

MODEL BUILDER

JUNE 1975

volume 5, number 42

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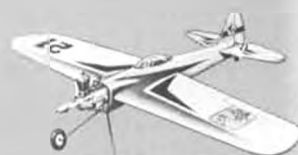
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You may use my name in supporting the premise of this organization. YES NO

Please include a separate letter with any additional suggestions or comments you may deem appropriate.

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JUNE

1975

volume 5, number 42

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Cover: The subjects here are so contrasty that one is at loss for a picture title. "Beauty and the Beast?", "Bonanza and the Bunny?", "The Square and the Round?" Anyway, there are vague similarities . . . both are tractor monoplanes with tricycle landing gear, one engine, one propeller, and both equipped with radio (costing \$150 for one, \$15,000 for the other!) . . . Oh, and by the way, when the Bonanza is sold, it too will become someone's toy! The "Square Hare" is featured as a construction article in this issue. The Bonanza belongs to Mission Beechcraft, Orange County Airport, Santa Ana, California. Ektachrome transparency by Taylor Collins.



from
**Bill
 Northrop's
 workbench**

• • •

Last month we stated in this column that we would not take up any more space on the decision by AMA's Executive Council (?) to put the organization in direct competition with the magazines which, up to now, voluntarily supported and promoted it. However, considering the unending clamor of dissension by the majority of the membership, which unfortunately has no control of the situation, we find it difficult . . . in fact, impossible to turn our backs on the affair and ignore it.

By now, you have read published comments by Walt Schroder, Don Dewey, and quite possibly Don McGovern or Harold Carstens. Although we have been labeled by AMA as representing



National Free Flight Society Executive Director, Hardy Broderson (left), congratulates Joe Mekina, Jr., age 17, who was presented with the 1975 NFFS Scholarship Award during the Toledo Weak Signals Trade Show. The \$600 scholarship was awarded on the basis of scholastic excellence and on free flight competition performance. Joe won over 60 trophies, including 8 at the Nationals, during the 1974 competition season. He will use the scholarship money to major in (what else?) aeronautical engineering at the University of Cincinnati. Joe Sr. is at right.

the "sour grapes" side of the argument, keep in mind that if you didn't see it in our magazines, you'd never really know there was another side. It certainly wouldn't be published by AMA!

Representative of the dictatorial type of thinking that's coming from Headquarters, the kind of thinking that could split the hobby in two and weaken it, is the following statement in a recent progress report on the Model Aviation magazine:

"When the first issue is off [the] press we are going to send you a copy so you will get the same feeling of pride as AMA's membership *when they see who AMA's friends really are through their advertising in Model Aviation.*" (The italics are ours.)

Can you believe it? Big Brother is scowling at all of you who are not on "The List!" Better start advertising so you'll get on "The List," and become a "real friend" of Big Brother.

* * *

Somewhere in this issue you will find a survey form which is being published

by us bad guy model magazines: R/C Modeler, Model Airplane News, Flying Models, and Model Builder. It hints at the possibility of a new organization being formed to take AMA's place and asks the readers if they feel this is the best way to go. Frankly, none of us really want this. It means hiring a paid work force, buying office machinery, obtaining a place to put all of it, and then trying to blend it all together into a smooth functioning organization . . . no easy task.

On the other hand, if the survey shows that the majority of active modelers want such a new organization, then the attempt must be made.

No need to tear out the coupon. Write to "U.S. Aeromodelers" care of the magazine, and let us know your thoughts.

"YES DEAR"

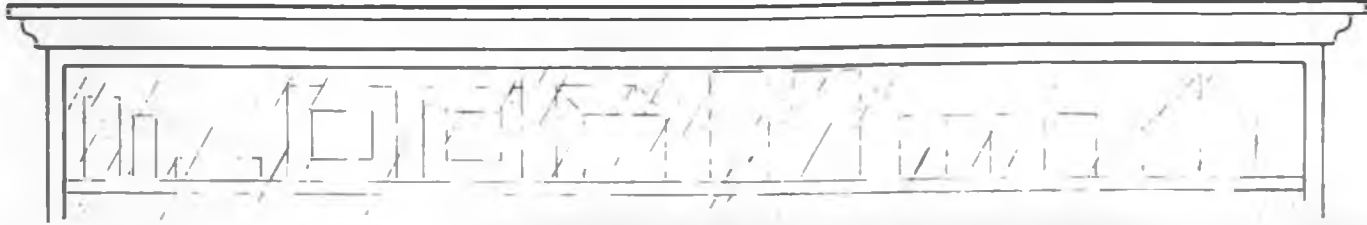
On page 15 of this issue, you'll find a pleasing dissertation by Char Rohring, of St. Joseph, Michigan. The wife of modeler Bill Rohring, Char's contribu-

Continued on page 66



Biplanes lined up and waiting for the third annual National R/C Multiwing Championships in Omaha, Nebraska, July 12 and 13. From left to right, and from new to old: 1973 Hiper Bipe, 1972 EAA Acro Sport, 1966 Liberty Sport, 1935 PT-17, 1934 Tiger Moth, 1933 Gere Sport, 1929 American Eagle, 1923 Sperry Messenger, 1917 Fokker DR 1, and 1915 Nieuport 17. Photo by Larry Quigley.

OVER THE COUNTER



Interested in a gorgeous scale model? Lenco Products, 219 First St., Buchanan, N.Y., 10511, is producing a 1-5/8 inch scale model of the classic staggerwing Beechcraft biplane. With a span of 55 inches, area 1000 sq. in., and weight of 8 pounds, the .61 powered model can be used for Scale, Sport Scale, and Sport Pattern. The kit features fiberglass fuselage, cowl and tailcone; foam cores for wings, stabilizer and rudder; special aluminum motor mount; landing gear hardware; control hardware; leading and trailing edge stock; and all former plywood. Price is \$89.95.

* * *

Scott Research, makers of an adjustable tow hook for thermal gliders, now offers a ballast holder for gliders or power ships. Consisting of a molded base and two mounting screws, the unit also contains a long threaded stud upon which lead ballast is secured with the wing nut provided. This device should come in handy for contests with a racing task, where extra ballast, if added, must be installed inside the fuselage . . . securely.

* * *



R/C scale Staggerwing Beechcraft, by Lenco. Scale is 1-5/8", span 55 inches.

Latest polypropylene glue gun tips by Peyton Products, made to fit over most tube or bottle type glue containers, is even better than the already popular first model. Coming to a finer point and with about a 100° bend in the stem, the new unit, still at 3 for 99 cents, offers even better control of glue application. Send order to Box 6423, Orange, California 92667 if your dealer doesn't have 'em, they're really handy.

* * *

The Ka-6E is back! The R/C glider originally designed and produced by Gerry Nelson is back in production, by Grainger's Hobby Products, 5480 Del Oro Drive, San Jose, CA. 95124.

For those who aren't aware, this 12 foot close-to-scale glider is very unusual both in specifications and performance. The entire glider is made of molded fiberglass and foam sandwich material which is extremely rugged. As such, the plane is almost ready to fly as received since push rods come connected to surfaces, ready for radio.

The weight runs 10 to 11 pounds, and with an area of 1080, the loading comes to the 22 to 24 ounce range. Glide speed is obviously fast, but sink is very reasonable as the airfoil is work-



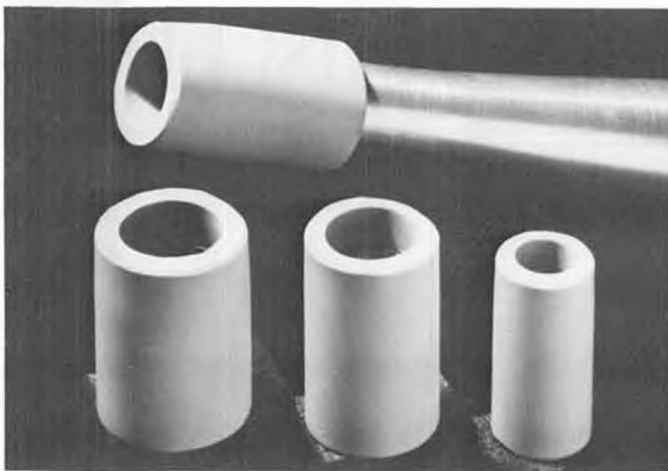
Newest Peyton Products glue gun tip; puts it where you want it.



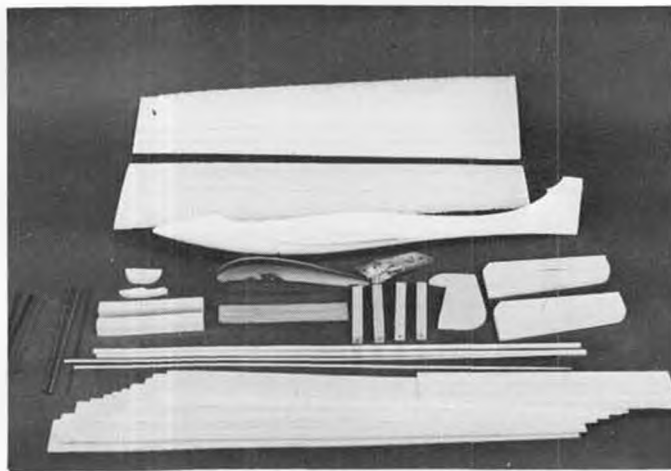
Kelly Products fiberglass props for racing and sport.



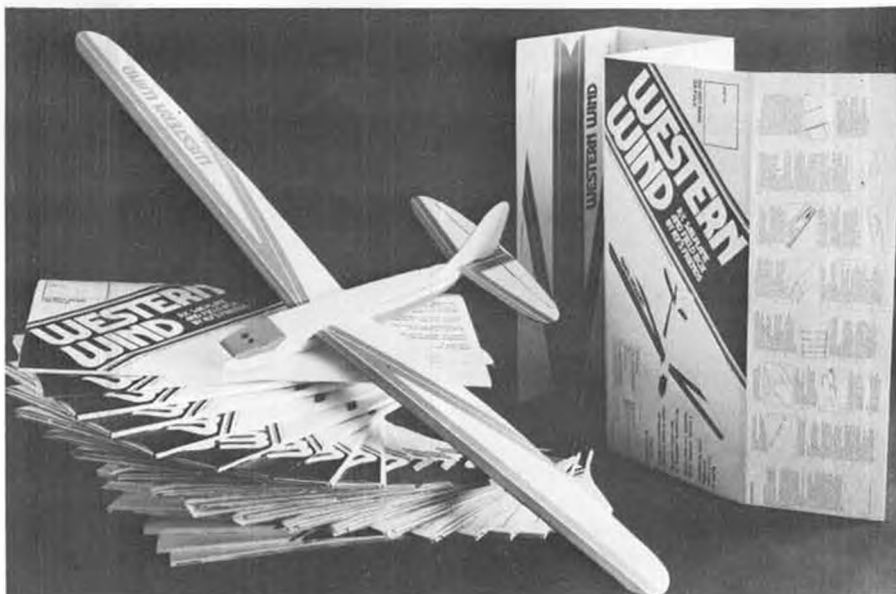
Airborne ballast holder by Scott Research.



Tuned pipe couplers from Marine Specialties.



T&H Enterprises "Hijacker" R/C aerobatic slope soarer. Will be subject of "Product\$ in USe" article.



All cardboard R/C sailplane by Jef's Friends. Span is 64 inches.

ing a more efficient speed range. Price is \$249.50 F.O.B. Los Gatos, California. A similar model of the Kestrel will be announced soon.

* * *

A glider which we are looking forward to flying, is the Hijacker Slope Soarer, produced by T&H Enterprises, 7025 N. Stevens, Spokane, Wash. 99208. This model features a white gel coat fiberglass fuselage, sheet balsa covered foam

wing cores, full length strip ailerons, sheet balsa tail surfaces, and molded canopy. Price is \$59.95.

The ship is a low wing design with a 72 inch span and an approximate loading of 10 ounces. The airfoil is an 8% symmetrical at the root transitioning to a Clark Y at the tip. As such the model requires at least a 5 mph slope wind, and performs best at 15 to 20. The low wing configuration can be a bit difficult

for hand launching, but once the pilot is checked out, inverted launches will be found easier! Though tests must wait until we have finished construction, we suspect that the Hijacker might fly in lower winds by drooping the ailerons somewhat. Performance might suffer, but if it's the only glider you happen to have at the moment . . .

* * *

Shamrock Competition Imports, P.O. Box 26247, New Orleans, La. 70126, will soon have a new Japanese .15 engine available. The HGK-15 is Schnuerle ported, has rear intake and exhaust convertible to front (!), precision block aluminum cylinder chrome plated, and double ball bearings. Are you ready? Maximum revolutions, with pipe, are claimed to be 30 to 38 grand! Also to come will be an R/C version (Look out, QM!) and a non-pipe ported version for free flight (Look out, Rossi!).

* * *

Long-time, and well known modeler Ben Shershaw (Custom Cavalier, Bantam Engine, etc.), Bantam Precision Products, Inc., 14 Munson Dr., Pompton Plains, N.J. 07444, has done it again! This time, it's a who'd-a-thunk-it glow plug. The center terminal, or post, has a hole going right down through the middle of it, into the coil chamber. Somewhere along the way, a tiny one-way ball-valve seals the passage during the compression stroke of the engine.



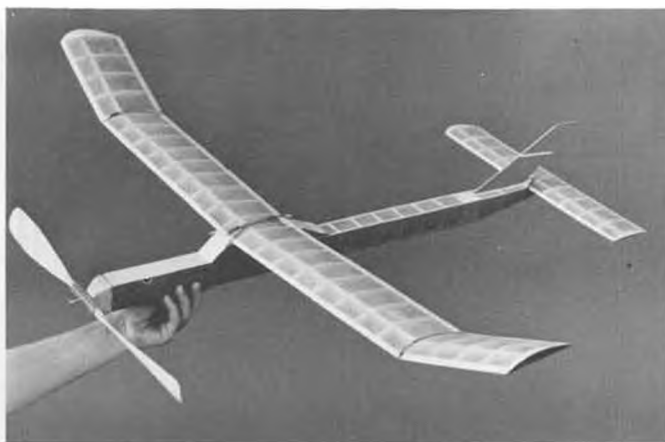
New glow plug by Bantam Precision Products. Has ball valve in center element.



HGK 15 is new import from Japan, available from Shamrock Competition Imports. Piped, unpiped, and R/C versions are expected. Watch for early review by Jed Kusik.



Highly prefabricated Coupe/Unlimited rubber model kit by Tyro. The ARF comes to F/F!



Completed Tyro-Combo rubber model. Verticals and cross-pieces are pre-cut. Front end assembly comes complete.

Primarily, this hole through the center element provides a means of direct priming to the cylinder head. A by-product of the device is that the valve tends to open up during down-stroke when the engine is throttled down to low RPM, thus dropping the compression and producing an even lower idle!

The coil chamber is of much larger diameter than normal, which in turn permits the use of a larger diameter coil element, thus helping to avoid fouling from accumulated residue.

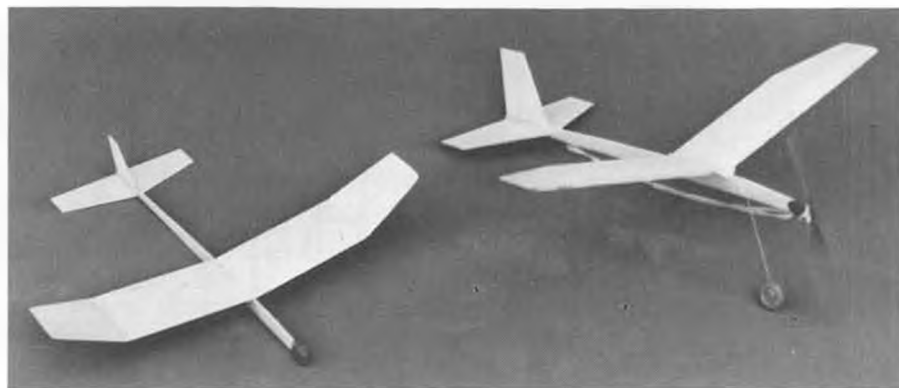
This really new plug, available about the time of publication, is to sell for about \$2.00 each. Longs, shorts, and idle-bar versions will be made.

* * *

Another proof that handy items come in small packages: JCM Specialties, Box 194, Addison, Ill. 60101, is packaging small nylon molded tubing 90° elbows with raised collars at each end, 4 for 95 cents. They're just the thing for running fuel line around a sharp corner without kinking.

