etc. to the AMA's Contest Board. Also already under discussion by the membership are various possible methods of selecting the 1966 U.S. FAI Indoor Team.

Anyone who has even the slightest interest in indoor flying would do well to join and support NIMAS. Dues are only \$3 a calendar year, including a subscription to *Indoor News and Views*. They should be sent to Box 545, Richardson, Texas (Zip Code 75081). A limited number of Sponsored Junior Memberships are available, whereby certain deserving juniors nominated by a club or individual NIMAS member may belong for a year by paying only \$1 (the remainder of their dues being paid out of a donated fund). For further information on this or other details of the Society contact Bud Tenny at the above address.

OLD TIMER EXPERIMENT: At the Chicago Aeronauts Old Timers' Fun Day last fall, an interesting system of handi-

capping Gas models was tried out. The planes were divided into two classes: Class I consisting of ignition engines up to 0.250 cu. in. and glow engines up to 0.1525 cu. in. Class II being 0.251 to 1.50 cu. in. for ignition and 0.1526 to 1.50 cu. in. for glow. Pylon and Cabin type models were combined. To more or less equalize conditions engine runs were set in this manner: Ignition received 7 seconds over glow, ROG (rise-off-ground) received 5 seconds over hand-launch, and Cabin received 3 seconds over Pylon. As an example, a hand-launched, glow powered Pylon job would have a 10 second run, while an ROG'd, ignition powered Cabin model would be allowed 25 seconds.

Models had to be of planes published, kitted or constructed before December 7, 1941. A Pylon model was defined as one having its wing mounted above the basic fuselage. A rubber event was also held, with the same design rules as Gas. In addition the propeller diameter, type (free-wheeling or folding) and number of blades had to be the same as on the original. There was no limit on the amount of rubber used.

Contest Director Pete Sotich reports that the 23 contestants apparently found the experimental handicapping method quite satisfactory.

OLD TIMER RULES? From the number of contest results that cross this reporter's desk it is clear that Old Timer meets are gaining in popularity from coast to coast. It is also clear that most of these contests are held under differing sets of rules. Some call for models designed prior to 1950, others-1948, or 1946, or 1942, etc. Some permit only models of the same size as the original, while others allow any sized versions. Some allow only ignition engines, others — both ignition and glow — or they have a separate class for each. What would be considered an Old Timer at one meet might not even be eligible for another.

We are well aware that this is a "fun" event and shouldn't be too encumbered with a lot of formal regulations. And we certainly are in favor of experimenting with different rules in order to work out the most equitable system. However, it seems to us that a general agreement could be reached among modelers as to what actually constitutes an Old Timer.

John Easton, of Toronto (Canada) has this to say on the subject: "To me it seems that in Free-Flight Contest history, the 'Historian' (if such there be) could not help but divide the history of F/F design into two fairly obvious eras.

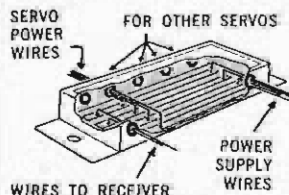
"With the development of the 'California School' of design with as a prime example—the San de Hogan, design as we had known it was at an end. Of course, if it were not for the development of the glow plug and its resultant fantastically increased power-to-weight ratio, the need for such a 'radical' design approach wouldn't have been there.

"So which came first—the Chicken or the Egg??

"A check thru magazines of that time would put the release of the Glow Plug sometime in 1947. As for the Hogans, I personally remember being stunned at the speed and performance of these ships at the 1949 Plymouth Internats. Giving them a year or so for development in California would date them late '48. I would say late '48 'cause as far as I can notice, the '48 Nats were still predominately 'Old School' design. By 'old school', I suppose the most identifiable difference would be the C/G & Stab Area." Any comments?

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EPOXY FINISH: Dr. Bill Baker of Norman, Oklahoma, sent us this note:

"I want to tell you about the experience I have had with Hobbypoxy on *Jap Tissue*. What has been published about this fine finish applies to silk and sheet wood finished models such as radio and yoyo. I have experimented quite a bit with it on Jap tissue and have found that a very fine finish is obtained with only two coats! It looks like ten coats of dope, is more transparent and the color of the tissue becomes brighter. I put the tissue on with dope, water shrink it, and then use the epoxy as directed. The main advantage is that it does not shrink, and therefore light structures do not warp. The paper stays just as tight as it gets from water shrinking—no more, or less. If more shrinking is desired, one thin coat of dope can be applied first, the final result is not as translucent, but still looks alright. More care in brushing is needed than with dope, since it does not smooth its own brush marks out as dope does. It is prettier, stronger, lighter, more flexible, and more fuel proof than dope and I am sold on it, mainly because it doesn't warp; if the structure is still true after water shrinking, then it will remain true. One thing that must be remembered: Don't sand anything while the epoxy is drying—the dust will settle on the surfaces and somewhat 'overturbulate' things."

CAMOUFLAGE COLORS: An advertising release from Pactra Chemical Co. gives the proper proportions to use in mixing dope or other paint for flying scale models;

Sky Blue: 5 parts White and 1 part Blue. Duck Egg Green: 1 part Green, 1 part Yellow and 15 parts White. Khaki Green: 1 part Yellow and 1 part Black. Dark Earth: 3 parts Yellow, 1 part Black and 1 part Red. Dark Sea Gray: 1 part

White, 1 part Black and 1 part Blue. Dark Brown: 1 part Black and 1 part Red. Gray: 1 part Black and 5 parts White. For lighter shades, add White, and for darker shades add Black.

ODDS AND ENDS: In last month's VTO we opined that the Open 1/2A Record applied for recently by Judie Grigsby might make her the first woman to hold a National Record. Since then it has come to our attention that many other ladies have held such records. (Judie's record of 31 min. 02.5 sec. was approved just prior to this writing.) . . . John Easton, of 258 Lake Promenade, Toronto 14, Ontario, Canada, is desperately searching for a crankshaft to an Air-O Mighty Midget .45. He also expressed an interest in picking up a whole engine or any other loose parts. Can anyone help the man? . . . Henry Struck flew his 1939-49 original Interstate Cadet (with less rubber of course) in the Coupe D'Hiver event on his way to winning the perpetual high point trophy at the 1963 "Yankee Championships." This marked the third year in a row that Struck had won the trophy, so it was awarded to him permanently. . . . The Kirkwood Thermalers, an old and respected FF club in the St. Louis area, have recently become incorporated and are now known simply as Thermalers, Inc. Many of the members are trying their hand at Indoor this winter. . . . The Coffee Air Foilers (Tullahoma, Tenn.) have initiated a program of purchasing hand-launch glider materials for use by the High School Aviation Club in a club project. After the construction phase, the students will be invited out to the field for a flying session. The Air-Foilers also plan demonstrations at the High School for FF, U/C and R/C with hopes of picking up a few additional members.

Just A Moment Please

(Continued from page 15)

Therefore a good glide results.

Now add power (and airspeed) and see what happens;

T	2 inches	× 20 lb	= + 40 inch-lbs.
L _w	4 inches	× 20 lb	= + 80 inch-lbs.
L _t	10 inches	× 4 lb	= - 40 inch-lbs.
D	2 inches	× 20 lb	= - 40 inch-lbs.
W	2 inches	× 10 lb	= - 20 inch-lbs.
Total = + 20 inch-lbs.			

Thus a nose up condition occurs with increased power and airspeed.

Referring to figures 5 and 6 and using the same procedures, it will be seen that with the actual CG (i.e. "W", the center of weight) located behind the ideal CG position, once again a trimmed glide may be obtained. In this case under power a diving condition results.

It is of interest to note that in the farther aft CG situation, the lift provided by the tail must be greater than for the case where the wing does most of the load carrying (CG farther forward). Here it becomes apparent that the larger the stabilizer (i.e. greater tail volume), the farther back the ideal CG will be located. In the example shown in figure 5, the Lift provided by the stabilizer (L_t) has been increased accordingly to achieve a trimmed glide condition. In the power on situation all forces except W are again assumed doubled.

The foregoing discussion of Moment of a Force is basic. The principles are not limited to one type of airplane but apply to all aircraft. As a preliminary design step, the use of a moment diagram is of great value. For the modeler interested in evolving an original design, examination of the moment diagram may save countless hours of wasted effort.

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Novel Batteries

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1½ V. Pen Cell .025
2½ V. U-15 .75
5V. Tx 5-266 Sm. .89
9V. Tx (305) Lg. 1.40



Silk & Glass Cloth

1 Yd. Silk .125
2 Yd. Silk (white only) 2.50
Colors: white, red, yellow, orange, blue, green, blue, green, fluorescent red.
Fibre glass 18 x 50" (110)



Celastic

12" x 16" sheet of tough Celastic, excellent for field repairs. Soak with thinner and apply. Also excellent for new construction. \$9.98.