* * *

Handy item for the scratch builder is See Temp. This is a .015 thick frosted finish plastic. Lay it over plans and either trace parts and then cut, or merely trace over the plans with an uber Skiver (what else?). Don't even try to cut all the way through, just scribe the pattern into the material. Now you can break out the template quite easily, or cut with scissors. Try a 21-1/2 by 51-1/2



Tyro Glider and Tyro Racer. Both are highly prefabbed, but are also sound designs.

inch sheet for \$3.95 postpaid from See Temp, P.O. Box 576, Menomonee Falls, WI. 53051.

Ever hear of a kit box that measured 15-1/2 inches by 33 inches by 5/8 of an inch? No, it's not one that the Post Office went to work on and it's unusual in another way too. The kit box is the kit . . . that is to say, the kit is the box . . .

Let's try it this way. Jef's Friends, P.O. Box 511, Brisbane, California 94005, is producing an all-cardboard R/C sailplane. The span is 64 inches, the wing area is 330 sq. in., and the weight without radio is 15 ounces. All of the parts are made of 200 pound test B flute corrugated cardboard which has a No. 1 white finish on both sides. The parts are also printed and decorated on

one side (in blue, green, or black) and are partially die-cut so they remain in the one large sheet which is 33 by 70 inches in size. The cardboard (with flutes going the 33 inch direction) is then folded four times until it is 15-1/2 x 33 x 5/8 inches . . . Get it? And why not . . . it's only \$12.95.

Showing signs of having had previous experience with our friends from the Rural Free Crushing and Bending Department, the manufacturer of the glider, called "Western Wind," has also included die-cuts for a small field box. This unit is incorporated into the outer layers of the kit . . . er, box . . . (kit/-box?), thus offering additional protection for the glider parts wrapped inside.

In addition to a radio system, the

Continued on page 74



Fuel tubing elbow by JCM Specialties, eliminates kinks in lines.



Excellent performing Pulsar biplane by Cass Engineering.



Joseph's Coat had nothing on the author's "Square Hare!" The moral of the story is: Save all your Monokote scraps and sooner or later you'll have a free covering job . . . if you can stand it! All major parts of model can be marked directly on wood with ruler and ball-point pen.

the SQUARE HARE

Back in the days when "Trainers" were *really* trainers, many an R/C flying field was overrun with "Rectangular Rabbits." If it could handle "Galloping Ghost", it's a cinch with modern propo. By BILL NORTHROP

In days of old
When R/Cers were bold,
'Cause proportional had not been
invented,
There were many bashes . . .
And terminal crashes . . .
But the pilots were most always
contented.

The "Square Hare" dates back to those days of old. It was designed and built in 1961, and published in the September 1962 issue of what was then

called American Modeler. In the same issue, there were ads for Space Control and Command Control; two analog proportional radio systems . . . The first and somewhat unreliable proportional rigs available to the hobbyist. Prior to those systems, there was Walt Good's TTPW (Two Tone Pulse Width . . . also referred to as "Too Tough to Piddle With"), pulse rudder, and "Galloping Ghost." Everything else was escapements and reed multi systems.

In that age, single channel was the dominant radio control system for the average modeler. Various actuating systems were individually developed by experimenters who attempted to get more than one control from a single channel. Actuated by the radio's relay, rubber band powered escapements were the most common and manufactured item in use. Actuated by a push-button on the transmitter, there were simple sequential escapements that gave you alternating right and left rudder, there were compound escapements that gave you selective right or left rudder, and there were escapements that would allow you to select right or left rudder and up or down elevator . . . but only one at a time. Talk to an old timer about the fascinating challenge of radio control flying in the "good old days."

Early pulse rudder systems employed magnetic actuators or electric motors. A pulse box of some type or another was connected to the transmitter, and used to send pulsing on-and-off signals to the receiver, which in turn caused the receiver's relay to pulse. By wiring the actuator through the relay contact points and a separate set of batteries, one could make the actuator pulse back and forth. Connected to the rudder by a torque rod and crank system, the actuator would cause the rudder to constantly wag back and forth.

In the air, provided the rudder was pulsing fast enough (and it usually was), the airplane merely flew straight ahead not reacting to the continual wiggling. When a turn was desired, the flyer



How's that for an accessible fuel tank? Enya .19 is more than adequate power for the "Boxy Bunny." Ground control is sufficient without the need to rig a steerable nose wheel.

pushed one of two buttons on the control box which gave either a full "on" or full "off" signal to the receiver, resulting in a fully locked right or left rudder. By skillfully playing the buttons, a variety of maneuvers could be accomplished.

The next step was to have a pulse box in which the pulses could be varied from 50% "on" and 50% "off" to 60-40, or 65-35, or 70-30, and so on. This was fairly easily accomplished by many experimenters (you didn't have to be an electronics genius, just a mechanically inclined modeler) and resulted in a stick controlled rudder that could give you a *proportional* amount of turn instead of "all or nothing."

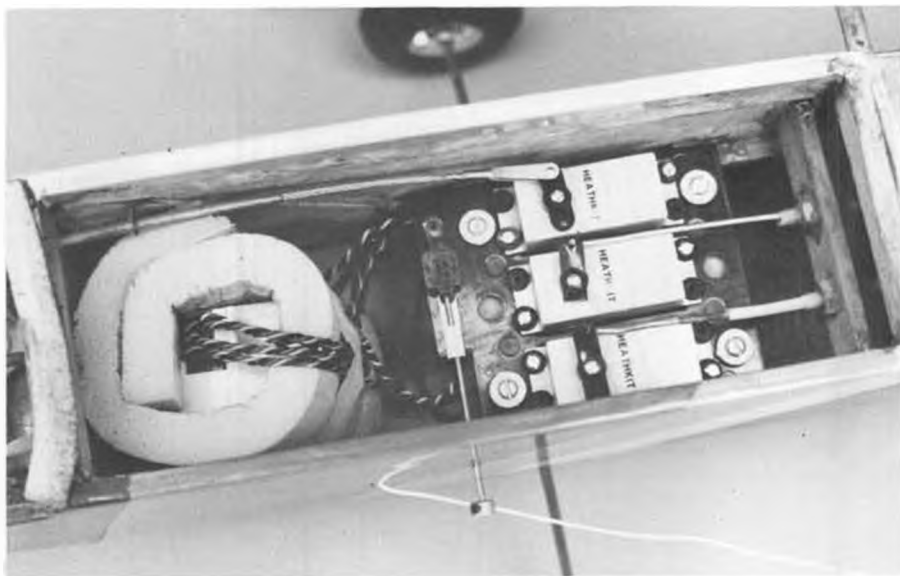
Then came "Gallop Ghost." This term referred to single channel pulsing systems as described above, except that now, the *speed* of the pulse could be varied as well as the time on or off. As a result, elevator control, though slightly interacting with the rudder, could be had. A characteristic of this system, which would require diagrams and photos to describe (even when you saw one in action, it was hard to believe!) was that in "up" elevator the system was pulsing at its slowest rate. Consequently the plane *did* react to the deflecting surfaces, resulting in a galloping flight path. Nevertheless, it was cheap proportional.

We hope you'll pardon the above brief portion of R/C history, but the Square Hare was developed for pulse rudder and/or Gallop Ghost, and as such, fits well into the requirements for a beginner using today's reliable 3-channel systems. Designed to withstand the rigors of experimentation and the less reliable radios of an earlier era, it will now help the beginner through his indoctrination into the great hobby of R/C flying.

The "Rectangular Rabbit" was designed around common stock sizes of balsa and plywood. In fact, except for occasional reference, and tracing of a few parts, it can be built without the plans. The first duplicate of the "Boxy Bunny" was built by a modeler who jotted down a few basic measurements on a piece of paper during a Saturday afternoon flying session. He came back the following weekend with the completed model, his first R/C ship!

It's a bit much to brag about one's design, but we have talked to a multitude of modelers over the years since the Hare was first published, and it's surprising how many had cut their R/C teeth on one. The most recent Rectangular Rabbit reminiscing took place at the Seattle WRAMS trade show when we met a Canadian modeler who told of his "Hare" raising experiences some years ago.

The ship is extremely rugged, yet light (an even 3 pounds, ready to fly), is inherently stable, and can be flown at moderate speeds throughout the modeler's early flight training. For this peri-



The author's Square Hare has been the test bed for many different R/C systems. Here it carries the Heathkit GDA-1057 receiver and 3 sub-miniature servos. Internal switch stays clean.

od, it is also advisable to move the balance point about 3/8 of an inch ahead of the mark shown and use minimum control surface movement. Once the flier has gained confidence, move the balance point back, increase control sensitivity, open up the throttle, and watch out! Wanna do a 2-1/2 turn snap roll followed by a spin... in either direction? Get some altitude, pull the nose up, then slap the stick into either back corner of the box.

Engine size can vary from .15's to .29's. For the beginner, a throttled back .19 is more than adequate. Our Enya 19 R/C gives a good range of power. A .29 gets you into the "bomb" category, but then, some R/Cers prefer to "aim" their aircraft rather than fly them.

Since Square Hare may appeal to the completely raw beginner in modeling, as well as to the newcomer to R/C, we'll try to be fairly detailed in build-

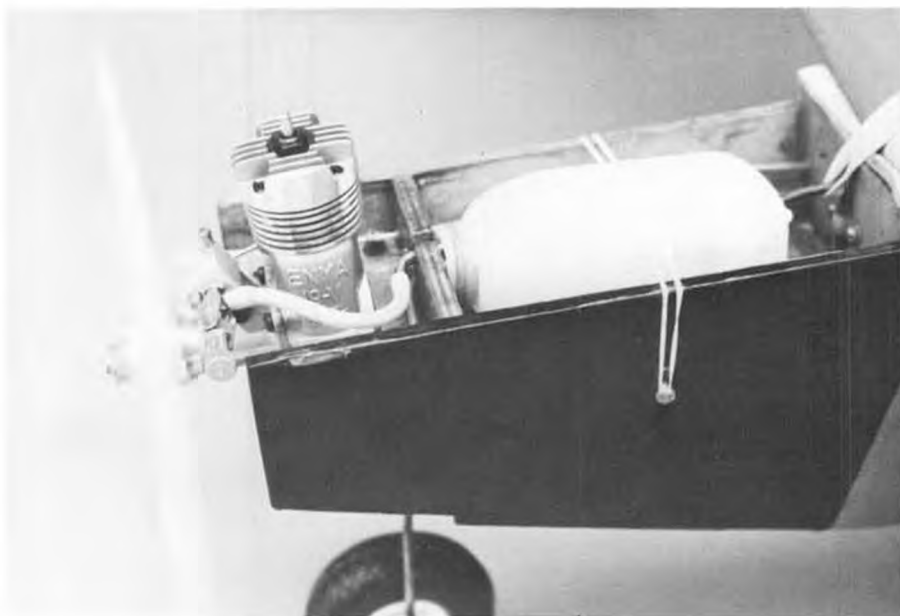
ing instructions. The full size plans show actual shapes and sizes of parts, however, being true to its name, the major parts for "Boxy Bunny" can be marked out directly on the wood itself, with no need for cutting up the plans, or making meticulous tracings. Get yourself a ruler, a small carpenter's square or drafting triangle, a soft pencil or ball point pen, and you're in business.

Read the instructions through before beginning actual construction.

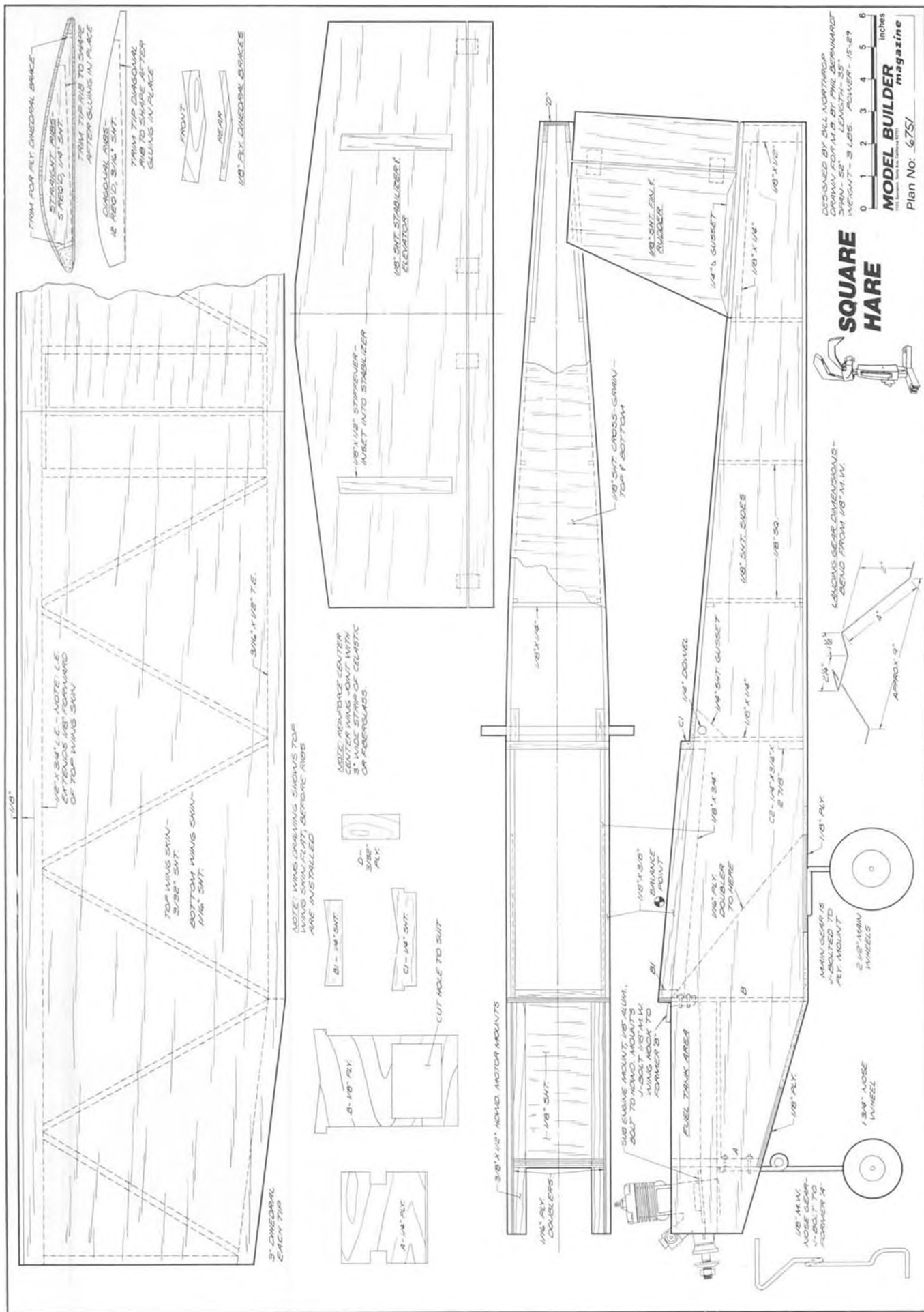
FUSELAGE

Select two straight, fairly firm 1/8 x 4 x 36 inch sheets of balsa for the sides. Usually, if you pull two sheets right next to each other from the dealer's rack, they will be from the same log and have the same texture and bending strength. This will help in keeping things square(!) when bending the sides toward each other at the tail post.

Now, using the carpenter's square,



Engine mounts on removable plate, making it easy to service and make thrust adjustments. In the days of questionable radio reliability, a breakaway phenolic plate was used instead of metal.



ruler, and your favorite marking device, carefully lay out two *opposite* body sizes. Draw in bulkhead positions, verticals, doublers, and motor mount beams. Cut the sides to shape and match the sides back-to-back, checking all markings for accuracy. (Remember that old saying "An ounce of prevention is worth a pound of cure." . . . An we *do* want to keep it light, don't we?)

Using a fuselage side as a pattern, cut two nose doublers from 1/16 ply, and glue in place, using contact cement or epoxy. If you decide to use white glue, be sure to moisten the opposite sides of the mating pieces to equalize curling. Unless you've got X-ray eyes, you'll want to re-mark the location of Bulkheads A and B, and the motor mount beams.

Now it's time to glue in the maple motor bearers, vertical stiffeners, stabilizer mounting doublers, dowel gussets, and 1/8 x 1/2 tail post stiffeners. Tite-bond or Wilhold will do for these.

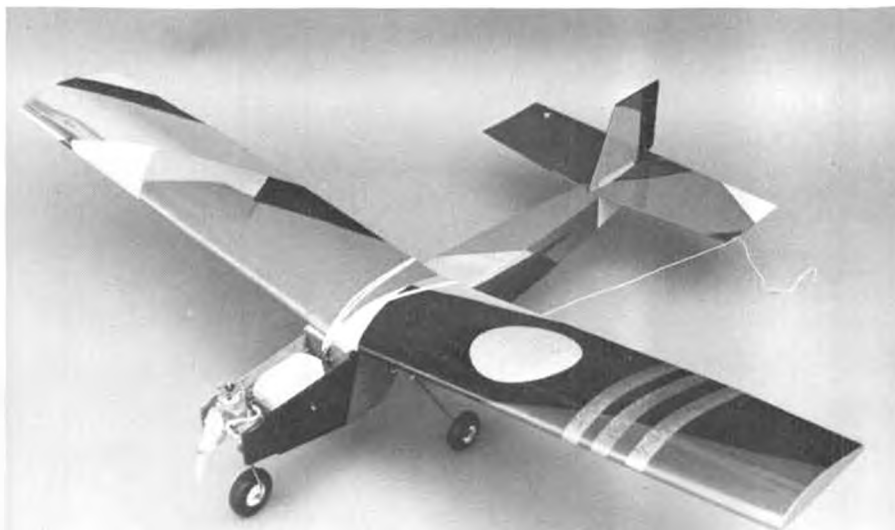
The next step is of primary importance in getting a properly aligned fuselage. Make up the 1/8 inch sheet balsa tank floor which fits under the motor mount beams. All four corners must be exactly 90 degrees. Now assemble and glue the two sides, the tank floor, and bulkheads A, B, C-1, and C-2. Grab a couple of pencils, lay them on the fuselage sides, even with Bulkhead A, and wind rubber bands across top and bottom so they clamp the fuselage tightly together at this point. (Told you to read through the instructions first. Did you have those pencils, or Kraft-Hayes clamps in a handy position?). Repeat clamping at locations B and C. Check for squareness (This thing isn't called a "Rectangular Rabbit" for nothin'!), by making sure the ends line up when pulled together at the tail. If they don't, now is the time to give the fuselage a "calculated twist" to bring it into alignment.

Add the 3/32 plywood end plate 'D' which keys into the notches formed by the sides and the 1/8 x 1/2 verticals at the tail. As a last step before setting the fuselage aside to dry, insert the 1/8 x 1/4 cross pieces at the first station behind 'C.' This pulls the aft section of the fuselage into its final shape. No more cross pieces are needed. The cross-grain planking will stiffen the fuselage, when added.

Speaking of cross-grain planking, when the above assembly is dry, you can plank the bottom, starting at the rear and working forward. When you get to the 1/8 ply main landing gear floor, now is the hour to tackle the bending of the 1/8 inch diameter music wire main gear.

Don't flinch . . . A sturdy workshop vise, a pair of vise-grip pliers, a well positioned tongue between gritted teeth, and you'll have that landing gear in no time. The secret is to start from the

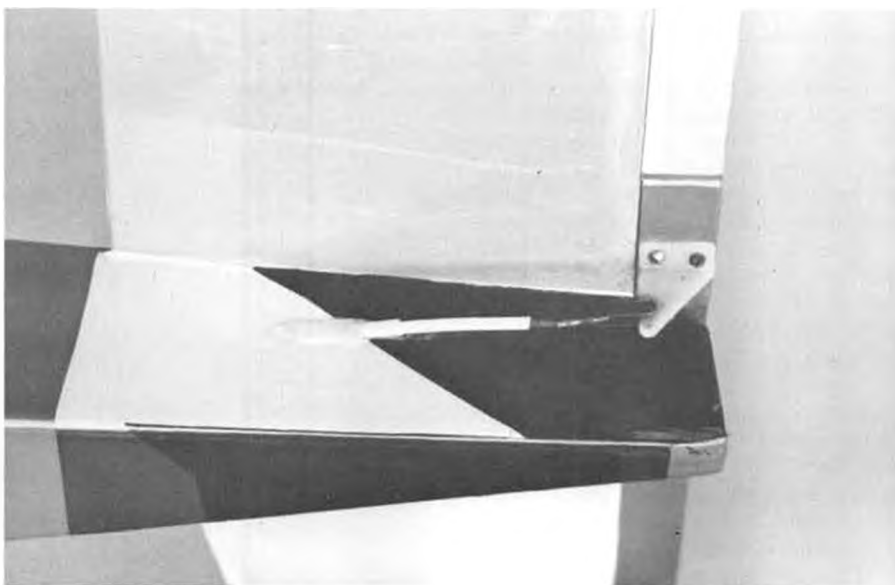
Continued on page 70



The all-sheet wing is extremely rugged and warp-proof. It is built from the top down, and has built-in washout to prevent tip stalling. There is no spar, but a large leading edge and diag. ribs.



All-sheet tail surfaces glue directly onto fuselage. Run control tubing before final assembly. Considering usual nose-heaviness before trimming, 3/16 rather than 1/8 sheet could be used for tail.



This particular Hare had been completely assembled before controls were installed, so epoxy on outer control tube had to be put on outside. Apparent small elevator is more than enough!



Fantastic flying scale (1:35) model of the Graf Zeppelin, is 22 feet long, 3 feet in diameter, powered by 5 electric motors, and flies at about 12 mph. Photos and information sent to us by Emil Giezendanner, Switzerland, where the dirigible was built and is flown.

'REMOTELY SPEAKING...'

R/C News, by BILL NORTROP

The Toledo Trade Show was bigger and better than ever this year. Taylor Collins describes it elsewhere in this issue. To those who came to Toledo from any distance, however, the show was almost anti-climactic.

A large number of us were scheduled to leave Los Angeles at 7:50 AM and change flights at Chicago for the second lap to Toledo. However, Nature had other ideas, and the trip could have been a typical nightmare... the one where you keep trying to accomplish a simple task and something always happens to prevent it. "Could have" because the personnel of United Airlines acted as if the snow was their fault, and did everything possible to help.

As we were driving to LAX, the radio told us about Chicago... snowed in since the night before. When we checked in at the airport, it was confirmed. Go get some breakfast, the flight will load at 8:30.

And it did, but then we sat in the plane at LAX until 11:30. Like the pilot said, "Ain't no use of us taking off 'till we know we can land!" Rules didn't allow opening the little bottles until after takeoff... Pity.

When we arrived at Chicago, they were still chasing snowflakes, so we flew a holding pattern for one and half hours!

And upon landing at O'Hare, the fourth plane down, the flight which had been scheduled to leave LAX at 10:30 had landed a few minutes before us! Also, when we landed, there were no little bottles left, the hostesses had *given* them all to us while we flew the pattern... and free of charge. As the wheels touched down, a rousing cheer went up from all the passengers, and as it subsided, Carl Maas called out in a loud voice, "Welcome to Miami!"

So now the fun really began. We had



Andres Gasser (!), builder of the Zeppelin, checks the air pump and fin controls.



With nothing to produce scale effect, the huge model looks absolutely full size in this flight photo. It's covered with metalized plastic.



Believe it or not, this is just a portion of the display area in the huge Toledo Sports Arena, and all of it just as crowded, during all of the open hours. Another hall, with almost as much floor space, was completely filled with exhibitors' booths and the Swap Shop.

finally gotten down in Chicago, but nothing was going out! The snowstorm had moved East and clobbered everything along the way. Even if there was an open airport to go to, there were no airplanes to fly there!

By now it was around 9 PM Chicago time. The hotels were loaded with stranded travelers. The charter bus companies would talk to us tomorrow morning, but couldn't promise anything. The car rental outfits were either out of cars or refused to permit cars to leave the Chicago area (knowingly). Joe Bridi, Lou Stanley, Pat Crews, and Dick Tichner got the last rental car and took off for a six hour driving trip to Toledo.

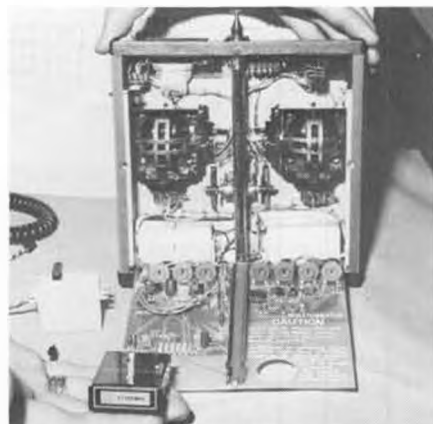
The rest of us started looking for spots to sleep in the various gate waiting areas.

Then along came Sal Luna . . .

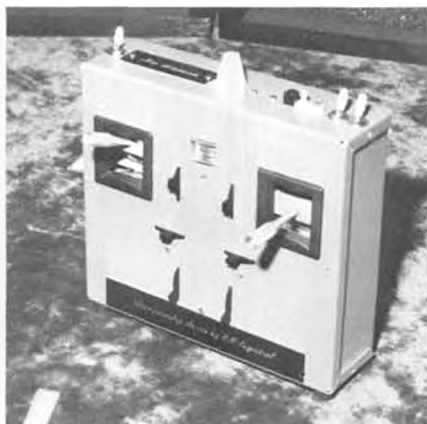
Sal's title is Passenger Service Super-



Surrounded by some of the grateful Toledo-bound (and much delayed) passengers, is hero-of-the-day, United Airlines' Passenger Service Supervisor in Chicago, Sal Luna (only guy in a tie).



Heathkit's new GDA-1205 radio has instant-change frequencies . . . in all bands!



EK Logitrol Championship Series, another of the super radios for super prices.



Orbit's super radio, the Elite, sells for 1 grand, has digital display with selectable information.



Glen Sigafoose at the helm of the Sig Mfg. Co. booth.



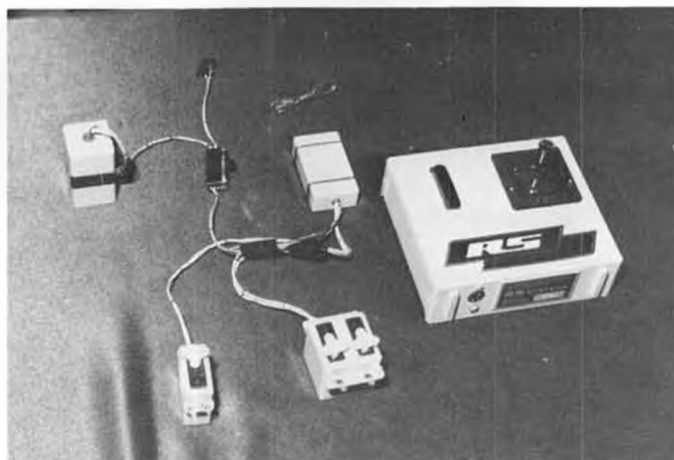
Hugh Stock (lt) and Le Gray spent the whole weekend "Zapping" a balsa tree together!



Al Strickland at the Kavan booth, showing the new Alouette helicopter.



Power boaters must spend as much time on the finish as they do on the construction of these beauties. A rapidly growing sport/hobby.



The popular new RS20 is now available with a third channel. Not long ago, there were R/C receivers almost as big as that transmitter!

visor. That night he became an angel of mercy. It all started when he walked up to a couple of us and asked, "How many of you are going to the Toledo Trade show thing?" Before long he had a count exceeding 70.

"Maybe we can get you a plane. I'll see what I can do. It'll take about 15 or 20 minutes. Problem is, if we announce that we have one for you, this mob is going to raise hell."

It was agreed that if a plane was to be had, the P.A. system would announce that Anita Northrop and the "Model Builder party" were to report to gate

so-and-so. How's that for sneaky publicity?

Well, sure enough, the announcement came. We were getting out of there soon . . .

But not *that* soon.

Sal had rounded up a 737 that was originally scheduled to fly to South Bend, Indiana, the next morning. Not getting a complete story, the ground crew fueled the Boeing for the longer trip to South Bend. Unfortunately, the Toledo-bound gang, with all their luggage and display junk, was too heavy. That, along with the below-freezing air, meant

that the 737's takeoff run would take it into downtown Chicago before it could get off the ground . . . so they had to go back and *pump out* 2,000 gallons of fuel!

Finally, about 10:30 Chicago time, a totally unscheduled United Boeing 737 took off for Toledo with the noisiest, rowdiest, slap-happiest, worn outest bunch of characters imaginable. Undoubtedly, the eight or ten "civilian" passengers who managed to get on the same plane are still talking about that trip. The steward (yes, he was a steward)

Continued on page 75



Panavise's John Hart (lt) found there was a lot of interest in the swivel headed vise.



Rod "Strictly Sail" Carr was among many R/C sailboat exhibitors at the trade show.



You can't say that Lee Renaud's Airtronics doesn't offer a variety of model aircraft.



Rudy Cerny, Czechoslovakia, holds all sheet balsa Piper Vagabond while his daughter does the winding job. Photo by Otakar Saffek.



Hazel Sigafosse, always on the modeling scene, presents trophy and Sig kit to Top Flite's Dan Santich. Dan said he'd built it!

FOR Ms ONLY

Guys, if you complain about the gals invading "our" magazine, then you don't know which side your bread is buttered on! Gals, if you have something to say about modeling, tell it to CHAR ROHRING . . . c/o MB.

Now that you've opened this magazine and started to leaf through it, you're relieved it isn't a girlie book. Right? The cover could fool almost anybody (*C'mon, Char, not us! wcn*).

Was your first impression utter disbelief? How could anybody spend hours reading decimal numbers and blueprints.

This magazine in your home is the first sign; your man is probably infected.

Let me help you. I'm the motherly type and a school teacher by trade. I love to give advice. I've had the experience. I've watched my husband go through all the stages; Idle Observer and Discusser, Timid Builder and Reticent Flyer, Advanced Flyer and Rationalizing Crasher . . . and, finally, Mad Modeler Fiend and President of the Club. The next stages I wait for with wonder, and

the check book in a new hiding place.

First I will tell you how to handle several sticky problems. Our object here is to keep the channels of communication open and save the friendship. Soon he will go flying with his first plane. His little friends will be waiting, transmitters in hand, and it's best if you insist he go without you and just have a good time. Before long you will have a telephone call from him. Don't mistake his blubbers and sobs to be expressions of love. He is having a traumatic moment and you should not think that his frequent mention of "dorking in" has anything to do with meeting him for a late supper at a new roadhouse. He has crashed. Tell him to pick up the pieces, and then meet him at the door.

By now he will know it was "power

failure," and he will dash past you to his magazine and show you a picture of the kit he will now build. Three feet more wing span, bigger engine, keener details, and only a little more money than the one already forgotten in the basket at your feet. At this point it's time to think about the "better-than-bowling and drinking-with-the-boys" bit that I'm sure you have already figured out.

Now I'm sure you know that R/C doesn't stand for Rather Childish or Really Comical as I did at one time in young womanhood. You know that the Nats isn't a new spelling for that little tiny fly. You have learned that the only good calm air for flying coincides exactly with the Sunday afternoons you set aside to entertain your parents. Your

Continued on page 81



This hard working contest tabulator was Judy Mead when caption was typed, but will be Mrs. Jim Scarborough when this is published!



The much better looking half of the Craft-Air team, Marie Williams. Tom's wife is with him at all of the trade shows. Knows the line.



Buford Gross demonstrates wing warping control on "Best of Show" winner, his model of the Wright biplane.



MODEL BUILDER's General Manager, Anita Northrop, congratulates Buford Gross. She couldn't talk him out of the silver tea set!

TOLEDO 1975

By TAYLOR COLLINS

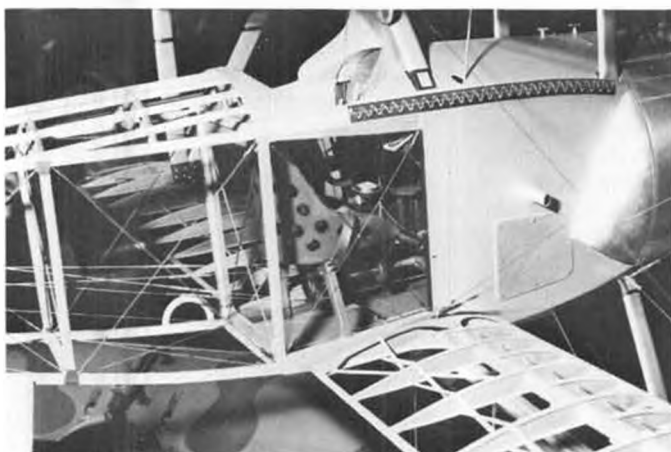
PHOTOS BY AUTHOR

The word "Toledo" has, in recent years, become synonymous with the latest, the greatest, the newest and the bestest for the R/C modeler. The annual Radio Control Conference, hosted by the Toledo Weak Signals Club, is the big daddy of all model aircraft trade shows, both to manufacturers and to the mod-

elers themselves. Manufacturers wait for the conference to show their latest products, and modelers work for months and even years in advance to compete for the coveted silver bowls which are awarded for the ultimate performance in the R/C model builder's art. (For a nutshell history of the Toledo show,

see the "Remotely Speaking" column in the March 1975 issue of MODEL BUILDER).