Tiny Quality Switch

Excellent for reeling multi installations where small size and space mean so much.
DPDT \$1.50
SPDT \$1.19

WORLD

8206 Blue Ash Rd.

Controlaire



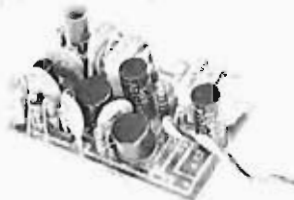
Mule 1 Ch 9 V Tx. (Tone 700 C.P.S.) Named the "Mule" for extremely high RF output. This output the result of center loaded antenna design operating with latest transistors. Special new key switch has good feel for single channel control. Assembled \$29.98. Kit \$23.98.

Controlaire



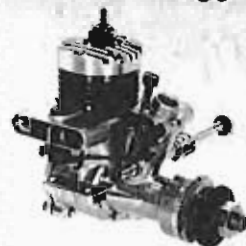
Controlaire 4, \$22.98. Single Channel Relay, S. Regen. Works best on tone signal 500-1000 cps. Swamp-free circuit particularly recommended for pulse. Will follow up to about 23 cycles per second. Size 7/8 x 7/16 x 2; 3v. Oper.; Wgt. 1 1/2 oz. Assem. \$22.98; Kit \$17.98.

Controlaire



Controlaire 5 - 3 v relayless 1 Ch Rx. Size 9/16 x 1 1/4 x 1 1/4. Weight 3/4 oz. Circuit board has room for add-on switcher, \$1.98. Circuit employs more components than avg. relayless Rx which results in more range and thermal stability, less swamp. Assem. \$18.98; kit \$14.98.

OS



1st Nats

The OS MAX III 19 like the Max 15 is a favorite R/C choice. Exceptional idle, high power and light wgt. Max 15 & 19 Std. \$10.98; R/C \$15.98; Max 19 w/ cooled Marine \$15.98.

OS



These new tiny OS Escapements Wt. 3/4 oz., width under 1 1/4" - high 10 ohm coil for operation with relayless Rx. Compound \$8.98; 4 Claw Motor \$5.98; 2 Claw Motor \$5.98; 2 Claw Motor \$5.98; 2 Claw Motor \$5.98.

OS



Max 35-29 engines are high output and high quality, piston-sleeve feature transfer ports, bushed head for g-lubing. Max 35, \$10.98; 35 R/C \$15.98; 29, \$9.98; Max 29 R/C \$14.98; Max 29 Speed, \$11.98.

OS



1st Nats Multi

Max 49 R/C, \$24.98. Used by Kirkland in his KO winning Beechcraft. A light, compact, BB OS-exceptional low speed. A lapped engine yet one that requires only moderate break-in.

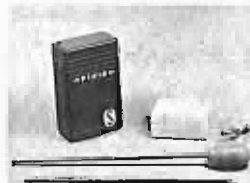


World Engines News Letter

By John Maloney

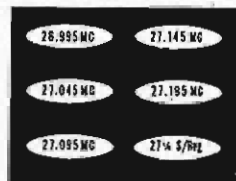
This issue of the M.A.N. is going on sale about February 1, 1964. The greater part of the country, is in the dead of Winter and most serious model builders are hard at work trying to get something built for the next flying season as the calendar swings through these Winter months. In the Mid-West this is also Trade Show time. The Toledo Weak Signals Mid-Winter Radio Control Conference will be held on February 29th and Sunday, March 1st, the Buffalo Mid-Winter Conference will be held on January 31st, February 1st and 2nd and the Chicago Trade Show from February 2nd until February 6th. We have some new items to talk about this month and, without further ado and with your leave, we will get with it.

The OS Pixie Transmitter is a vest pocket 9V all-transistorized transmitter operating on the citizens band frequency range. It is crystal controlled. The companion OS receiver is the new 9V, RA-1. The receiver is compact and comes complete with relay. Separate 3V batteries supply must be used to operate a servo or an escapement. According to our tests here at



Pixie Tx 19.98 Rx 21.98

World Engines the Tx has a healthy punch for such a small transmitter. The little receiver is one of the best that OS has ever produced and it is extremely sensitive and also has been compensated for high and low temperatures. One novel feature of this receiver is the extension of the printed circuit board beyond the edge of the case. This makes it possible to solder directly to the printed circuit board when making an installation.



Freq. Markers

These frequency stickers come six to a set. They have pressure sensitive adhesive backs and can be used on your transmitter or receiver. These labels are silver and the frequency is in black ink. These are also good to put on your plane. Price for a set of six is 50¢.

The Controlaire 6 Channel transmitter operates on 9 volts or if you use nickel cadmium batteries



OS 6 CH Rx \$59.98

(500 mah) they would operate on 8.4 volt and would use a stack of 7 cells. The transformer is toroid tone stabilized. The transmitter can be converted from a 6 Channel transmitter to a 10 Channel transmitter for an additional \$40.00 at any time you wish to go to 10 Channel. Actually, the Controlaire companion receiver for this transmitter is a super-regen 10 Channel receiver. Only 6 of the reeds are hooked up.



Controlaire 6-10 Rx 45.00

In the middle picture of this column we are showing the small relayless 10 Channel receiver which operates on 4 1/2 volts. This is an extremely small receiver and fits easily into a Jr. Falcon or a Schoolboy. We are also offering the OS 6 Channel Super-regenerative receiver which has relays. The OS receiver will operate Dura-mite type servos which do not have the amplifiers in them. The OS receiver retails for \$59.95. This receiver operates at 6V.



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WEIGHT 4 3/4 OZ.
\$11.00 PREPAID

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Pegasus

(Continued from page 12)

it, use about one ounce) and the tubes to guide the leadout wires (proper leadout sweep-back is shown on the plans). The entire wing structure is now sanded smooth and all cracks shown be filled with plastic balsa. Before covering—silk preferred—give the wing at least two coats of clear dope and sanding sealer with sanding between coats, and then apply the paper or silk covering. Flaps, carved from 3/16" sheet balsa, are added now. Use any type of hinge that you prefer, although I strongly recommend the preformed nylon ones available at most hobby shops. Note that 1/2 of a standard horn unit is required at the inboard end of the flap in order to provide push-rod linkage to the horizontal tail. After flaps are installed they, and the entire wing, are given a minimum of six coats of clear dope alternated with sanding sealer, and fine sanding between coats.

All tail surfaces are carved from 3/16" sheet balsa. The vertical tail construction should be self-explanatory. Horizontal tail pivot arrangement is simple and illustrated on the plans. Inboard pivot is about 2/3 of a standard horn assembly; outboard you can just use a piece of 3/32" diameter wire. Tail surfaces are finished by applying alternate coats of clear dope and sanding sealer, and fine sanding between coats.

Construction of the tail-booms is based on a simple box-structure with formers being assembled from 1/8" x 1/4" strips. Profile shape for the 1/8" sheet balsa boom sides can be easily obtained from the plans; addition of the 3/8" balsa top and bottom blocks completes the "box" and the booms are now carved to proper cross-sectional shape.

Assembly of horizontal tail, booms, wing and control system is now accomplished. All control push-rods are of 3/32" diameter wire, as is the tail skid which should be installed on a 1/16" plywood platform in the right-hand (inboard) boom. Complete this phase of the model by building-up the forward and aft boom-ends with balsa blocks, and then sanding and finishing as per usual.

The engine/cockpit pod is started by cutting the 3/16" balsa sides to the proper profile after you have contact-cemented the 1/16" plywood doublers to the forward positions. Glue the engine-bearers (maple is the best) to the plywood/balsa body sides (preferably with an epoxy adhesive) and mark bulkhead locations on them. The forward three bulkheads are cut from 1/8" plywood and, for added strength, I suggest making your own by laminating two layers of 1/16" plywood, cross-grained to each other, with contact cement. Remaining formers are made from 1/4" sheet

balsa. Note that the lower-aft portion of the engine/cockpit pod is not added till later; after assembly to the rest of the model. Bend the landing gear to shape from 5/32" diameter wire (1/8" wire will do, but the stiffer 5/32" is preferable for bounce-less landings) and mount it to the plywood bulkhead with either metal clips or "J" bolts.

It is now time to assemble the forward three bulkheads and the body sides. After this assembly has dried, glue the other two upper formers into position. Notice that the rear end of this pod remains open to permit free movement of the flap horn. The next step is to install the partially completed pod onto the previously completed wing/boom assembly, and then add the 1/2" and 1/4" sheet balsa that form the cabin top.

The engine is now installed (any reputable .35 stunt engine will do) with about two degrees of offset as indicated on the plans. After the "blind nuts" or tapping plates for the engine bolts have been secured to the motor mounts glue the blocks that form the lower portion of the body-pod in place, including those at the underside of the rear portion of the wing. Try to avoid "butt-joints" when installing these blocks. Cut a hole in the removable cowl-block so that it can be slipped over the engine, and locate a 2" diameter circle, centered on the engine crankshaft, on the front face of the nose blocks. Remove the engine and spot-glue the cowl-block in place. Carve the entire body-pod to the required shape and sand smooth. Detach the cowl-block and, after providing holes for the tank vents, (I use a regular commercial tank), provide a means of attaching it such as the common bicycle spoke method. Finish sand the entire pod and add wing-root and tail-root fillets of either plastic balsa on the leather strips carried by most hobby shops. Wheel pants and landing gear fairings are made from sheet and block balsa, carved and sanded to shape.