For the MODEL BUILDER staff members who attended, the journey to Toledo was a story in itself. Suffice it to say that the "Friendly Skies of United" were indeed friendly, but quite snowy



Close-up of beautifully detailed Proctor Nieuport 11, by John Werne of Talmadge, Ohio. Scale engine was built by Fulton Hungerford.



Paul Weigand's 1st place sailplane, Lamreht 2000 (That's "thermal" spelled backward). He's from Rochester, N. Y.



Best Finish Award winners (l to r): Charles Kelley 3rd, Rocky Agostino 2nd, Jerry Worth, 1st place. Ann McFarlan, any place!



Junior Award winners (l to r): Kevin Pearson 3rd, Jerry Mientkiewicz 2nd, and Jeff Mrlik 1st. Jeff entered a Pitts S1A.



Marty Barry watches as Doug Spreng demonstrates the Signature Series Kraft radio.



Sterling's Ed Manulkin and the 3/8" scale Boeing B17G, for rubber or \$100 in CO₂'s!



The new Kraft Schnuerle ported R/C 60 engine. Double ball bearings.

... to the point where we nearly took up permanent residence at O'Hara International in Chicago. If it hadn't been for United's Passenger Service Supervisor, Mr. Sal Luna, we would probably still be camped in front of the flight information monitor. Mr. Luna somehow managed to get us on a plane out of Chicago, when nothing was flying but snowflakes. Thank you Mr. Luna!

The show itself was nothing short of incredible. The ice was melted off the hockey rink of the Toledo Goal Diggers,

and display tables were set up for the planes, boats, and cars to be judged. Surrounding the model display were manufacturers booths, and the adjoining huge hall was also jammed with displays of new products.

This appears to be the year of the "Super Radios," Kraft, Orbit, and E.K. were all showing their version of the ultimate control unit. Kraft's "Signature" model features adjustable servo throws, switch-controlled reversible servo travel, two-stage servo travel range,

and a digital readout testing unit to measure transmitter output, pulse width, and so forth. Orbit's "Elite" has ultra precise control stick and servo pots, to give a high degree of control resolution, as well as a multiple-use "liquid crystal" digital read-out panel, which indicates transmitter voltage, transmitter output, receiver voltage, and also has provision for use as an electronic stopwatch.

The E.K. Custom radio has provision for variable control rate, and hand-picked components for ultra smooth-



Dan Pruss in the LSF/NSS booth. New NSS logo appears at top of photo.



MODEL BUILDER and UNICOM robots meet to exchange literature.



Pro Line's Jim Fosgate gives the word to a steady stream of passing modelers.



Rhett Miller and Don Coleman in the Southern R/C Products booth. Canada's Ivan Kristensen, top FAI pattern flier, at far right.



"Do you believe what he said that fifth channel was for?!" RS's Carl Maes (lt) and Rex Thomas "explain" R/C to Ann McFarlan.



Stinson Flying Station Wagon, by Stephen Sauger, Troy, Michigan. Second in non-military scale. Adjustable seats and sprung door latch.



Luscombe Sedan by Joe Mientkiewicz. Has acrylic lacquer finish with complete rivet detail.



Pair of riverboats by Bob Cline, Huntington, Indiana. Natchez (It), won 2nd at Toledo.

ness and reliability. All of these units, of course, also carry a "super" price tag . . . but in this day and age, you get what you pay for.

RS Systems showed a new three channel version of their RS 20 miniature 2 channel. This is the tiniest transmitter presently available, barely more than a handful. Despite the small size, it has big performance features, including ni-

ckel cadmium.

Heath showed its new kit radio, called the Pack 17 series. Unlike some manufacturers that offer interchangeable crystals, Heath's system offers interchangeable R.F. circuitry, so that you can change to any frequency on ANY BAND. A small plug-in module slides into the top of the transmitter, and a similar one plugs onto the end of the receiver. With seventeen frequency choices available, you shouldn't ever have to wait to fly . . . for a price of course. The interchangeable modules will retail for \$17.95 each. You'll need one for the receiver and one for the transmitter.

This year will also be the year of the small, economy helicopter. Kavan, Graupner, Lark, and MRC (Schluter) all showed new, lightweight .19 powered choppers in the \$200 to \$250 price range that should appeal to a newcomer to rotorcraft flying.

Several manufacturers introduced new engines. Nelson Model Products introduced the Profi engine line from Germany. At present this Schnuerle ported engine is available in .40 and .60 sizes, with others to be introduced later. The machined cases and molded carburetor housings look amazingly like the much smaller Cox Tee-Dee models. Kraft showed its new .61, which has been in the mill for a long time. (They also donated Serial No. 100, the first engine



Bell 47G helicopter, by Graupner. Unique tail boom structure assembles in minutes.

to come off the production line, as a door prize. This is an instant collector's item!) K&B showed its new .21 outboard boat engine. This is ready to bolt onto the transom, a water cooled outboard which drives through the backplate. A large "spinner" sticks straight up, allowing use of a conventional electric starter.

New sailplanes on the market include



The Whing Ding II, by Frank Noll, Dayton, Ohio. Pilot of real plane won't suffer from a shortage of fresh air!



The Art Chester "Jeep", built by Henry Haffry, Vineland, N. J. The Jeep has been a long favorite of model builders.



First place award for Sport Biplanes went to Bob Buzash, North Canton, Ohio, for this modified Acro Star.



First and Second in Best Original Design went to Don Prentice and John Williams, for Derriere Mk I and Mk II.



Morane Saulnier A-1 by Ed Spinks, Schenectady, N. Y., built to one fourth scale. Prop is belt-driven by offset mounted engine. It flies!



Toledo Weak Signals' own Bob Hisey built this classic (and fat!) Gee-Bee R-1. Hey! Get your finger off that prop!

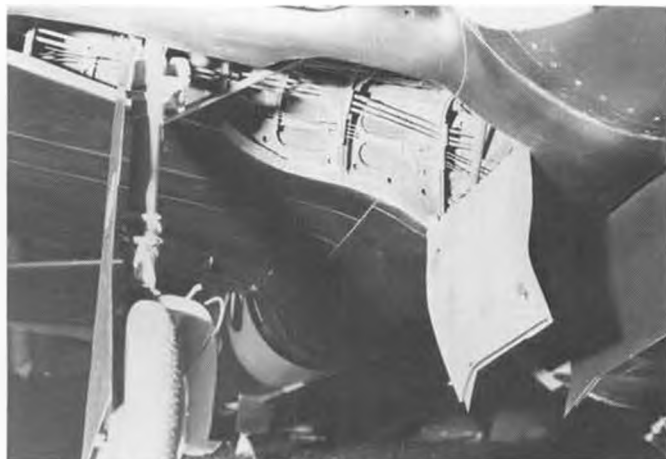
the Graupner Mosquito, with optional glow engine power pod, or built-in electric power (complete with folding prop, ala free flight rubber). As an added bonus, you can fly it off a winch or high start! GB Glass Products, of Canada, introduced a 112 inch span thermal soarer. The Chinook features a joined, gel-coated fiberglass fuselage and polyhedral wing. GB is also introducing a foam winged slope soarer appropriately named the Cutie Pie. Soarcraft Products showed its Magnum 12, which is a 12 foot span competition sailplane, com-

plete with spoilers. The spoilers use a plug-in type linkage connection which eliminates stringing cords through the fuselage. Just slide the wings on, as you would with any other sailplane, and the spoiler linkages are connected. Soarcraft also introduced a bargain priced cyanoacrylate adhesive which they market under the trade-name of Zap.

R/C car enthusiasts should be pleased with the variety of new products and companies that were shown at Toledo. The big news is probably the 1/12 scale electric cars, complete with transistor-

ized throttles! Electric Hobbies, Inc. showed a throttle unit which, unlike a rheostat, consumes very little power, and allows smooth speed control of the cars. These little racers allow silent, but exciting indoor racing. No mess, no fumes, no noise, lotsa fun!

Boaters, whether power, sail, or scale, were also treated to a large variety of new manufacturers and products. Marine Specialties Co. showed its new hardware items, including a complete double rudder outdrive assembly and flex cable drive assemblies. *Continued on page 76*



And still, Herb Lindsay, St. Paul Park, Minn., only placed third in military scale with his Grumman F8F-1 Bearcat.



Lovely! First in non-military Stand Off scale, was this Curtiss R3C-2, by Dick Speidel, Buffalo, N. Y.

PHIL KRAFT'S "SUPER-FLI"

DESIGNED BY PHIL KRAFT

Wing: All wood, 1/8" sheeting. Span: 24'6", Aspect ratio: 5.6/1

Root chord: 62", Root airfoil: 63A018

Tip Chord: 46", Tip airfoil: 63A015

Wing area projected: 112.5 sq. ft.

Aileron: All wood, 3/32" sheeting, fully counter balanced

Span: 60", Area: 9.76 sq. ft.

Horizontal: Steel tube fabric cov. Span: 92.25", elev. area 7.2 sq. ft.

Vertical: Steel tube fabric covered.

Rudder: Aerodynamically balanced. Area: 8.86 sq. ft.

Fuselage: Steel tube. aft of wing fabric cov. All forward panels remov.

Overall length: 20'-10"

Weights:

Aerobatic flying wt: 1150 lbs. (less batt., alternator & radio)

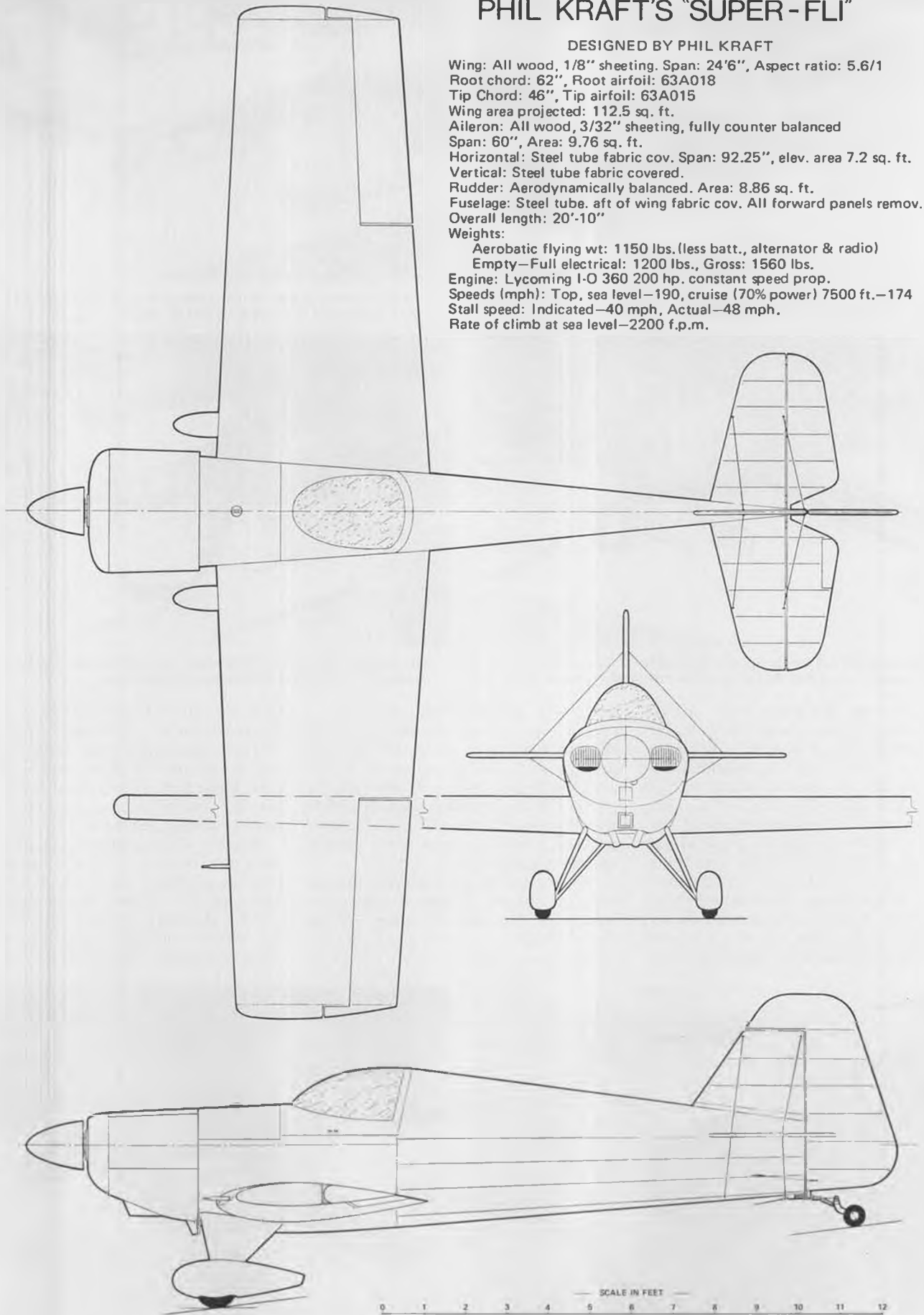
Empty—Full electrical: 1200 lbs., Gross: 1560 lbs.

Engine: Lycoming I-O 360 200 hp. constant speed prop.

Speeds (mph): Top, sea level—190, cruise (70% power) 7500 ft.—174

Stall speed: Indicated—40 mph, Actual—48 mph.

Rate of climb at sea level—2200 f.p.m.





KRAFT SUPER-FLI

Many modelers dream of someday designing and building a full size aircraft that embodies many of their own pet ideas. The designer of the R/C "BAR-FLI" hardly needed to sign his name to this one.





Airborne at last! The Graupner Bell 212 Twin-Jet sent to us for product review by the German model company, does its thing.

CHOPPER CHATTER

By JOHN TUCKER



● The closing words of last month's rather lengthy "Chatter" was something to the effect that my writing hand was so tired I wouldn't be able to pilot my new Graupner 212 for another week! Little did I know that we would have three weeks of rainy weather and barely

made this month's deadline by getting it in the air just yesterday! Wow, that was close . . . I thought for sure we'd have to "ring-in" a construction article on the Micro-Mold Lark and bypass the test flight data on the 212 until next month. However, it did fly, and we can

finish the report on schedule. And I can save the Lark review for next month . . . so, watch for it, it'll be a goodie!

Back to the adjustment and testing of the 212: If you are building one with us, by this time you have completed the construction phase and more than likely,



"Chopper Chatter" editor, John Tucker, flies the Graupner Bell 212 in his back yard.



"Chopper Chatter" fleet also includes a Kavan Jet Ranger, and, by golly, an old Top Flite "Tauri." Just so you won't forget, huh, John?



Try THIS with your favorite pattern ship. The big advantage of helicopter flying (if your neighbors can stand it!) is obvious here.



Editor Tucker is extremely pleased with the performance of this English "Lark" chopper. He'll tell you about it next month.

the assembly also. Before we go any further, be sure all linkages are correctly set-up and pushrods connected to the swash-plate so that it is level with the top of the fuselage (looking fore and aft) and has a slight tilt of 2 or 3 degrees to the right. The swash-plate adjustment must be made with the servos (elevator and aileron) in neutral. This should assure a clean lift-off with little or no drift in any direction.

Before installing the main rotor head on the completed chopper, be sure the assembly is balanced on the plywood jig as per the instructions. Main blade balance is very critical if you want a smooth flying helicopter. Unbalance of the rotor blades may be compensated by screwing self-tapping screws into the hardwood tip of the lighter blade until a perfect balance is obtained. I personally prefer to drill an 1/8 inch hole of appropriate depth into the tip, and cement in a length of 1/8 inch music wire cut to the size necessary to balance the blades. Be sure to nick the music wire in several places to provide a good epoxy joint, since centrifugal forces could throw it out like a bullet. Any remaining unbalance should be corrected by adding Monokote Trim Strips at the blade tips. This trim strip is also used to track the blades at lift-off rpm.