I recommend covering all pod and boom surfaces with either Silkspar or silk before readying the model for color-doping. After finally undercoating the entire model with clear dope and sanding sealer, install whatever cockpit details you desire and glue on the windshield.

Pick a color scheme to suit your own tastes, and for a really smooth finish, don't spare the elbow grease and rubbing compound. Balance the Pegasus a little bit forward of the bellcrank pivot to start and then "trim it out" through a series of flights and maneuvers, rebalancing as required, until it flies the way you want it to. If you've kept the weight below 50 ounces, I think you'll be happy with the results.

Round and Round

(Continued from page 23)

the outside of the circle. We cheated more by cutting off the apex of the delta triangle, giving a nose airscoop effect like that of the Douglas Skyray. To help beginners avoid slack lines, added a small drag plate to the outboard tip.

Where do you put the bellcrank? Where, at the tip, do you exit the leadouts? After researching deltas galore and working up a construction preliminary, discovered quite by accident that Verne Clements had worked out these problems in his Saffire, but Verne had used huge elevators. (In fact, our solution was almost identical.) He was right because the delta did prove comparatively sluggish in its reactions. Will leave it to the theorists to explain but it would appear that, despite the bellcrank and CG being effectively associated, there tends to be quite a bit of area behind the CG. It would take much trial and error

(Continued on page 52)

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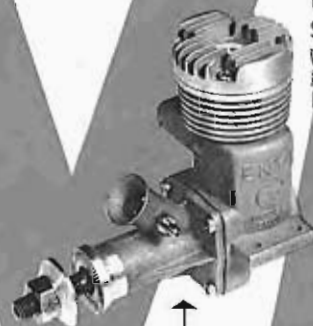


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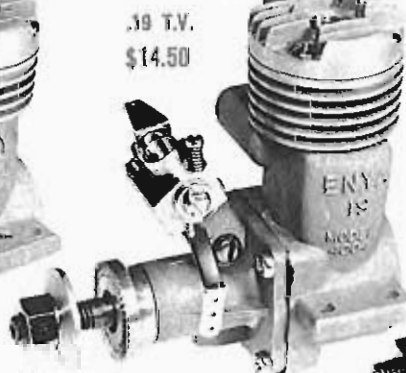
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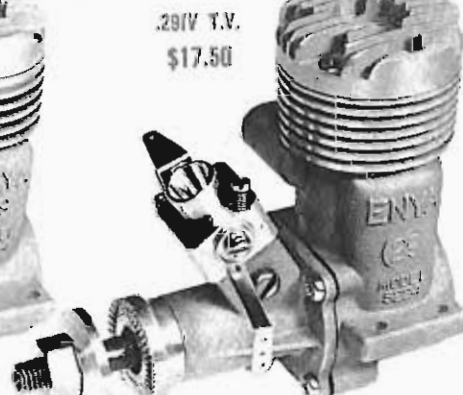
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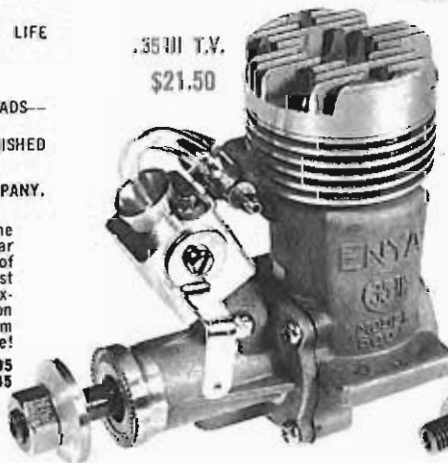
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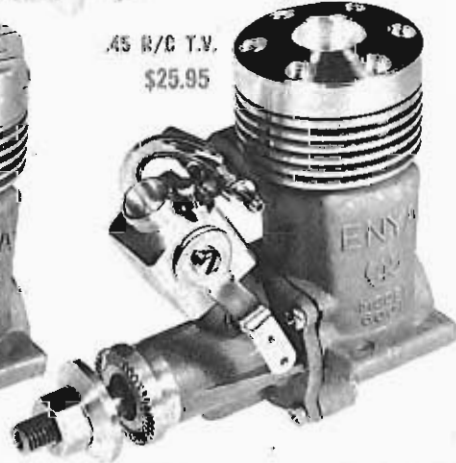
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SPAN 56"
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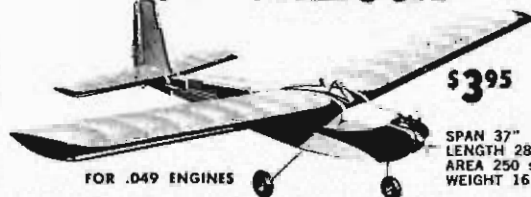
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SPAN 56"
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WEIGHT 3 1/2 lbs. (with 6 chan. eqpt.)

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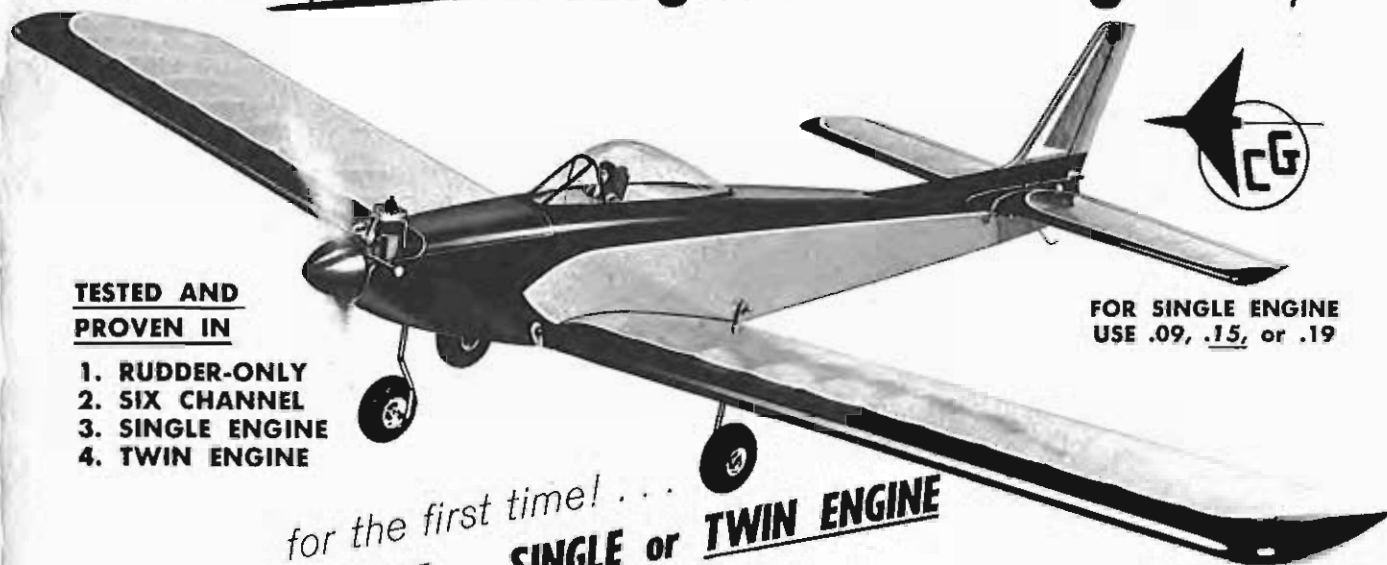
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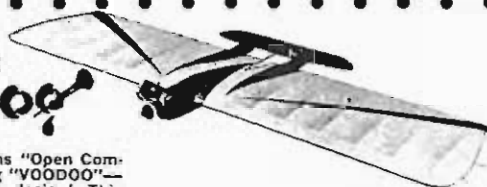
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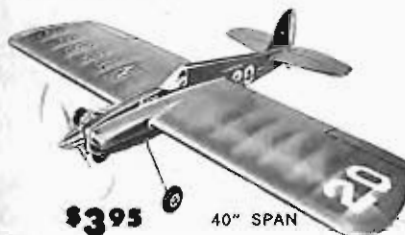


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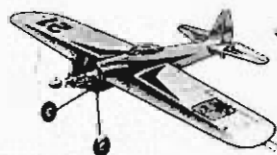
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Favorite 1/2 A stunt model.
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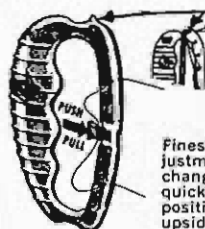
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Your lines wrap up quickly,
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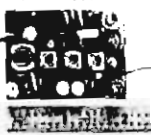
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Round & Round

(Continued from page 48)

to work out the perfect, or most efficient arrangement to fulfill these conditions—anyone for tennis?