Next step is to balance the stabilizing

servo paddles using the see-saw hub bearing for a pivot and unscrewing the lighter paddle rod and/or screwing in the heavier. Make sure the threads are deep enough for a firm grip. (Follow instructions to the letter). This balance procedure requires that all connecting links be disconnected from the stabilizer unit to eliminate friction during adjustment. Paddles must be parallel to the plane of rotation and check that they are oriented properly for direction of rotation (clockwise rotation).

Main rotor blade pitch adjustment is simple if you remember that each blade is first adjusted at the idle throttle setting. The black plastic gauge supplied with the kit is used to check both settings.

Step 1: Slip gauge onto tip of main rotor blade and sight down the blade length so you can compare the top edge of the gauge with the stabilizer bar on the hub. With the throttle in idle, the top edge of the gauge should be parallel with the stabilizer bar . . . This is a positive angle of 1 degree and should not be reduced for any reason. Adjust the pushrod between the mixing lever and blade pitch lever until the 1 degree angle is attained.

Step 2: Repeat step 1 for the other blade and adjust pushrod until the gauge top is parallel to the stabilizer bar.

Step 3: With the throttle servo in the full or high rpm position, check the bottom of the gauge against the stabilizer bar . . . it should be parallel for both blades. This is a positive angle of 5 degrees and must not be exceeded.

Let's repeat the above instructions in different words, just to make sure you have it right! With radio turned on, the idle throttle position should give you a positive one degree angle on both blades. With full throttle, both blades should be positive five degrees. If you cannot get this desired range from idle to full throttle, then you must adjust or change the linkage from the throttle servo to the bellcrank and perhaps the linkage to the pitch control lever (23) until such range is achieved. If the angles of the two rotor blades differ a slight amount from each other, one of the blade pitch levers is probably bent. Correct this condition by bending the blade pitch levers toward or away from the hub until both are in the same position and the associated push-rods are perfectly perpendicular, viewed from all directions.

Let's assume now that everything is set up correctly and you have checked all control responses with the transmitter, and you're ready to give it a go! Please re-read all the instructions for getting

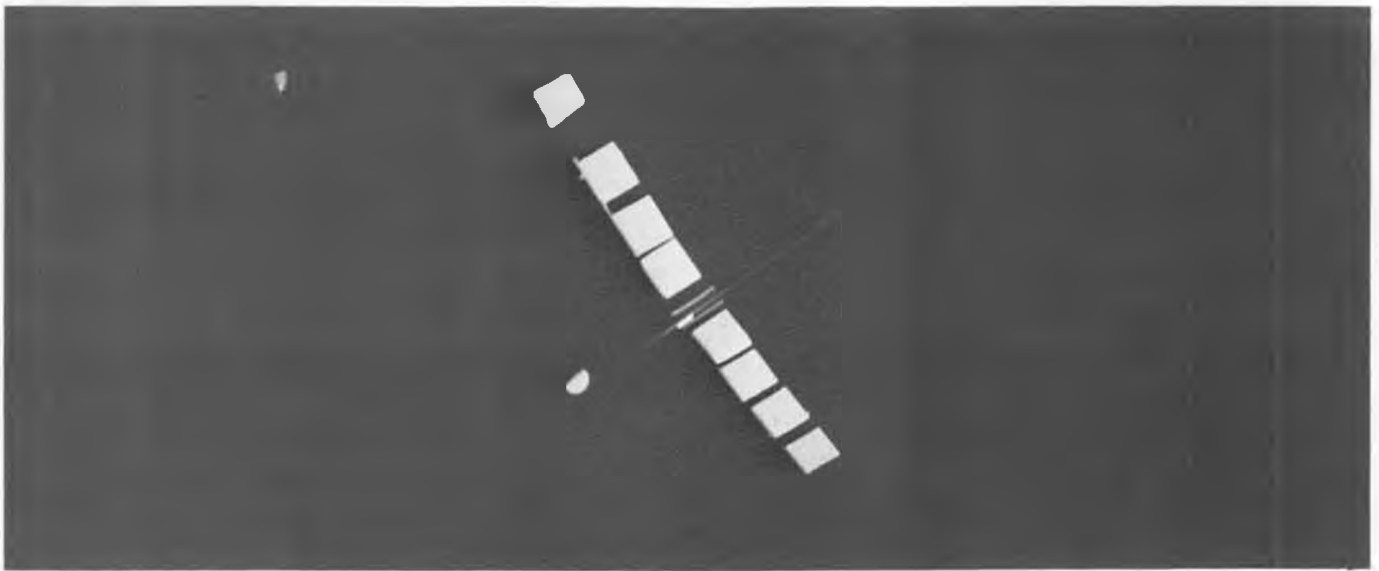
Continued on page 78



George Gregirous, ex-auto painter, did superb job on Kavan Jet Ranger in a few hours!



After just a half hour of instruction by John Tucker, George made several successful low hovering flights with his Kavan! This was his first solo takeoff.



This oughtta set the "Saucer Watchers" in a purple frenzy . . . also the wives who figure their husbands only go flying in the daytime! Just plain note paper, taped to the bottom of the wings, lights up when a battery-powered sealed beam light hits it.

R/C SOARING

By LE GRAY

"Fly by Night" takes on a whole new meaning as organized night-time R/C sailplane competition has caught on in the Dallas area. We predict its popularity will spread rapidly. Pass the "beams" please. By JIM JONES.

● When the Dallas area sailplane fliers were called by Mark Jones (our Dallas League of Silent Flight Contest Director for 1975) to announce the contest for that weekend, the replies ranged from "I don't know . . ." to "You must be crazy!" What Mark had just informed the pilots was that he was going to have a duration sailplane contest after dark!

So on Friday night March 21, 1975, the members of the Dallas sailplane club met on the campus of a local college and flew a duration event from 9:30 pm to 11:30 pm with the aid of a single,

hand-held cigarette lighter plug-in spot light. The college parking lot lights were used as an aid in landing but even they were turned off at 11:00.

An LSF electric winch with the turn around out about 400 feet was used for launching, and a few brave souls actually went to the top in the heat of competition and circled tightly until the beam of the spot light reflected on the underside of the wings.

The ingenuity of the model builders was nothing short of amazing as they came up with different ideas on how to

make their ships more visible in the night sky. Doyle Modesto taped sheets of notebook paper to the bottom of his Legion Air's wings, LeMon Payne rigged up pen light bulbs on his Windfree and powered them with two flashlight batteries, and Jerry Luebke attempted to use birthday candles on his Centurion!!!

About mid-way through the contest a police patrol car raced up, took a short look and sped away again. It seemed someone had turned in an "unidentified flying object" report and he was radioed to investigate.

It became quite obvious during the contest that the most visible colors were white and bright yellow. One contestant was going to use a solid red Questor, but lost it on a hand launched trim flight! He later entered with a more visible sailplane.

Each flier used his own judgement (it was bad at times) on how high he could go and still see his ship, or at least estimate how long he could circle and still have a good chance of being picked up by the spot light. Sounds wild but it was great fun and that is what this should all be about! Later on, we intend to purchase some high candle power Quartz Iodine spot lights, but that might really cut down on the fun if the sailplanes were too easy to see. We also envision full length winch launches in the future, with each ship going to the top of the line!

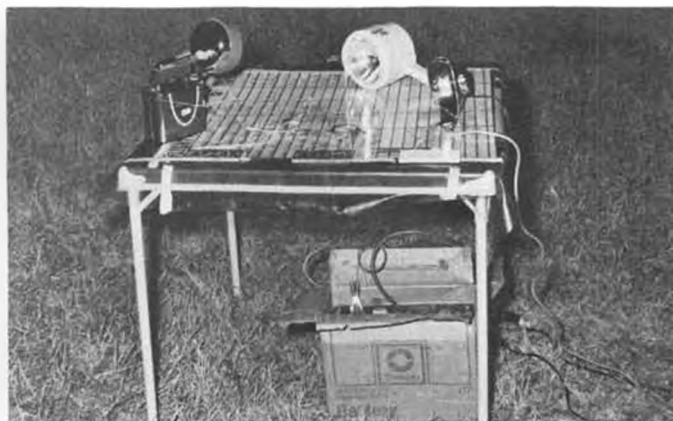
The duration times obtained from these relative short launches were quite surprising, as the shortest time was 2



Winners in the first Dallas "Night Fly" (l to r): Doyle Modesto 1st, LeMon Payne 2nd, Floyd Combs 5th, the author Jim Jones 3rd, and Jerry Luebke 4th. CD Mark Jones kneels in front.



In second night contest, flights averaged up to 6 minutes. Jim's 7:52 was tops! Winners (l to r): Ron Fishell 1st, Jones 2nd, Modesto 3rd.



Several of the lights used for tracking the sailplanes. Auto accessory stores carry them for plugging into cigarette lighter sockets.

minutes and 34 seconds and the longest, 4 minutes and 38 seconds. I really feel the dense night air had something to do with this, but Jerry Luebke flew for over 3 minutes at around 200 feet over the campus parking lot and this was done at 10:00 pm. We have known for some time that thermals are around at all times of the year, and it seems they are there at night as well.

Doyle Modesto won first with his "note-book paper" Legion Air, LeMon Payne captured second place with his "Christmas Tree" Windfree, and Jim Jones was third with an Olympic 99 which had a yellow fuselage (the only thing visible above 100 feet).

Standings through first five places were:

Doyle Modesto, Legion Air, 4:20 . . . LeMon Payne, Windfree, 3:20 . . . Jim Jones, Olympic 99, 3:10 . . . Jerry Luebke, Centurion II, 3:00 . . . and Floyd Combs, Pierce Arrow, 2:50.

Some of our club members were concerned as to whether this could be considered an AMA sanctioned contest if we wanted to hold one on a much larger scale later in the year. I have read and re-read the rule book and it doesn't say you cannot fly a contest after dark, so the "wheels are turning." (*Night flying has been an increasingly popular event at Southern California free flight contests over the past several years. A chemical light, available from Brookstone Co., Peterborough, New Hampshire, 03458, is good for about 3 hours from time of activation. Cost is 5 for \$4.95. Light is a liquid in a 5 inch long plastic tube, weighs 3/4 ounce. It puts out an intense fluorescent green glow. Works great on free flights, and a single tube, fastened to the bottom of the fuselage, can be seen at 4 and 500 foot altitudes. wcn*)

We try to schedule our "Night Flies" so that we have a picnic with the wives and youngsters around 7:00 pm and then by 9:00 pm the fliers are trimming their ships and the first official launch is around 9:30 pm. This time schedule can be modified depending upon the time of total darkness in your locale. We have also discovered different tech-



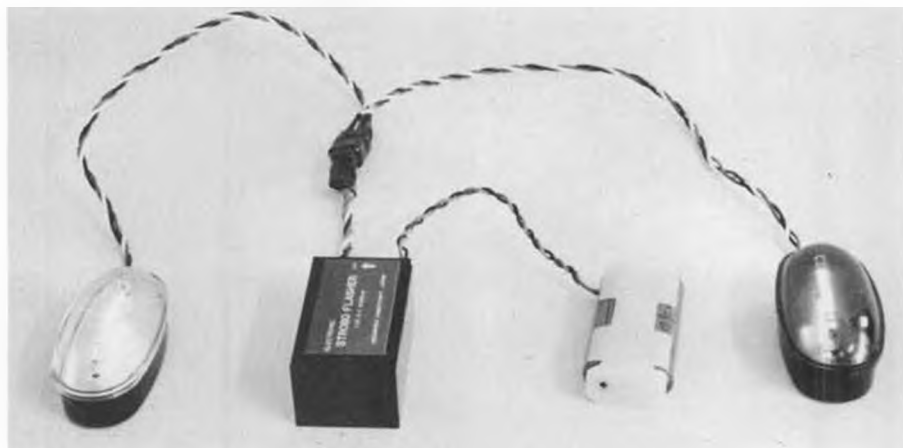
Awe, come on, Jerry Luebke, who do you think you're kidding!? Birthday candles on your Centurion II. Bet it isn't a day over 3 months old!

niques may be used on full moon nights with some of the contestants venturing higher and using "moon shadow" to outline their sailplanes.

If you decide to use the incandescent approach to make your ship more visible we recommend no more than six 3 volt pen light bulbs connected in parallel across two alkaline pen cells connected in series. "C" size cells would be better,

as these bulbs pull quite a bit (some over 200 milliamps) of current and can quickly run down a battery source. Some have even experimented with using a separate servo to control a switch used to turn their airborne lights on and off. This seems to be the way to go because the batteries will bounce back after a short rest. Two lights at each wing tip,

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Just introduced at the MAC Show in Anaheim, by Pete Bechtel of Windspiel Models, these new two-light strobe flashers weigh 4-1/2 oz. including 2 pen cells. Cost is about \$28. More info soon.



General Aviation Skyfarer

By EARL STAHL . . . One of pre-war modeling's legendary designers appears again, with the same precise drawings and building craftsmanship. Yes, the Skyfarer was published years ago, but to a smaller scale.

• Over the years, much attention has been directed by aerodynamicists to reducing the frequency and severity of aircraft accidents. One approach has been to eradicate the capability of light planes to spin after a stall. Toward this end, several spin-proof designs were commercially produced. The most notable was the Ercoupe, which was developed before, and sold in fairly large numbers immediately after World War II. Another "characteristically incapable of spinning" light plane, which reached production in the same period, was the General Aviation G1-80 Skyfarer.

Different design concepts were employed to make the two aircraft spin-

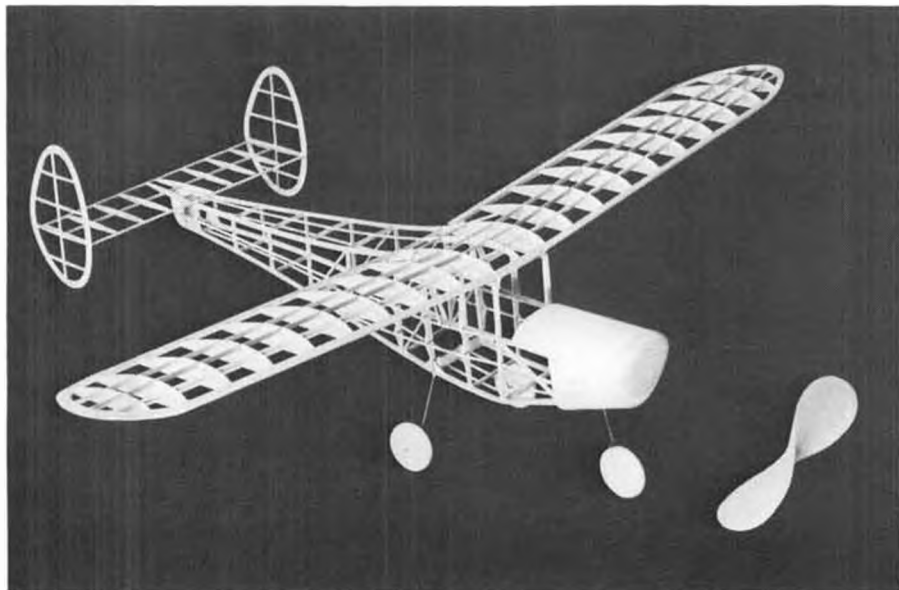
proof. The Ercoupe had interconnected ailerons and rudders; upward travel of the elevator was limited to restrict the capability of the pilot to raise the nose excessively. The Skyfarer, in contrast, has no rudders. Large vertical tails were fixed at the ends of the horizontal stabilizer, so turns were accomplished by ailerons alone. Control movements, of course, were restricted, to keep the aircraft from reaching unusual or excessive attitudes.

The Skyfarer was designed by noted MIT professor, Otto Kopper, who in later years developed the highly successful STOL Helio Courier. The Skyfarer was a metal frame, fabric covered air-

craft powered by a geared 75 hp. Lycoming engine. It carried a pilot and passenger, who were seated side by side. In size and speed performance it was comparable to contemporary Piper and Aeronca planes of the early forties. Like the Ercoupe, it had a tricycle landing gear, which was very uncommon at that time.

Skyfarers were produced by General Aircraft Corp., of Lowell, Mass. The period of production was very short, since, upon entry of the United States into the war, production was terminated. Thereafter, unfinished components, jigs, and the design were sold to a Michigan furniture builder. Production was never resumed.

It is likely that only a handful were built; I have been unable to ascertain the exact number. I saw only two. In 1941, at the very time I was developing my first Skyfarer model, a yellow, odd-shaped craft with large twin tails circled at low altitude over my boyhood community in Pennsylvania. On foot I raced off three miles to the local airfield, only to learn the Skyfarer had not landed. A few years later, while airport hopping for some winter sun, I spotted a Skyfarer at a Tampa, Florida airport. I was disappointed. It was in very tired condition and seemed ungainly, setting on its high tricycle gear. The twin tails reached very high. The spring on the nose gear was prominently ugly. Now that I ponder this remembrance after nearly three more decades, I recognize my reaction was excessively harsh. And it was undoubtedly influenced by the presence of my new, swift, sleek and shiny, fire-engine red Culver "V," which I had



The last time we saw such neat workmanship was the last time we saw a model built by Earl Stahl. Same design was presented by Earl in a pre-war MAN, though it was to a smaller scale.



PHOTOS BY AUTHOR

Air-to-air photo of the Skyfarer, taken by famous aviation photographer Rudy Arnold. Fins were fixed, and like the "Ercup", the plane could not be over-controlled. The opening of World War II put an end to its career.

parked almost under the Skyfarer's left wing.

The Skyfarer is a fine model subject. It has a unique appearance, and the configuration is ideal for a rubber powered model. Aside from the necessity to provide wing dihedral, no alterations to shapes or areas are required. Even with a scale length landing gear, it accommodates a large propeller. This is my second Skyfarer model. The first was presented 34 years ago as one of a series of flying scale models I designed and tested for MODEL AIRPLANE NEWS. Many readers wrote to comment on their success with that early model. I flew the prototype until it almost wore out, and then I gave it to a neighborhood kid as I trooped off to war.

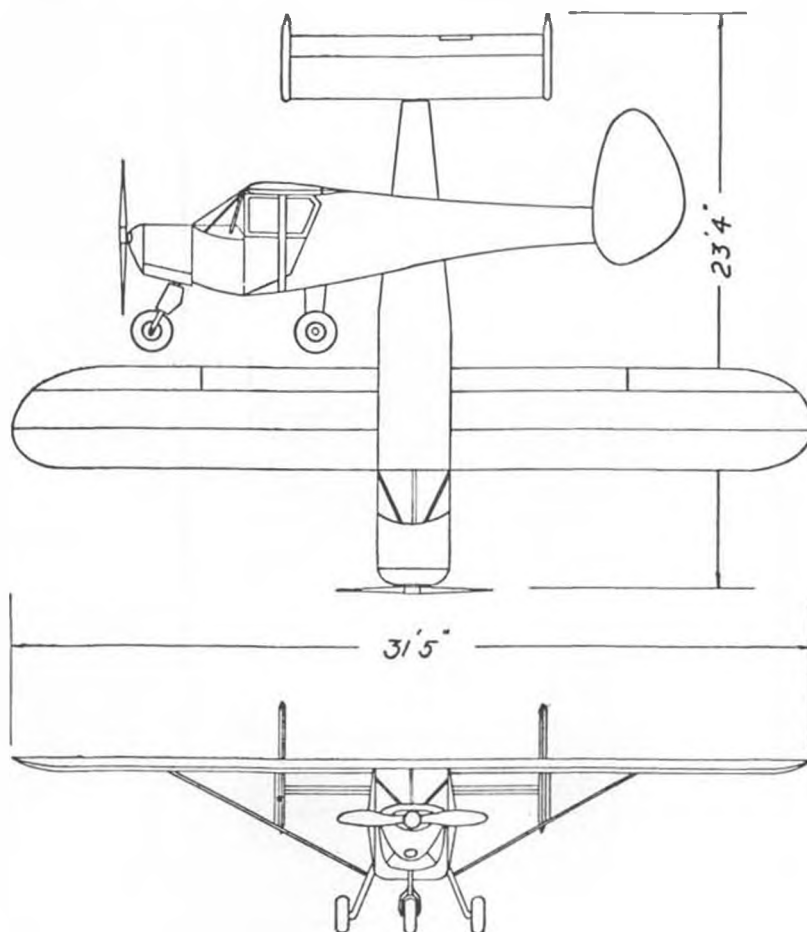
Featured here is a new model. It is somewhat larger than the first, being scaled one inch to the foot. Both of the models were developed from outline drawings, data, and photos provided by the manufacturer in 1941. (My 89 year old mother had preserved them, along with other memorabilia, in her attic. When she recently asked if I remembered they were there, I set a speed record making my way to her third floor.) If one compares the MODEL BUILDER drawings with three-view drawings which appeared in AERO DIGEST and AIRCRAFT YEAR BOOK of 1941, minor differences will be noted at the nose gear, in the door outline, and wing tip shape. I regard my drawings as correct, since they represent the aircraft as produced. The three-views in the other publications had likely been prepared from preliminary design information.

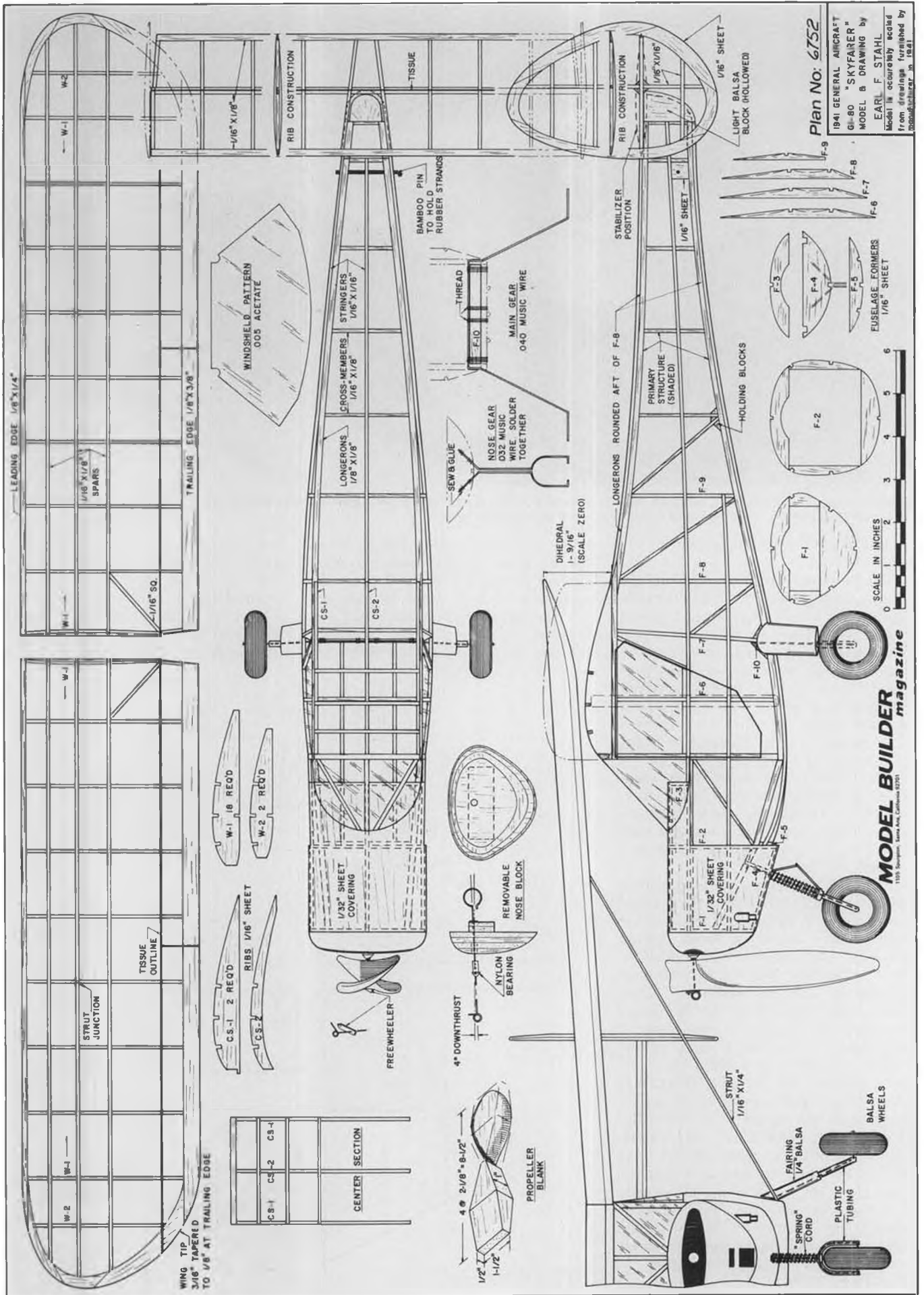
CONSTRUCTION

The primary fuselage structure is a

simple rectangular frame. Longerons are $1/8$ sq., while uprights and cross members are $1/16 \times 1/8$. Build the two side frames, one atop the other to make sure they are identical. Because of the considerable curvature of the longerons, steaming or soaking in hot water will

aid in bending, and when dry, will help in preserving their accurate shape once they are lifted from the board. When assembling the sides over the top view, it will be necessary to crack the longerons so they can be pulled together, as intended, at the front.



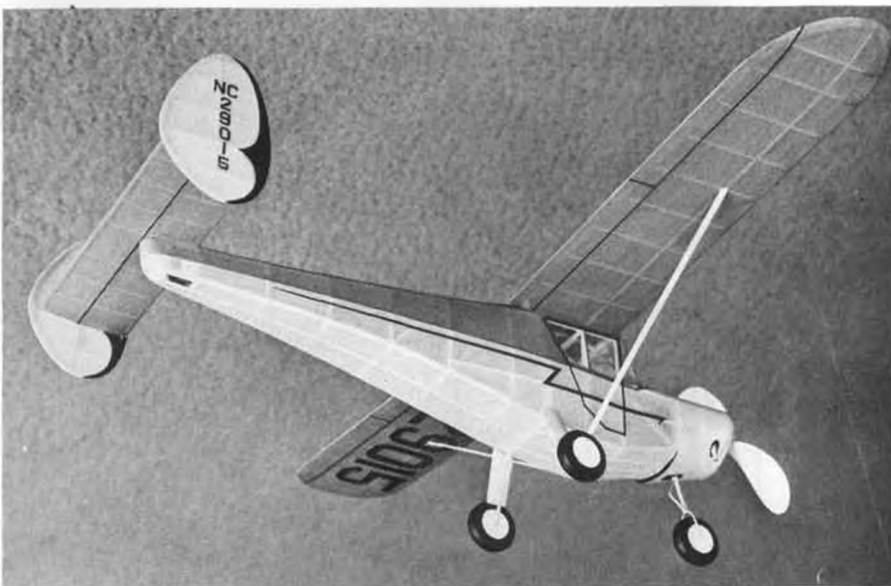




Earl has changed a little over the years, but his models sure haven't! This photo gives an idea of the model's 1 inch scale size.



Doing the "up-up-and-away" bit, the Skyfarer makes an excellent flying scale subject. Hmmm . . . double the plans, add radio . . .



Drifting along under a low ceiling? No, hanging upside down over a carpet! This view shows off the landing gear detail and also indicates the excellent flying proportions. Note hole for rubber.

Formers cut from 1/16 light weight balsa give shape to the nose and fuselage sides. Assemble the wing center section over the plan, and then cement it atop the fuselage to make it an integral part . . . accurate positioning is important since it permanently sets the wing's location. Stringers are medium weight 1/16 sq. material; cement them in the notches of formers or to the sides of the primary structure. Formers F-6 through F-9 are sanded to the scalloped shape shown by the broken lines . . . this is done, as will be mentioned later, to allow tissue covering, to only contact longitudinal fuselage members. To accurately represent the fuselage shape, the outer edges of all longerons aft of station F-8 should be rounded.

Before the nose can be completed, the front landing gear fork must be attached. Bend the nose gear from two lengths of .034 music wire; join these parts with solder or epoxy. Position the nose gear assembly against former F-4; then with a needle and thread, sew it

into place. A liberal application of glue or epoxy completes the installation.

To simulate the metal engine cowl of the real craft, and to add strength, cover the nose with 1/32 sheet balsa. The area to be covered is represented on the drawing by wood grain shading. Use four or more individual pieces with the grain of each piece running parallel to the fuselage axis. Butt join the sections over stringers, and hold them in place with rubber bands and pins or masking tape until the cement hardens.

The extreme front of the nose is removable, to permit stretching the rubber motor for winding. Build up the nose block from laminations of 1/8 sheet balsa. Before roughly cutting the nose to shape, drill the hole for the propeller shaft and the larger hole for the nylon thrust bearing. Note that the thrust line is off-set for about four degrees of down-thrust. Tilting the thrust line slightly to the right is also advisable. Lightly cement the nose block to place for final contouring. Next remove the nose block,

and install a rectangular block on the back to accurately and snugly fit the primary structure of the nose. Glue a washer, or small metal plate with an .045 diameter hole at the back of the nose block to fix the thrust line. At this time, remove the centers of the primary fuselage cross-members under the top parts of formers F-1, F-2, and F-3, so they will not later interfere with the rubber motor.

Rear landing gear struts are formed from a single length of .040 music wire. First cement fuselage former F-10 to the primary structure, then bind and glue the wire gear to it as well as to the lower longerons. Attach the 1/16 triangular gussets between the longerons and uprights to strengthen the area.

Tail surfaces are next. They must be strong, yet remain very light. The stabilizer employs continuous lengths of 1/16 x 1/8 for the leading and trailing edges and spar. Cross members are 1/16 sq. Form ribs by cementing light weight 1/16 sq. strips to each side of each cross member; then trim and sand the ribs to a streamline shape. This is an easy task, and ribs can be made uniform in shape by using a narrow sanding block (longer than the stabilizer), and lightly working across all ribs at one time. As a concession to lightness, and to retain a flat surface to mate, at final assembly, with the stabilizer tips, make only the outside surface of each fin contoured by overlaying with 1/16 sq. strips.

Aside from the spars and trailing edges of the wing halves, which must be sturdy material, use light weight balsa for other parts. Taper the 1/8 x 3/8 trailing edges before commencing assembly; be assured they remain straight before committing them to the structure. Ribs are cut from 1/16 sheet. The tips are 3/16 thick, and they are best laminated to achieve the desired depth. Note that the tips are elevated so the top of the wing, when viewed from the front, is a straight line. As indicated on the

Continued on page 72



"Sailboat Alley" at the Toledo Weak Signals Trade show. AMYA booth is at right, and our "Strictly Sail" editor's booth, strangely enough, is right in the middle! There seemed to be a much higher percentage of interested spectators in the boating area than last year.

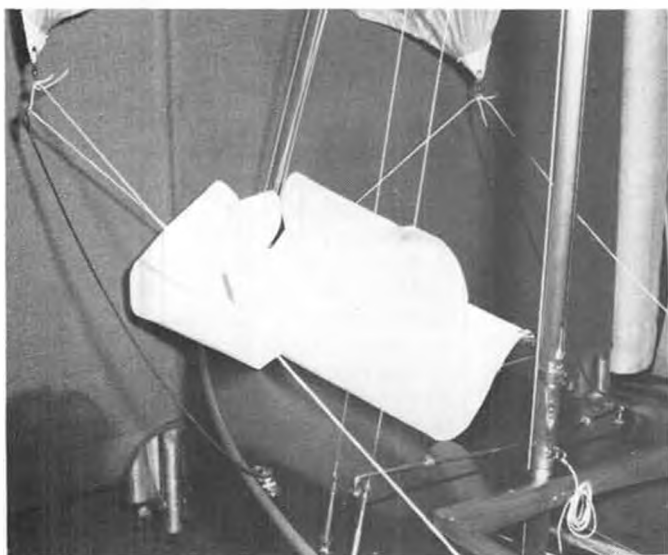
STRICTLY SAIL

By ROD CARR

After 10 years of poring over pictures printed in the magazines of the "TOLEDO SHOW," more properly known as the Weak Signals R/C Conference, I finally was able to get in the front door this year, and see all the booths, products and people, first hand. Regardless

of the fact that the Pennsylvania Turnpike was closed just after we got off of it, and the local temperature in Toledo stayed pretty well in the vicinity of the freezing mark, I had a completely wonderful time. If you can manage a visit to the 1976 edition do it by all means.