* * *

By a fortunate coincidence have pix from J. W. Burns, Cut Bank, Mont., including one, of all things, of Clement's Saffire. You'd think J. W. knew what we would be talking about because the flipper in the picture is raw wood, making it easy to compare with the rest of the machine for percentage of area. In fact, if you'll look at the pic of Burns holding the model you'll note how much wing area these things have—they might make good stunters with move evolution. (With less sweep would, look like a Half-Fast of Fierce Arrow.) J. W., incidentally, is a WW I scale fan, with a Nieuport 17, Fokker Tripe and Spad (look good in pix, too) in one inch-to-the-foot scale. A fire two years ago which destroyed 15 planes "was a shock and it took me quite a while to pull myself together again." Wonder how many guys have had that sad experience. C. O. Wright and "Wild Bill" Netzeband (hiya boys) can sympathize with Burns (do you suppose there is anything in a name?). At least we can take comfort from the fact that the gas-and-oil and nitrate dope days are gone forever. A sloppy prime, a wet engine, and a flaming pop and you had a wild time trying to save the crate.

* * *

Slow combat, touted as giving the game back to the boys, seems not to be the simple question we thought it was. While the movement still gathers momentum—we ain't admittin' nuttin' as the students say—must note that a number of Juniors have written in that they like it the fast way, and quite a few guys claim the wreckage rate is greater with slow combat. We've heard of slow combat meets where the jobs broke 100, and others where every entrant. (the model, that is) was damaged, to put it gently. However, this could be because the skill level is low, not because the crates can't get out of the way. Suspect that many guys just aim at anything that moves—like deer hunters who perforate cows.

So now we give you Bob Stalick, who is public relations Chairman for the Williamette Modelers Club (1620 West 15th St., Albany, Oregon), whose club emblem is a hairy looking eagle in a long sports jacket, eye glasses dangling in one hand and a big trophy in the other—under it, the words "Play Boys." Real wild, man. WMC is pleased with Slow Combat; let Bob tell you about it.

"We tried this (slow combat) at a club contest," Bob begins, "and found that it worked very well. Since our club is predominately free flight (see, what did we tell you?), were pleased to have eight turn out for slow combat and seven for the AYSC event, staged according to 1962 rules.

"The slow combat was held on a double eliminations, not because we gave trophies or prizes past third place, but because we wanted to give everyone a chance to fly more than once. The speeds were not necessarily slow—one fellow clocked 86 mph."

Here's a quick run-down on their rules: 1) No wing, must have a discernable fuselage, 2) Two-wheel main gear, 3) No pressure tanks, 4) .36 displacement max, 5) Suggested paint scheme to match a fighter, 6) Regulation streamer, 7) 60-ft. line length per AMA, 8) Elimination basis, 9) Junior, Senior combined with Open (well, well).

"Your readers (attention you guys!)

might be interested to know," states Stalick, "that due to a couple of successful years of contest sponsorship in Albany, the JayCees (Junior Chamber of Commerce) came to us with the proposal to start a model airport at a large local park. Investigation is going on to check the cost of asphalt, etc. We think this a real break-through considering the dead-ends we had met with a couple of other groups in the area."

If there is a moral here it must be that we should never give up. Bet these guys flipped when they got that JayCee offer! Had that organization been approached? May we suggest that if you have a flying site problem, or need sponsorship, it be an unwritten rule that, as a club, you never give up, and never fail to ask everyone in sight—and outa. It occurs to us that obtaining sponsorship may be a good thing—even when you don't really need it—just to strengthen the bonds between the community and the model movement. If the group is large enough it might be nice to raise funds for some worthy cause. While we certainly should do this without selfish motivation, it also places the long-faces who detest kids who fly airplanes or play ball in the streets, in the questionable position of being opposed to motherhood and Christmas.

* * *

Help! Help! Any of you guys using racks for stacking speed models? Several requests here for details on same. Will even persuade your editor (whoa boy!) to consider running drawings and pix of same. Meanwhile, will somebody help out Charles E. Monroe, 2142 Norman St., Montreal 9, Quebec, Can. He wants to make one. . . . And what do you have on Dynajet (etc.) insulation, installation and safe operational practice—guys are asking. . . . To B. A. Zuehlke, Fond du Lac, Wisc., how about more pix of that Eindexer—the first ones vanished into the blue and your letter has us drooling. (Turned wheels, inlaid tires, brass shim stock machine gun—perforated to scale for ventilation; B.A. says it is two-speed, flies well with care since short nose moment makes it slightly tail heavy.) . . . Pic here of a PT-19 almost got by because we thought it a Jetco R/C. Really Midwest's new scale ukie. It's big and slick, appears to have flaps tied in with elevator, so it's a stunter. . . .

* * *

Old friend John Tatone—whose nice models always made us feel like crawling into a corner—sends his new proto pan, and X-mas greetings, it being D-day minus 10 as we write, and the wish that somebody sends us Orbit proportional, or sumpin (our heart is set on a shiny new sumpin). But to earn our keep, back to Tatone Products pan. It has been redesigned for lightness (2½ ozs.) and acceleration demanded in this event, is cast in aluminum and has a mirror-like finish (we won't argue). Can be used inverted or upright. Mounting holes are relocated for simpler fastening to the fuselage. Engine and forward hold-down pads are longer, allowing more room for changing holes if desired. It also sells for a buck less, or \$3.95. Sumpin.

* * *

Operator 13—that would be Hank Clark of Dumont, N. J.—just checked in with a heart-warming story. Hank sets the stage. . . .

"Here's a town just three miles north of us that actually set aside a field for the boys to fly their planes from. As you know only too well (this to the editor), after all the writing about how you travel out into the never-never land to launch your love

(Continued on page 54)

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Round & Round

(Continued from page 52)

(quiet dear!), this is indeed a rare item in this day and age of developments, dozers and disappointment."

So if you live in Closter, N. J., you are in! At opening day ceremonies for the Borough's model-airplane-flying field—the only one in the Northern Valley, and the only one in Bergen County sponsored by a municipality—Mayor James E. Carlson dedicated the field. Councilmen, the commander of the local V.F.W. Post which sponsored the first contest, and the Chairman of Parks and Playgrounds all spoke, while—if we can believe the reporter who was carried away by the whole thing—"about 30 of the miniature, gasoline craft soared and roared overhead in a simulated dog-fight." He also said spans varied from

6 inches to six feet! Aha—the field is open to all flying enthusiasts of the Northern Valley.

Some 100 yards across and ringed by a 200-foot thick band of trees for sound-proofing, the space is far enough away from homes so that noise will not be a problem. (Homans Ave., and Ruckman Rd.) Let it not be overlooked that men from the local road department worked on this site on their own time, grading the area and constructing a hard-surface strip 50 feet long and 10 feet wide. This was covered with left-over surfacing oil and topped with gravel dust. What we'd like to know now, is who did the missionary work and, for the sake of less fortunate modelers, how they did it. Come in please. . . .

Engine Review

(Continued from page 19)

used by R/C modelers in Europe during the previous 2-3 years. Certain shortcomings in the early model .51 and .56 engines had been overcome during this period and the addition of ball-bearings, plus an entirely new throttle assembly, raised the status of this Italian built engine to a level where it was bound to attract greater attention from discerning multi contest enthusiasts.

A displacement of .5578 cu. in. and a weight of 15 oz., do not automatically qualify this Super-Tigre as a replacement for standard equipment in every popular multi ship, most of which have been designed for .45 cu. in. engines weighing between 9 and 12 oz. There are, however, certain applications where the greater weight and bulk of a larger engine and its tankage can be tolerated if better usable performance is so made available.

Following current Super-Tigre glow engine practice, the .56BB has a one-piece main casting, comprising crankcase, main bearing housing and cylinder block, plus the usual extras such as exhaust stack, intake boss and beam mount lugs. This is a cleanly produced pressure diecasting, but is extensively machined to ensure accurate assembly of the various related components. The cylinder sleeve, which has a chromed bore, is a tight fit in the case and can be withdrawn only by heating the casting. This is necessary if one wishes to remove the piston/rod and/or crankshaft/bearings assemblies. Removal of the sleeve enables the wristpin to be withdrawn, through a hole provided in the back of the cylinder, releasing the piston, after which the conrod can be lifted off the crankpin and the shaft taken out.

The crankshaft, machined in one-piece from nickel-chrome steel, is notable for

(Continued on page 56)

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ABOUT AMA

THE FIGHT FOR FLYING SITES

A current AMA survey of circumstances which are slowing down the rate of growth of model flying points a big finger at an increasing shortage of flying sites. Mostly responsible is the postwar building boom which has grabbed off open acres at a fantastic pace. This has forced modelers to either go further out of town to fly or to use smaller sites in built up localities.

Going further out limits activity to those able and willing to travel; usually developing adult-only flying, besides reducing the number of hours available due to travel time. Use of smaller sites close in concentrates activity near housing and nuisance complaints about the noise are frequent, with a high rate of loss of flying sites resulting.

AMA is developing a program to promote local government and aerospace industry support for flying sites. This is expected to help in the establishment of new sites and follows the example of many clubs which have conducted successful civic campaigns to obtain flying sites in parks and other public areas. At many such sites, AMA membership is required as a minimum standard of responsibility and insurance protection.