You'll get enough ideas to last for a season of tinkering. Our heading picture shows what came to be known as "sailboat alley." Manning booths were, the Schoder's and Haas's in the AMYA effort; John and Bill Huson in the Leisure Products stall; myself in a combination Carr Sails/Harris Engineering location; Wally Gitchell and family holding forth in the T & A Mini-Sailers paddock; and Chuck Millikan and Ole Harken in the Vanguard stand. Somewhat around the corner we found Jay Brandon of Dumas bravely showing a STAR 45 among all the tuned pipes and propellers of the powerboaters. While it is no secret that



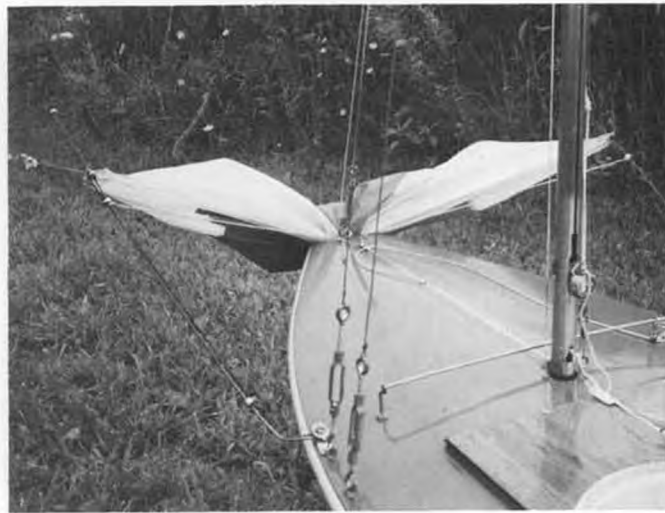
With the jib collapsed on the foredeck, the spinnaker is hoisted for a run. See text for full explanation.



Close-up of bow "tunnel" with spinnaker clews partially extended. Halyard and bungee are running down the tunnel; also jib halyard.



No other reason to print this picture but to give everyone a dose of "Spinnaker Fever." Ain't that purdy?



Gurwale-mounted spinnaker poles mounted on Wally Gitchell's PETREL.

I'm a prejudiced bloke, it seems that here we had a representation of hobby manufacturers who took the time to make a special effort in support of the growth of R/C sailing.

Not the least of the high spots of the busy weekend was a face to face encounter with the fearless editor of MODEL BUILDER. It can now be told; Bill Northrop cannot bend steel in his bare hands, nor change the course of mighty rivers. He is just a mild mannered editor of a great modeler's magazine!! (I'll send your check today! wcn)

But to return to our promised subject, let's take a cursory look at spinnakers. Of all the "goodies" which a novice yachtsman thinks he would like to put on his new boat, a spinnaker is the first choice of the majority. Of all the skippers who I've had the opportunity to talk with, only two had proof that they had in fact set a spinnaker

while underway, flown it full and drawing, and then retracted it. The first was Rich Matt, of Chicago, who did the trick on a Santa Barbara, using twin poles for trimming, and set the chute from a hole in the foredeck forward of the jib. Retraction was by heaving on a downhaul line attached to the center of the chute. A three-drum winch in the boat would either set or retract the chute. The system was described in more detail in an early issue of the AMYA Quarterly.

The second, and the current titleholder is AMYA open class secretary, Wally Gitchell. His covey of PETREL models have been used as testbeds for all of the extra functions we have dreamed about on our boats, but never got around to developing. For example, what do you do with the jib when you set the spinnaker? One solution is to haul the jib down the jibstay as the spin-

naker halyard is hoisted away. This leaves somewhat of a tangle on the foredeck, and if we are looking toward a system which will be eventually applicable to a racing boat, it might not be our first choice. Wally stepped right in and has provided us with roller furling of the jib. This takes the luff wire, rotates it, and rolls the jib right up into a cylinder on the stay. No mess, and very little disturbance of the airflow when under spinnaker power. Details of the roller furling system are available from T & A Mini-Sailers, at 14330 Fancherville Rd., No. 31, Westerville, Ohio 43081. (Loose footed Reaching chute).

Any good text on sailing will give you the basic requirements for a functioning spinnaker. The most comprehensive I've seen is in a new book by Wally Ross, called SAIL POWER and published by Alfred Knopf, Inc., 1975. (Would you believe two Wally's in the same article!!)

You will need a halyard to pull the head of the spinnaker up to the mast head. (In some classes, such as the 50/800, another location is specified as the maximum height at which the halyard may meet the mast). You will need a downhaul, and I suspect that the center attached type, such as Rich used, will be optimal. It will collapse the sail quickly when required, be able to feed easily into the funnel shaped arrangement which is built under the deck, and leave the head and clews of the spinnaker immediately available for rehoisting. Gitchell provides a bit of insurance in the way of an elastic bungee cord which opposes the downhaul line. This will keep the spinnaker out of the water should it collapse completely. Probably we should fit one of these in much the same way the helicopter modeler fits "training wheels."

The amount of halyard that will have to be reeled in depends on your mast height, and your mast location to forestay distance. A rating rule would describe these as "I" and "J" measure-

Continued on page 82



Radial headed chute on a shore-based test rack. Bet you thought Linda Carr was sailing downtown to the grocery store!



Mark Knize catches K&B powered "Minute Man" for a pit stop. You better have good timing!



Jed Kusik warming engine prior to final race. ETA powered plane took first at San Jose with time of 9:37.

C

ontrol line

"FROM THE HANDLE"
By JED KUSIK

• Run, run, run! It seems the hurrier I go, the behinder I get.

The big contest in Lake Charles is almost here. If you haven't started making final preparations and equipment checks, your best move will be a rabbit's foot . . . Good Luck!

For myself, I can't seem to accomplish all that needs to be done. My personal prime concern is preparation for the F.A.I. team trials for team racing, which will take place two days before the official start of the big contest. If my readers are getting tired of seeing T.R. information in this column, I'm sorry, but that is all I can think about presently. In fact, I have stopped flying all my other events until after the trials so that I can concentrate on what's important.

In order to break up your boredom this month I am going to pirate from various club news letters that have come

across the desk lately. Check with your club editor and make sure he (or she) is sending a copy to MODEL BUILDER, care of the control line editor (me).
OH, BY THE WAY

The following was written by George Muellerleile in the Minneapolis PROP WASH newsletter: "During the last few years I've come across a number of products that make model building easier and increase the enjoyment of the end result. But then there are those products that don't seem to work the way the directions say they should (that is if there are directions) so, you give it your best shot and still no luck. As a last resort you go seeking advice (Oh, no!), and when found, it amounts to an 'Oh, by the way.'

"An 'oh, by the way' is a bit of information that can go a long way towards solving a problem. To qualify as an 'Oh, by the way,' two conditions must be

met:

1. Everyone knows about it (everyone but you).

2. The content must be perfectly obvious to anyone (anyone but you).

"For example, do you really know how to use finishing resin? If you do, you didn't learn it from the directions on the container. The directions are a little sketchy to do much good, and amount to 'mix and use.' Well that's what I did. Two days later, the resin was still catching flies and I was about ready to do a wing walk. After seeking advice (against my better judgement) I got what was to inspire this message: 'Oh, by the way, did you double the amount of catalyst that is stated on the directions?'"

We all know a lot of little tips that would help many people. If you think



Team race final. Larry Jolly with handle on head was first. Lynn Price (glasses) was 2nd, and Ken Mogi was 3rd. Note hands up tight to body, and upright stance of pilots.



Jack Beck, of Concord Model Engineers, working on TeeDee powered 1/2A speed job.

of anything, even little things that seem obvious to you, jot it down and send it in. There will be at least one grateful person, me.

* * *

THE FISHWRAPPER of San Jose California, editor Andy Osborne, has a typical "Oh, by the way."

"If you're still using wax paper as a plans overlay, you are getting wax in your glue joints! Use saran wrap or any other mylar wrap from the grocery; it is impervious to all cements, including epoxy. It is also completely transparent and lies flatter."

* * *

Oh, by the way, don't confuse an "Oh, by the way" with a "See I told you so." That's when you don't follow instructions.

SOUTHERN CALIFORNIA COMBAT ALL A FLURRY

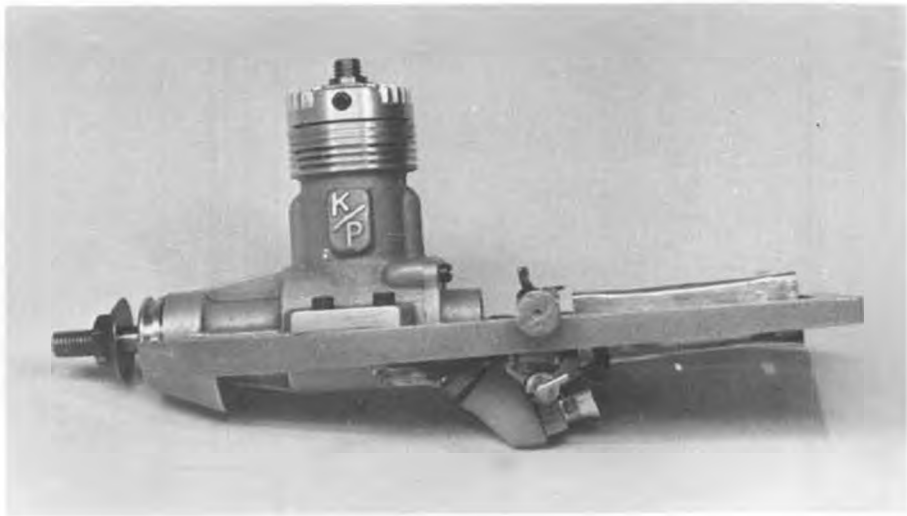
Combat activity last year was just fair in So. Cal.. We had regular contests with participation averaging around a dozen. The important annuals drew considerably more than that, but the monthly's were just so-so. Things have changed this year. In January, the Southern California Controline Association instituted a point system that will be kept all year by the Association to determine the top flyer in Fast Combat. The system is very simple, but provides a means of comparing ability, and is so effective that every monthly contest has had more entries than the previous month. Competition is getting keener and equipment better looking. People are actually going out and practicing! The simple scoring system is 5 points for first, four for second, three for third, two for fourth and one for all other entrants.

STUNT NEWS

The P.A.M.P.A. Publication has printed a listing of over 20 of the top stunt pilots in the nation last year, and what each one is planning and building for this year's Gnats. This is sort of an advance worry list. You get to worry about your competition before getting to the contest. Saves all the bother when you get there.

STUNT CATEGORIES

P.A.M.P.A. is doing research and work to try to set up a system of ranking flyers according to ability. (*R/C did this seven years ago, and it is quite satisfactory. wcn*) The viewpoint of many including myself, is that one category of stunt does little or nothing to promote the event. A year ago I criticized the serious Southern California stunt flyers for not doing anything to promote and expand their event. This past year they held true to form and did nothing. There are eight, maybe ten expert stunt pilots in Southern California. At our annual last year there were twelve entries. At the most recent monthly contest, seven of the experts showed up to fly and that's all. It gets kind of boring watch-



Knize/Price modified K&B .15 diesel conversion with shut-off, tank, and crutch. Long venturi stack prevents flooding, but will be changed for new plane.

ing people who are too self-centered to promote their event and help give beginners an assist.

In Northern California, the W.A.M. Association has a rating system based on ability that seems to work for their area. I am impressed when watching close to seventy entrants in one contest, ranging from beginner to expert.

I for one, hope that P.A.M.P.A. will set up a good working system of skill levels that can be standardized across the country. Tom San Antonio of, West Virginia, sums it all up in this excerpt

from "STUNT NEWS:"

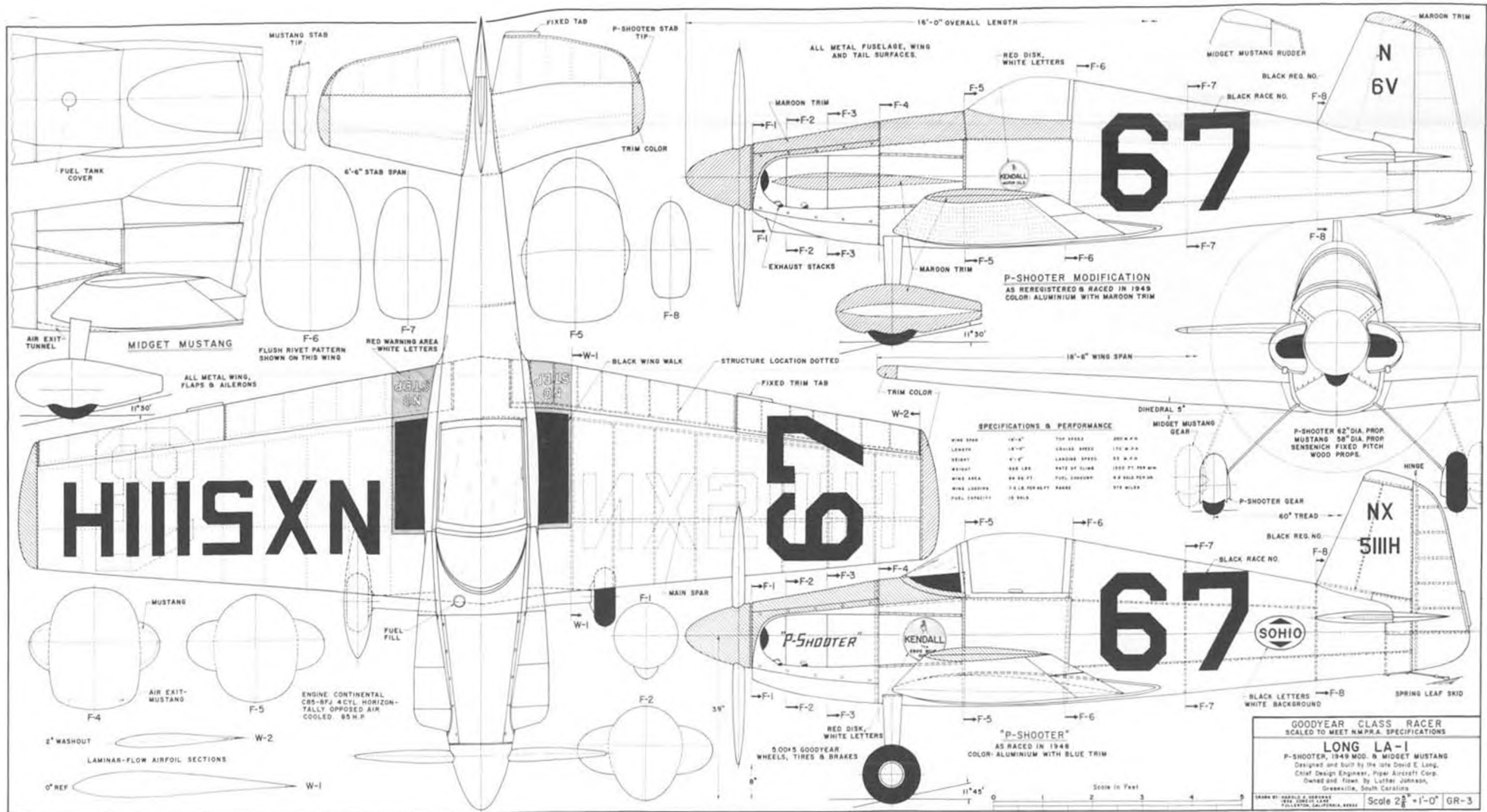
"My congratulations to P.A.M.P.A. for the good work being done for the stunt flyers of the country. I think the classes of Expert, Advanced, Novice, and Beginners are very good for the competition of the stunt hobby. As for my own ability, a novice, I would not travel 2 or 300 miles to compete against people the likes of Rabe, Schaffer, etc. It would be a waste of time and money. The P.A.M.P.A. classes seem to be fair and just. I have always thought a hobby

Continued on page 79



"The one on the left arm is fuel. The one on the right arm is bourbon."

Makoshima



● The Midget Mustang was designed by David E. Long in 1946-47. Long worked as a design engineer for Piper Aircraft Corp., Lock Haven, Pa., from 1937 until he took a three-year leave-of-absence from Piper to become a pilot with the Air Transport Command. After the war, Long began design work on his little "dream plane," and he managed to carry his ideas through to completion and built the tiny speedster

during his evenings and weekends.

When the rigid requirements of the Professional Race Pilots Association were announced for the Goodyear Trophy Race at the National Air Races, Long found that his own ideas had followed the rules to the extent that only a few modifications were required to qualify the aircraft for entry in the event.