An unpopular but apparently unavoidable need for widespread progress of any such program is the use of engine mufflers. No matter how we justify model aviation's value to the city fathers, unless the site is away from most housing the public objection to noise can be expected to be too strong to overcome without the aid of mufflers. AMA is promoting coordination of industry effort to meet the challenge of noise. Another problem is the loss of sites thru careless operation, with dangerous flying and/or litter involved. AMA Leader members and Contest Directors are helping offset this problem by setting good examples of site operation.

It is most important that existing sites not be lost thru indifference or carelessness while new sites are being promoted. Your local AMA leaders are the best protection—they are pledged to fly safely and sanely. Join their efforts—AMA membership is the best support you can give.

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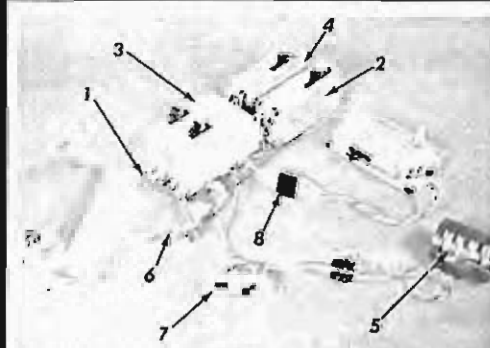
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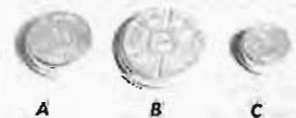
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Maxie Hester stopped in and we talked about many things. Why a spinner is safer than a bare crankshaft end. What motors to use on his model. Glow plugs. R/C fuel. Balsa wing covers. Low versus high wing loading. Conclusion: a rather heavy model flew more stable, but it took a 59 to fly it right. Also looked at prototype of 1964 model 59. Suggestion from Maxie Hester: When soldering a group of wires to a plug, bind the wires together about 3/4" from the plug. This keeps the wires from flexing in the area the solder has flowed into the strands and eliminates a major cause of wire failure.

In case you haven't noticed, we are now offering R/C glow plugs. Special features include an extra heavy element and a specially shaped shield. I think you'll find these plugs will run better, idle slower and last longer than the ones you're now using. Price, \$2.50 for a package of 3. Special gimmick is a "25 flight guarantee." If you don't get 25 flights out of the 3 plugs, send them to us and we'll send you 3 more. Please note: the plug is designed for Ni-Cad boosters.

Well, my Bonanza let me down. In Harrisburg, Pa., the prop decided it wanted to be in super low pitch regardless of the control position. Not all was lost, however, as I had a wonderful visit with the Harrisburg R/C Club, ramrodded by Hen. Shepler. Main thing I remember from the conversation was that it's psychologically bad to expect single channel modelers to fly between a couple of multi flights. Also, there are a lot of intermediate flyers who are very unhappy at being expected to compete with more sophisticated equipment.

NEW PRODUCTS IN THE MILL: A FUEL SPECIALLY DESIGNED FOR THE FOX 59 R/C, COMBINING HIGH POWER OUTPUT WITH GOOD IDLE. IT CAN BE DONE. ALSO, A SHIELDED VERSION OF OUR GLOW PLUG. I'LL SEND A FREE SAMPLE TO THE FIRST 200 MODELERS SENDING A SELF-ADDRESSED, STAMPED ENVELOPE MARKED "R/C GLOW PLUG."

IDEA DEPT.: I saw the neatest little generator you could imagine that came off a Nike missile. Mounted on the back of a 59 you could have perpetually charged batteries. As my supply of surplus Nike missiles is temporarily low, I wonder if someone would undertake to design me a suitable unit. Let's make it fit inside the rear cover of the 59; 1 3/8" diameter by 1" long would be a nice package.

Thanks to Peter Chinn for the complimentary report on our 59 R/C. I think you will have even more glowing things to say about our 1964 model.

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its large diameter (15 mm. or 0.5905 in.) main journal and correspondingly large gas passage of nearly 7/16 in. bore. The emphasis on unrestricted breathing is also seen in the rotary-valve, which features a 5/8 in. long rectangular shaft port and straight sided bearing aperture for maximum valve dwell over a total induction period of some 200 degrees, timed 30 deg. ABDC to 50 deg. ATDC. The shaft has a 5/16 in. thick crankweb and this is cut away, each side of the hollow crankpin, to provide counterbalancing. It is carried in a 15x32 mm. 8-ball main bearing, supplemented by a 7x19 mm. 7-ball outer bearing. Both ball-bearings are of West German manufacture. At the front end the shaft is further reduced in diameter and has a standard 1/4 in. U.S. thread, instead of a metric thread, to facilitate easy replacement of lost prop nuts. The machined aluminum prop driver is recessed to fit over the o.d. of the front b.b. housing and attaches to the shaft via an alloy split taper collet.

The piston is machined from a permanent mold casting in aluminum. It has a flat head with straight fence baffle and is fitted with two cast-iron compression rings. A full-floating hardened steel tubular wrist-pin with brass end pads couples the piston to a machined dural conrod. The use of piston rings has, of course, dictated the necessity for guide bars in the exhaust and bypass ports in the cylinder sleeve. Both are divided into four rectangular ports and are of moderate area. Port timings, as measured on the test engine, gave an exhaust duration of 132 degrees and a bypass duration of 116 degrees of crank rotation.

The cylinder head is secured with six screws and a 0.9 mm. aluminum gasket is used to make the joint between the head and cylinder sleeve flange. A wedge type combustion chamber is featured and the head is heavily finned. A centrally disposed Super-Tigre standard type (non-shielded) glowplug is fitted.

The throttle type carburetor with which the .56BB R/C is equipped, is a new design and is more complicated than previous Super-Tigre throttle systems. As on many other R/C carburetors, a barrel type throttle is used, but instead of the idling mixture being controlled by an air bleed or automatic needle-valve, a separate low-speed jet, with its own needle-valve, is provided. When the throttle reaches the closed position, the main mixture flow is cut off and air to the second needle-valve is taken through a small fixed hole in the front of the carburetor.

The carburetor body is a substantial die-casting and plugs into the intake boss formed in the main casting, where it is firmly clamped by means of a cotter pin and nut. A rubber seal eliminates any possibility of air leakage which could upset idling. The throttle barrel is of steel and is an excellent working fit in the casting. All parts of the throttle assembly impress as being designed to remain serviceable for the life of the engine. There are no sloppy parts or linkages to work loose or wear through vibration. Both needle valves are provided with gland nuts and coupling to the semi rotary exhaust restrictor is by an ingenious little sliding ball joint that is very smooth in operation. The only feature we did not like were the aluminum straps around the cylinder holding the exhaust restrictor housing in place. This criticism is entirely on aesthetic grounds, however: the straps do the job well enough and have the advantage of making this new throttle assembly adaptable to the earlier model Super-Tigre .56 and .51 engines.

One very welcome feature of the Super-Tigre .56 is the short duration of the

break-in period required. We ran our test sample for only two hours, before putting it through the full test procedure. After less than one hour, however, it was broken in sufficiently to hold a steady two-cycle through a full tank. Cold starting was good, using the standard practice of a prime through the exhaust port. The engine would also start fairly easily with the throttle closed or partly open, even when almost dead cold. Warm restarts, however, sometimes produced a backfire which kicked the prop loose. The best cure for this was a fairly liberal prime through the exhaust. At other times, priming into the air intake was quite effective.

Where the Super-Tigre scores most noticeably over other (smaller) R/C multi engines, is in its very high torque at moderate rpm. On test, using our standard 5 percent nitro test fuel, this was as high as 93 oz. in. at 7000 rpm, which is equivalent to a brake mean effective pressure of 65 psi. This compares with 77 oz.in. and 60 psi for the most powerful R/C engine in the .45-.49 class previously tested. This means that the Super-Tigre delivered as much power at 7000 rpm as most .45-.49 engines develop at 11-12,000 rpm. Beyond 7000 rpm, the torque curve declined steadily and gave rise to a maximum brake horsepower of slightly over 0.86 at 11,600 rpm.

In terms of propeller speeds, it is on the larger props that the Super-Tigre .56BB R/C shows up to greatest advantage. On an 11x5, for example, the Super-Tigre was 13 percent faster than a popular multi R/C engine previously tested but on a 12x6 this had improved to nearly 20 percent. Such a tendency is, of course, to be expected with a large engine, but even when compared with another R/C engine of similar size, the Super-Tigre was still at its best when turning fairly large props—i.e. 12x6, or larger, holding static rpm to 10,500 or less. This suggests that the .56BB R/C would be a good choice for a large and bulky model—the classic example being, perhaps, a scale ship with a large radial type cowl, for, compared with a typical .45-.49, the .56 will cope with 1-1/2 in. of extra prop diameter without loss of rpm. Typical speeds achieved in prop/rpm tests included: 8400 on a 14x6 Top Flite, 9700 on a 13x5 1/2 and 10,700 on a 12x6 Power-Prop.

We found that throttle adjustment, insofar as bench tests were concerned, was straightforward and minimum idle speeds of 2,200 on the 14x6 and 2,600 on the 12x6 props mentioned above, were achieved without much difficulty. Safe idle speeds in the 2500-3000 rpm range in the air should be possible.

Like other Super-Tigres, this is a well made motor and should have a long working life. Service is available on Super-Tigres via the U.S. importers World Engines Inc.

Summary of Data

Type: Loop-scavenged two-cycle with shaft rotary-valve induction. Coupled intake and exhaust throttle valves.

Weight: 15 oz.

Displacement: 9.140 c.c. = 0.5578 cu.in.
Bore: 23 mm (0.9055 in.) Stroke: 22 mm (0.8661 in.)

Stroke/Bore Ratio: 0.957 : 1

Specific Output (as tested): 1.55 bhp/cu.in.
Power/Weight Ratio (as tested) 0.92 bhp/lb.

Price in USA: \$35.00

Manufacturer: Micromecanica Saturno, S.Lazzaro di Savena, Bologna, Italy.

U.S. Distributor: World Engines Inc., 8206, Blue Ash Road, Cincinnati 36, Ohio.

MODEL AIRPLANE NEWS

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3/64
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URANUS: Contest winning 1/2A and A free flight .049 and .051 engines.

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- 10/58
51 AMERICANO: .15 FF, by Blanchard.
BOMARC: Scale, Jetex, missile.
CUTLASS: Sport U/C, .049's.
- 12/58
53 SNAP: Sport U/C, .19-.23.
PELICAN: PAA Cargo, .049.
WINDMILL: FF, .02-.049.
- 7/59
60 BELLANCA: Scale U/C, .19-.29.
HALF ALPHA: FF, .049.
DUNWOODY GLIDERS.
- 9/59
62 SAFIRE: Delta U/C St., to .35.
ASTEROID: Rubber and glider.
THE HOOK: Free flight, 1/2A.
- 11/59
64 STUNTACULAR: .29-.35 Mono-Line.
RAMROD 600: FF, .15's.
- 12/59
65 BUTTERCUP: FF, Scale, .02.
SKY-SCRAPER: Wakefield, rub.
ALTAIR: Rat Racer, UC, .29-.35.
Hatschek's Wakefield, tied first World Finals.
- 2/60
67 THERMAL THUNDER: 1/2A, FF.
HOT TUBE: 1/2A, Ducted F, UC.
THE LARK: UC Stunt, .29-.35.
- 3/60
68 WORLD CHAMP NORDIC: Towline.
EL BOBO: FF, sport, 1/2A.
KINGFISHER: U/C, Scale, .05.
Nordic is Gerry Ritz's great 1959 winner.
- 4/60
69 PEACEMAKER: .15-.29 U/C Stunt.
EMERAUDE: FF scale, .02.
GYRATOR: .29 Stunt, U/C.
Peacemaker, George Aldrich's latest.
- 7/60
72 THE SLIVER: RC, speed, .19/.60.
BREWSTER BUFFALO: Scale, CL, .35.
- 8/60
73 CHANCE VOUGHT CRUSADER: Scale, C/L.
Jet.
BUTTONS: .020 Free Flight.
Exciting scale liner world's fastest fighter.
- 10/60
75 LIGHTNING ROD: High Performance F/F.
.15.
MILE MASTER =2: Proto Racer .35.
MAC-FAN-TUM: Air Rider.
- 11/60
76 ALOUETTE: R/C Biplane, .19.
JEEP: Free Flight Scale Nationals Winner .049.
- 12/60
77 KRAZY KAT: Stunt and Combat U/C.
TIPSY "NIPPER": Dual Purpose F/F Scale or RC.
SUPER R.O.G.: Beginners hi-performance F/F.
- 1/61
78 FLY ROD: High performance 1/2A free flight.
MISS AMERICA: Reproduction famous old free flighter.
INDOOR CURTISS ROBIN: Indoor Scale.
- 2/61
79 EINDECKER-111: Outstanding control-line flying scale and beauty contest winner.
GYRATOR: Prover of many helicopter model theories.
- 3/61
80. FIVE GIANT STEPS: Complete building course with plans and text for H.L. Glider.
R.O.G.: FF Rubber Profile, FF Rubber Built-up, FF .020 Powered.

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81 "JAY-DEE" FALCON: Trophy winning stunter up to .35.
MAX MAKER: Wakefield National records holder. Rubber, Wakefield '62.
- 5/61
82 HI-THRUST "VIKING": Goldberg 1/2A Free Flight. National winner. .049 with mod. to .09 (FAI Power).
PATRIOT: A/2 Nordic Glider Contest winner with long record of wins.
- 6/61
83 WIRELESS WIDGEON: Scale R/C for rudder or multi trainer work, .29 engine.
TEE DEE BIRD: First free flight for the Cox .010.
- 7/61
84 VOODOO: Nationals stunt champ.
.35 LIGHTNING BUG: Smallest R/C for .010 engines.
ARROWHEAD-3: Three stunt combinations for .010.
FAMOUS PROFILE: F/F profile of Tri Pacer .020.
- 8/61
85 SCORCHER: 1/2A R/C Pylon Racer.
LOW DOWN: Class "C" Nationals Indoor Champ.
FAMOUS PROFILES: 1/4 & 1/2A Control Line scale F4-U.
- 9/61
86 PULQUE: 12/A FF Contest Trainer.
R/C CURTISS ROBIN: 1/2A Scale Radio Control.
PAA-ABLE: PAA-Load Gas .020.
- 10/61
87 CURTISS TRIAD: Scale Control Line .15 engine. Awarded Admiral Pirie at '61 Nats.
PIPER PAWNEE: Super detail, Crop Duster C/L .19 to .29.
- 11/61
88 PHOENICIAN: Contest winning stunter up to .35.
THUNDERBIRD: Unlimited rubber and Wakefield—two models.
FAMOUS PROFILES: Free Flight Scale Stinson 195 .020.
- 11/62
89 ARADO: WW-II biplane for Multi R/C .35-.45 engines.
CAUDRON: Free Flight scale for .020.
LIL ZOT: Stunt control-liner 1/4 and 1/2A.
- 62 Ann.
92 GAWN: FAI, .15.
MULVILL WINNER: Rubber, Woody Blanchard's GAWN Finest International class free flight.
- 1A** THE SCHOOLBOY: 1/2A RC by top designer.
ARROWHEAD: Stunt and combat for .049.
P.WEE-B: Hi-performance F/F for .010.
FAMOUS PROFILES: SWJ control-liner for .020.
- 2/62
2A STEARMAN PT-17 KAYDET: Excellent scale control-liner for .29 up.
FOURNIER AVION PLANEUR: Free flight scale by Walt Mooney—.010, .02 and electronic.
- 4/62
6A FI-3: Nationals Scale Control Line winner—DynaJet engine.
FARMAN MOSQUITO: F/F flying scale rubber power and .010 engine.
- 7A** ANGEL: FAI free flight winner for .15's.
CHAPARRAL: National record holder pylon racer R/C .19's.
- 7/62
9A SEPTAL III: Single channel doubleheader for 1/4 and 1/2A.
A-26 PROFILE: Control-line stunter for .19 engines.
STARBUSTER: Free flight contest type by Sal Taibi. .049 engines.
- 8/62
10A DIZZY BUG: Bob Lauderdale's FAI Speed plane.
WAKEFIELD TRAINER: 3/4 size rubber powered trainer.
LONG GONE: Contest winning class B team racer.
HOT CANARY: Hi-performance free flight for .020 engines.
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- 3/63
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ROCKET DELTA: Jetex Delta by Larry Conover.
LADYBUG: Sport Free Flight Biplane .020 power.
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18A X-70: VHTL Free Flight Contest winner 1/2A and A.
XP-81: Scale Control-Liner .15 to .19.
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Foreign Notes

(Continued from page 4)

record jets, does not entirely dispense with a fuselage. The "fuselage" is a bullet-nosed 1 1/2 in. dia. tube only two-thirds of the length of the engine, to the left side of which it is attached, front and rear, outrigger fashion, by short struts. The half span wing and tail surfaces are attached to the left side of the fuselage. The wing is of balsa and the stab is of 3 mm. plywood. The wing contains the bellcrank and leadouts, the push-pull rod passing through the fuselage which also serves as a fuel tank. Skids are attached front and rear to the engine and on the wing tip.

JAPAN

Speaking of pulse-jets, we recently acquired a little-known baby jet motor, the Tiger-Jet K-1, which was made in small numbers in Japan between 1954 and 1956. This motor was sent to us by Minoru Kaneko, the son of the manufacturer of the original Tiger-Jet engines. Tiger Jets were made in two other sizes, the L-1, which, like many other makes, resembled the 4 1/4 lb s.t. Dyna-Jet Red-Head, in dimensions as well as overall design, and the M-1, a smaller version of 1-3/4-lbs nominal static thrust which weighed only 7 oz. The K-1 however, is smaller still, and was claimed to be the smallest pulse-jet motor ever produced commercially. In fact, it weighs only 4 1/2 oz., has a tail-pipe i.d. of 9/16 in., a maximum diameter of 1 1/4 in. and a nominal static thrust of 9 oz. Construction is similar to the larger jets. The combustion tube is of stainless steel, electrically welded from two half-shells, while the valve head is of machined alloy, with the usual ten-petal reed-valve.

Kaneko ceased production of all Tiger-Jet engines about three years ago, due to pressure of other commitments, but recently contemplated a return to this market. Unfortunately, someone else had, in the meantime, cashed in by making inferior copies and selling them as "Tiger-Jet" engines, complete with identical box, instructions, etc. A few of these engines found their way into the U.S. where they were sold, in good faith, by the importers, who believed them to be genuine original Tiger-Jets. The first that the Kanekos knew of all this was when an American purchaser returned one such copy to them. Minoru Kaneko tells us that, as a result of this, the name Tiger-Jet has been "disgraced" and that, if they resume manufacture in the future, they will probably adopt a new name.

Another Japanese production which has just come into our hands is the latest Enya 29. It is still barely ten years since imported engines, good enough to compete with domestic products, started to

come into the U.S., but one of the most impressive of the early arrivals was the Enya 29-3 of "Model 5103" of 1956, subsequently developed into the 29-3B and 29-Special models. The new 1964 version, known as the 29-4, or "Model 5224" looks only slightly different but, in fact, has practically all new parts throughout aimed at increasing performance and/or durability. These include a new 1/2-in. diameter crankshaft, running in a new main bearing housing. This latter has the addition of an optional screw-in nipple for a timed (high pressure) fuel pressurization system. A new and slightly more heavily proportioned crank-case/cylinder-block unit is used. The engine has the same bore and stroke as before (18.7 x 17.9 mm = .7362 x .7047 in.), but larger diameter cooling fins and a larger diameter cylinder head secured by six, instead of four, head screws, are featured. To enable it to be adapted to various applications, ranging from stunt C/L to team-racing and contest free-flight, each 29-4 is supplied with two cylinder heads, three venturi inserts and a pressure fitting. Claimed maximum output for this new model is 0.80 bhp, an increase of approximately 15 percent on the 29-3 model.

OBITUARY

The model world lost one of its leading figures when on December 1, Alec Houlberg, Chairman of Britain's SMAE and former FAI CIAM President, died at the age of 68.

A. F. Houlberg, M.B.E., F.R.Ae.S., gave a lifetime of service to the model airplane movement. For more than forty years he was an officer of the SMAE, the last 25 years as its Chairman. In 1946 he was elected President of the Models Commission of the Federation Aeronautique Internationale and served for twelve years, becoming the Commission's first permanent honorary president in 1958. He was instrumental in shaping many of the policies that have steadily raised the status of model flying over the years. He was a staunch supporter of international competition and was well-known to World Championship contestants from many lands. He traveled extensively in the hobby's interests and in 1957 was invited to Moscow by the Central Aero Club of the USSR to attend their European free-flight championships.

Alec Houlberg first made his mark in model flying in 1912 at the age of 17, when he raised the British duration record to 1 minute 29 seconds—capturing it, incidentally, from C. R. Fairey who was later to become somewhat better known as a world-famous aircraft manufacturer. In the following year he improved the record to 2:08, using a larger model. Both models were twin prop pushers—but used a single stick rather than the then popular "A frame". He continued to be active in contest flying for many years afterwards, mostly flying models of his own design. He was an excellent draftsman and illustrator and contributed many drawings, articles and photographs to model magazines, especially "Model Aircraft" magazine, for which he acted as editor during its early days and later as consulting editor.

Alec Houlberg was, in fact, a man of many talents and activities, though his modesty rarely made this apparent. He was a founder member of the British Gliding Association, a former chairman of the Oxford Gliding Club and, at various times, president and chairman of two Oxford rowing clubs. His close connection with Oxford resulted from his long association with Morris Motors and the British Corporation, dating from when William Morris had first begun to mass produce automobiles at Cowley Oxford. During W.W. II,

(Continued on page 60)

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Foreign Notes

(Continued from page 58)

he was chief inspector of the Morris Motors Aviation Department. During W.W. I he had been engaged in aircraft design work. Alec Houlberg was a Fellow of the Royal Aeronautical Society and in 1957, his services to aviation and modeling were officially recognized by his being awarded the M.B.E. (Member of the Order of the British Empire). In 1962, he was awarded the Royal Aero Club's silver medal.

In spite of ill health in recent years, Mr. Houlberg was rarely absent from an important model meet or function. A quiet and kindly man, he will be sorely missed by his many friends.

Snowbirds

(Continued from page 34)

The group consisted of Elmer Helfert, John Cacciatore, Joe Bonelli, Jim Ken-nicker and Paul DiSalvo. This group could usually be found, bundled to the ears, yet eager to fly. Helfert built a set of skis for his Smog-Hog, a ship that was oil-soaked, patched, creaking with age but still able to make its way about the sky. This ship had the conventional landing gear, wheels attached to dural mount and it was planned to affix skis to the axles in place of the wheels. The skis were originally built of metal, in various sizes and configurations, attempting to arrive at the proper size for the Smog-Hog. Difficulties were encountered, the metal-skis would not track properly and were adversely affected by the type of snow, that is if it was frozen hard, soft and fluffy, or on the melting side.

John Cacciatore, flying a smaller ship, the Esquire, prepared wooden skis but again, due to the stock used or weight and balance, the skis were a burden, on the snow and in the air.

Joe Bonelli, profiting from the efforts and experiments of his predecessors, designed the following set of skis (as set forth in the pictorial) and found immediate success. The originals were constructed of 3/16" plywood, formed to shape and mounted on the conventional dural landing gear. With some changes for tension of tips of skis for ground work and in-flight position, the boys were now able to fly to their heart's content (weather permitting), and take-off and land on various snow covered surfaces.

With the advent of the trike-gear in 1962, Bonelli revised the construction of the skis used during the winter of 1961-1962 to be added to the fixed gear in the present day trike-gear ships.

CONSTRUCTION: These skis should work equally well on ships of 48" to 60" wingspan. The ski is formed from a piece of plywood, 15" long and 2-3/8" wide. After the pieces are cut to size and the tips rounded to oval shape, the following process is used:

The plywood pieces are boiled in hot water and then placed between two pieces of hardwood about 10" long and about 3" wide. The tips extend out from between these two wood pieces about 3 to 4 inches. A piece of regular molding-form is used, and the tips, against the molding form, are placed in a vice and clamped. Using a wire or strong cord, attach one end to top and back of the structure protruding out of the vice, pulling gently but firmly until the tips meet configuration of the mold and then anchor the cord, holding the skis in this position. Allow plywood to dry in this position, usually overnight. The following morning, the formed skis will be ready for

the final construction.

The skis are coated with a fiberglass resin to form a protective layer over the plywood against moisture and nicking from jagged pieces of ice on the ground. The skis are heavily waxed and now the brackets are affixed, along with springs for the required tension. The drawing is self-explanatory from here on in.

Remember the ski bottoms must be heavily waxed or they will have a tendency to stick to the snow, more so in wet and heavy snow, and will be impossible to taxi or take-off.

The tension-springs should be arranged as to tilt the tips downward, 20 to 30 degrees when plane is held off the ground. When plane is in flight, the skis will level under power, and in landing, again assume the tipped-forward attitude to take up the initial shock on touch-down.

As mentioned before, these skis were originally designed for the conventional two-wheeled, dural type landing gear but are so designed that they may well be slipped over the axle of the main gear of a trike arrangement.

The nose-ski is constructed in a similar manner, sized, 6 inches long and 3 inches wide, with the axle bracket mounted about three and a half inches back of tip—as against 7-5/16 inches back of the tips on the main-gear skis. It was also found that a nylon axle bracket would prove most durable. On the nose-ski, it must be remembered to place the solder-lugs or spring connectors to the outside of the direction of the axle; and too Bonelli has found that a small chain placed on the forward connector will hold the nose at a downward angle (20° to 30°) with the rear spring adjusted to tension required.

Tracking in the snow was a problem with this type of ski but again, Bonelli added a piece of 1/16" by 1/4" strip of hardwood to bottom of ski as a rudder, no less and then taxiing was no problem.

So, maybe the Californians will put in a good deal more flying than we do here in the Midwest but this winter, the C.R.C.M. boys will be able to do more flying, due to Bonelli's super-skis.

M.A.N. at Work

(Continued from page 2)

earnest request that all interested parties, clubs and individuals write the Association of Twin Cities Hobby Retailers, Inc. 593 Snelling Ave. North, St. Paul 4, Minnesota and request copies. Both papers are too long for reproduction here but Lytton Callow, who has been active with this hobby for more years than he would care to admit, had twenty-five suggestions and much other pertinent material in his paper and the other by St. Paul Model R/C club offers 18 extremely pertinent suggestions. The gist of both papers covers model flying from 1938 to 1963, if we are sincere then both are must reading.

Many individuals as well have given considerable of their time and thinking and two stand out; one by Glenn Kinney brings it back to the father-son relationship and personal interest and Bob Hatchek's covers the immediacy of the situation with emphasis on the national image; however, the best of their two papers is their personal correspondence relating to the opinions/suggestions of each. They agree down the middle but it's on the ends that they can't quite get together. We are very fortunate people when we realize just how firm a hold this hobby has on most of us and how deeply we feel on the subject.

Last month, I stated that this column will be open as a forum on the subject and after reading Sandy Frank's letter I hope

(Continued on page 62)

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M.A.N. at Work

(Continued from page 60)

the juniors will swamp us.

BOMB (builder of the model) is still with us and John Worth, AMA's re-elected prexy, has written us a long, but extremely considered paper on the subject and we present it in its entirety:

"The AMA 'builder of the model' rule has really been worked over in the past couple of years, mostly by the R/C fraternity. The R/C pattern events are scored by points for piloting skill, they say, so what does it matter who builds the airplane since we're judging the man and not the model? A good question—keep it in mind.

"People have been exploring how to revise the rule: update it, modernize it, compromise it, kill it, etc. They've tried to draw lines on the degree of prefabrication to be allowed, also looked at proposals to permit waiving the rule altogether in some instances, notably R/C Multi.

"They went after strict enforcement (whatever that is) by having contestants sign affidavits stating compliance with the rule—only unscrupulous characters would sign and still abuse the rule, it was thought; those in the know wouldn't hesitate to challenge such bad eggs—they would rise up and unveil the scoundrels and we'd soon be rid of them. Well, we heard about the scoundrels alright, after the meet—way after the meet, too late to do anything about it.

"In fact, the typical letter to AMA on the subject says, quote: I know one of the Nats finalists didn't build his own model—why was he allowed to fly?—unquote. But, the Contest Director didn't know and he did not receive any official protests. So, please no more squawks without names, dates, places!

"Well, that's the situation, so what to do about it? We have to come up with an answer—we can't continue looking the other way. Which way to go? There are two extremes: throw the rule out or put real teeth in it. The latter is practically impossible as there are too many intangibles and nobody knows how to do it anyway. The former simply is unacceptable—an overwhelming majority of AMA correspondents favors the rule and they emphasize that the official guiding principle behind AMA is "Of, By and For the Model Builder."

"Stop the presses! Is it possible the answer is right in the fundamental principle? Why do most other events besides R/C and even the R/C Pylon and Scale events have little or no problem with the rule? The answer is that the model itself counts as much as the flyer—we judge by duration, or speed, or appearance, etc. In short, we judge as much on performance and/or looks of the model as we do on performance of the pilot. Why not the same for R/C pattern flying events?

"Suppose we gave points for such things as Originality, Craftsmanship, Appearance? This could be done for the model as a whole, but it could be even better if we break the scoring down to more specific items. For instance, let's consider the following:

1. Construction (structure, covering)
2. Control System (servos, linkage, surfaces)
3. Radio Installation (receiver, power supply, wiring)
4. Engine Installation (mounting, fuel system)
5. Landing Gear (mounting, design)
6. Appearance (color scheme, finish)

"Scoring could be like for flight points, on a scale of 0 to 5, on each of two factors
(Continued on page 63)

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M.A.N. at Work

(Continued from page 62)

for each item above—Originality and Craftsmanship. There's 60 points thus available in the above list, although the actual scoring could be varied in any direction deemed desirable to suitably equate the importance of the 'builder' as compared with the 'flyer.'

"One key factor: no limit on amount of prefabrication (other than outright complete construction), but no points for same, either! So, you would expect more points for a built-up fuselage than a fiberglass job, unless the latter was not a commercial item. Likewise, a home applied spray job would count more than a pre-finished commercial plastic skin. Another thought—you'd get points for such gimmicks as retractable landing gear. At present, such gear are merely prestige gadgetry, but they could become valuable point gatherers, with value proportional to the amount of originality and craftsmanship so that simply using a store-bought gear would not necessarily buy any points. Therefore, prefabrication and commercial gear would not be ruled out—they would just not have any point value, thus building rather than mere assembly would be encouraged.

"Hold everything, you say? Too much time out for judging? Not too much time, really, but only the time that such models deserve. Isn't R/C the ultimate in modeling? Why do we see so many beautiful finishes on R/C jobs? PRIDE. What makes an R/C meet like the Nats so attractive? The flying is important, sure, but what really makes for memories and comment is the scrutiny each model is given—the after-hour sessions with everybody looking over everybody else's model would make a fortune if there was an admission charge!

"So why not give credit for the model details everyone drools over and, at the same time, provide incentive for the sloppy joes to clean up and improve their entries? Also, here we have a way to better separate the top contenders—our top ten are usually so close in point scores that the winner is hardly more than a tossup, frequently accompanied by complaints about the quality of the flight judges.

"In case you're still skeptical, think about the Scale fans. They revel in the hours of study involved on their models, with the judges checking every little detail. What proud R/Cer wouldn't like to get the same official attention? Furthermore, this activity doesn't have to slow things up on the field. It can be done at night or even during the flight line waiting periods. We could use the contestants themselves, with each given a score sheet on which to list outstanding features of various categories of model details. This could even be done, to save time and effort, by judging only the top flyers—at the Nats these would be the qualifiers. Thus, the final judging would be by a jury of peers—what finer tribute to the winner?

"Whatever the mechanics involved, by changing the basic concept of scoring for flight only, to one of scoring both building and flying the builder of the model controversy can be resolved by natural instinct for self-esteem, pride, or whatever else you choose to call it. The point is that by rewarding those factors which involve personal effort, individual craftsmanship and original design, the nature of the event can be changed to promote willing and natural compliance with the intent of the rule.

"Further, we would have an automatically required procedure whereby each model would be examined in detail; this in itself would tend to discourage abuse of

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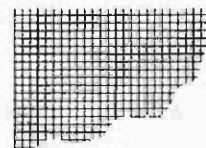
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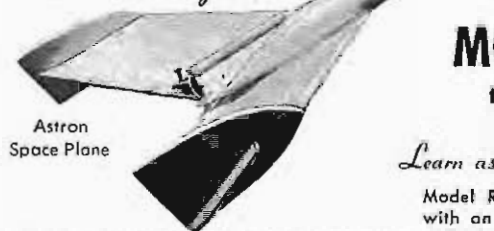
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the builder rule. To sum up, we would not directly get involved in trying to prove or disprove who built a model; rather, we would give credit for obvious originality and skill and so encourage self-policing. So long as only flying has been involved, competitors have not been inclined to dispute contest results because on that which the judging has been based there has been seldom any unfair advantage. However, if someone could win because of points for someone else's model-building, the attitude could be expected to change radically.

"Do you agree? Is this thinking on the right track? How about putting in your two cents worth on the subject. AMA will be considering this approach and your comments may help decide which way we will go. Write to your district R/C Contest Board member (address in AMA rule book)."

* * *

Have to get the record straight, the article on the Engine Collectors Association in the Jan. '64 issue was written a while back and some changes have since been made. Joe Wagner, because of ill health, has dropped out of MECA and Allan Shively, 1100 North A, Lompoc, California, is re-organizing the Association at this time. Tim Dannels of 3176 West 8th Ave., Denver 4, Colorado, is publishing the MECA Journal, two issues so far and as of the moment there are no formal officers for the organization. We are beholden to both Jerry Burk of Arlington, Texas and Tim Dannels for this information and hope that we have the MECA back on the right track.

Speaking off the record, we would like Thomas Bajo to send his address so we can give him the information he is seeking.

J. Clark and Eva Cusick, better known as Mr. and Mrs., have cleared the record for us as requested in our caption at the upper right hand corner of page 13 of our November '63 issue. A quote from their letter, "... We were very surprised and happy to see our picture in the November issue. This was our first Nats and we competed in eight events. During the week of competition, we celebrated our first wedding anniversary. We couldn't have spent it in a better or more wonderful or exciting way. We had a ball! My wife Eva is from Hungary and is a very good mechanic. Without her help and understanding patience it would have been a disastrous week."

The reason we both chased the model after launch was because I accidentally doused the D/T fuse on the launch. We chased the plane about six miles (by auto) before giving up."

Hope to see these good folks celebrating their second anniversary at the Dallas whing-ding.

For those who don't have everything and those who do—two very fine catalogs came over our desk this month. Bernie Winston of America's Hobby Center sent us a copy of their latest bulletin and like their many others this is just crammed with all the things that every modeler should have. The second is Ace R/C Inc. new catalog sent along by Paul Runge who thought we would like a look. Takes a lot more than a look to go through its many pages and what a mouth watering process this is.

* * *

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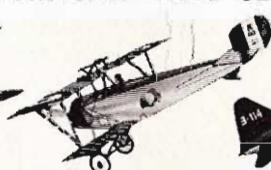
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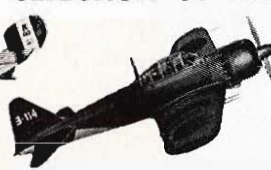
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