After flying the aircraft in the 1948

National Air Races at Cleveland, and the 1949 All-American Air Maneuvers at Miami, Long got to thinking about the hordes of curious spectators and pilots who examined his aircraft at Cleveland and Miami, and with the mail inquiries he received, he decided that the odds were good enough to warrant manufacture of his design. But like many others, Long was faced with a lack of capital, facilities, etc., that cooled

these ideas until the Schweizer Bros. entered the picture with a partnership offer.

Even though the plans to produce the aircraft fell thru in 1948, drawings are still available in 1975 for the homebuilder to construct this classic little aircraft.

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



David Long, Lock Haven, Pa., and his famous Midget Mustang.

PHOTOS COURTESY OF BOB HIRSCH

Long MIDGET MUSTANG

By HAL OSBORNE



Owner and pilot of the Midget Mustang in its 1949 racing colors, Luther Johnson.



Here's the Chicago gang that made history! (l to r): Joe Ott, Billy Erlich, Chuck Feulner, Otto Kurth, Pete Vacco, Ed Mate, Dushan Desich, Wally Fromm (kneeling), Ed Lidgard, Al Davis, Dick Obarski, and Carl Goldberg. "Gee, but I'd give the world to see . . ."



PLUG SPARKS

By JOHN POND

● One thousand members! That's what Joe Beshar, the dynamic President of S.A.M., promised when he took office at Lakehurst NAS last year. The man is a fabulous pusher and is rapidly on his way to accomplishing this during his two year tenure.

According to reports from the Weak Signals Conference, Toledo, Ohio, over 50 members were picked up at the SAM booth. Tim Banaszak, Treasurer, had

reported 800 members prior to the Toledo Show. You never can tell, modelers are going to take notice of us yet!

Talking about the Toledo Weak Signals Conference, full credit should be given to Don Belote (one of the foremost organizers) for his gracious offer of a free booth. Although the author was unable to appear, the booth was ably manned by Joe Beshar, Tim Banaszak, and Bob Elman. This was probably the best exposure the Society has had to the public. Now, if I (or we) can promote some more booths at the other

trade shows, we're gonna be off and running!

CHICAGO OLD TIMER REUNION

There are darn few clubs like the Chicago Aeronuts, that claim the longevity and brilliance of its membership. Among those (besides Carl Goldberg!) cited were Gerry Ritz (A/2 National Champ), Jim Richmond (Indoor World Champ), National Champ Milton Huguelet, two time F/F Champ Bob Watson, Past AMA President Pete Sotich, and National Indoor Champs Jim Richmond and Chuck Markos. There are a lot of



Al Rasmussen is not part Indian. It's just his novel way of carrying models when retrieving by motorcycle.



Roger Tennyson built this sturdy Miss Model Craftsman for the SAM 21 Texaco R/C events.



He's at it again! We don't know who crashed first; Al Freeman or the Jersey Javelin. We do know who the unconscious one is. He sure looks comfortable, though.

other guys who have done very well, but we only have three or four pages per month. We could easily make this the Chicago Aeronut issue!!

This reunion was made an integral part of the Annual Club's Awards, and it turned out so good that Joe Ott said, "If I had known it was going to be like this, I would have brought my wife too." Ha! That'll be the day! Ott will have his chance in 1980, the next scheduled Chicago Aeronut Old Timer Reunion.

ENGINE OF THE MONTH

In line with presenting a three-view layout of an old engine to assist those to identify and plan for mounts, we like to carry a little background and possibly a few hints on the starting idiosyncracies of that particular engine.

Anyone worth his salt as an old timer will immediately recognize this month's 3-view as a Baby Cyclone, Model F. This was the last of the Baby Cyclones, as the Super Cyclone carried the designation Model G. Both engines were quite successful in their day.

The Baby Cyclone was popularized by Bill Atwood. There is some information that indicates that Mel Anderson was the original designer, but the point everyone misses is that Bill could develop any engine into a winning formula. Atwood was a tireless perfectionist and when he got through working a motor over, it was a going concern!

The Baby Cyclone was responsible for popularizing the gas engine craze as much if not more than the Brown Jr. Baby Cyclones cost less, ran longer, on comparable fuel, and had extremely easy starting habits. Even this writer was started in gas models in 1935 with a Model X Baby Cyclone.

We had the pleasure of watching the 1935 California State Fair Gas Championship Event held out on the old Franklin St. Airport in Sacramento. The columnist still recalls the spectacular climb of Henry Stiglemeir's "21," a Brown Jr. powered 5 foot span model but most of all, the long slow easy climb of Bill Atwood's Champion with a Baby Cyclone in it. As usual, the model drifted out of sight over the city of Sacramento,

motor still running. What a thrill! The author never got over that demonstration and promptly built a Modelcraft Corben Ace with a Baby Cyclone in it! Never did get over the gas bug bite.

AS noted in the Ohlsson writeup, this highly prized win at the Sacramento Fair launched the Baby Cyclone on its highly successful career, lasting over four active competition years.

ON THE FIELD

Remember that column title that appeared in Air Trails during the late thirties and early forties? Well, the writer

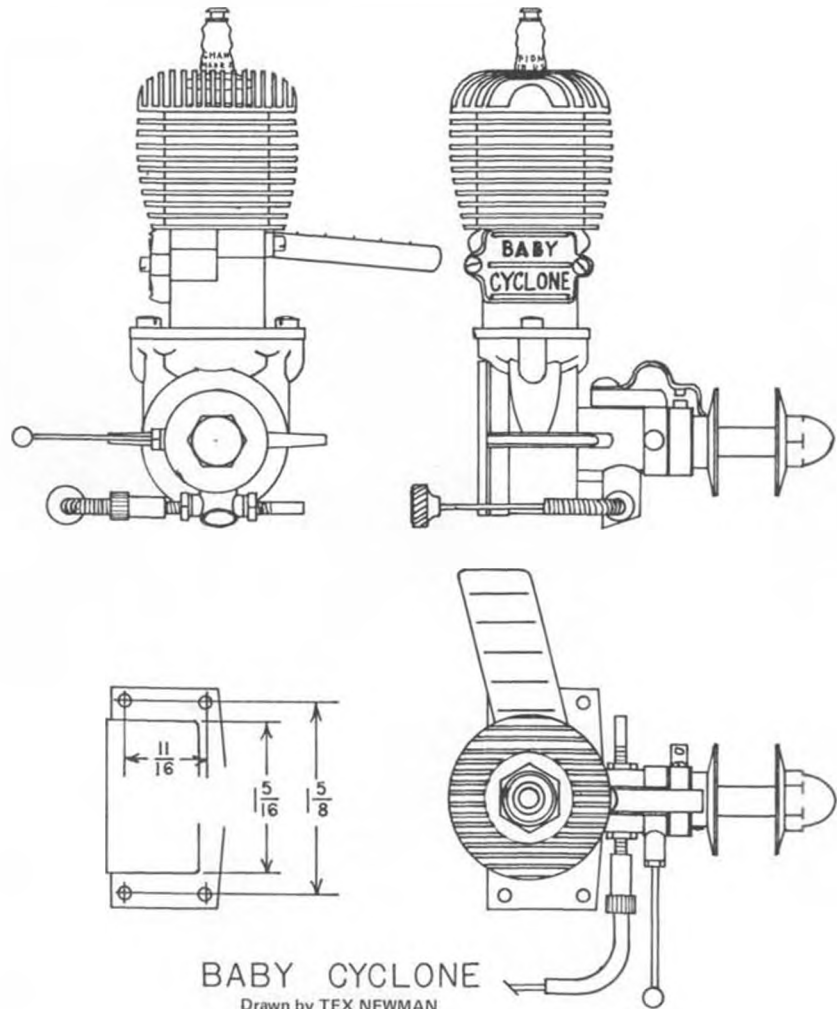
just heard from Carrol K. Moon again. Seems as though he has done like 50% of the New Yorkers, i.e., moved to Florida. His address of Wappinger Falls is no longer valid; he is located at 910 S.E. 4th St., Boynton Beach, Fla. 33435, for the benefit of those fellows who would like to drop Carrol a line.

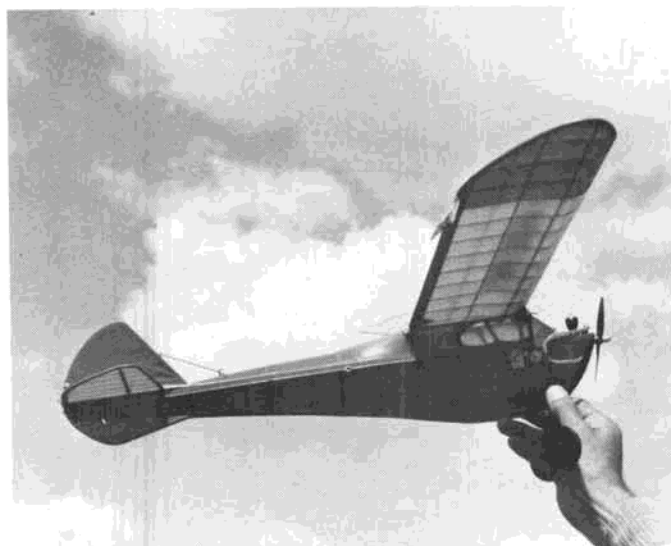
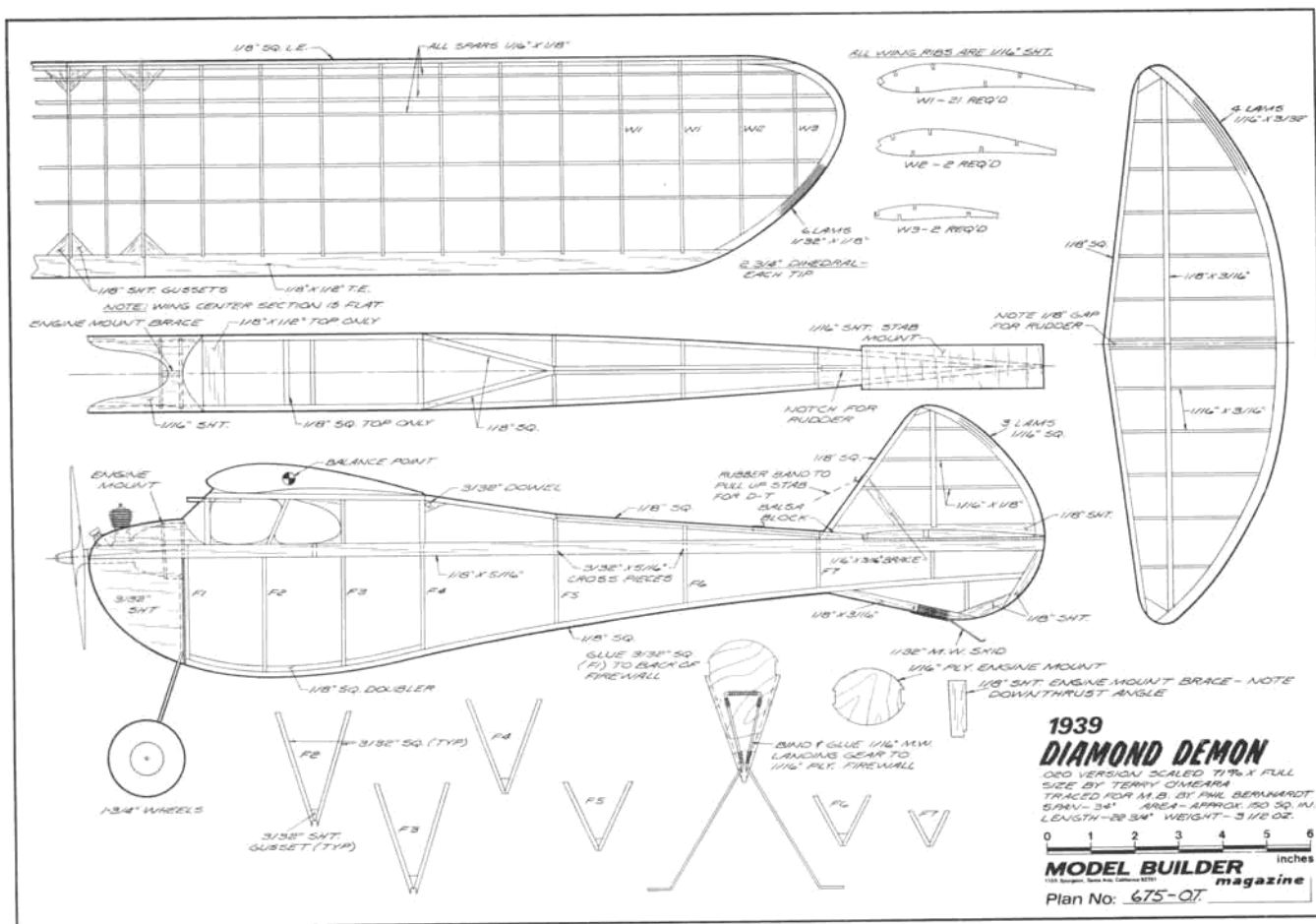
Moon is presently an Associate Editor of the local weekly paper. He does P.R. work for the Boynton Beach Bicentennial Committee, is idea man for the City Manager, and in between times, does publicity on the local fishing docks. This does not take into account the banjo picking and piano playing in the local gin mills. In short, Carroll is having a ball working himself to death!

So, if you have been looking for Moon, drop him a line; he'll be real glad to hear from any of the oldtimers. He will even write you!

CONTEST KICK-OFF

Aptly named, "Kick-Off" meet, the first major joint SCIF-SCAMPS contest featured all sorts of weather, from beautiful "stroll-after" flights, to a howling gale on Sunday that just about grounded all free flight activity. However, it left the field wide open for the radio assist events being staged concurrently by SAM 21, a new chapter recently formed in Northern California for O/T F/F radio





.020 DIAMOND DEMON

OLD TIMER Model of the Month

Designed by: Ray Heit
 Replica by: 'Doc' O'Meara
 Drawn by: Phil Bernhardt.
 Text by: Bill Northrop

The June 1939 issue of MAN had a full page ad from Bay Ridge Model Airplane and Supply Co., Brooklyn, N. Y. (later to become Art Hasselbach's Con-

solidated Model Engineering Co.), which announced the 49 inch span "Diamond Demon." It had flown in its first contest on March 19, 1939, and set an NAA record, including an O.O.S. flight of 8 minutes, 12 seconds. The engine was an Ohlsson 23.

Designed by Ray Heit, who also created the Bay Ridge Mike and Thermal Magnet, the little ship's fuselage was a

"crutch" type, with a triangular cross section above and below the crutch, thus giving it the diamond shape.

The .020 Replica of the Diamond Demon, in the photos, was built by 'Doc' O'Meara, of Monterey, California, by making a 71% reduction of the kit plans. He flies it power left, glide right, utilizing a hinged drag tab on the right wing to induce the turn . . . without it the model glides straight.

assist modelers.

Saturday's activities featured fine flying by Larry Boyer (winning 30 second Antique) and son Bobby Boyer winning .020 Antique Replica. Looks like we are going to have to reckon with the younger set again. Hope he discovers girls!

Radio assist flying on Sunday was simply great, despite the high winds. In the Texaco event, Phil Bernhardt lead all day with a 23 minute flight, only to get nosed out in the last half hour by Red Barrows (with 34 minutes) and Nick Sanford (with 25 minutes). Nick, incidentally, allowed his model to get too far downwind and was unable to penetrate the breeze and get it back. Last reports are that the model is still unrecovered. Hope an honest guy finds it and brings it in.

Red Barrows cleaned up on the R/C events, taking two first and a second in Texaco, Class C, and Class A-B. The "Reluctant Dragon," Tom Bristol, flying for the first time in a contest, finally braved the winds with his Buzzard Bombshell to nose out young John Tennyson. This, after dad, Roger Tennyson, was helping Tom to start his motor, give encouragement, etc. No question about it, that Tennyson car was probably pretty hot for dear old dad on the return trip, after helping to beat son out of first place!

Quite a few flyers failed to enter, notably the Sacramento contingent headed up by Tom Mahon. You really couldn't blame Ernie Muller, Veron Schultz, and Loren Schmidt for not flying. A little more experience and they'll fly in any weather.

Also noted on the field was Bob Chambers and a few others clear in from Las Vegas! On hand also was W C N, who entered all the R/C assist events. Most surprising was that for the first time, he drew a zilch (zero to you!). Models flew fine, but it seemed every-time Bill flew, the weather got real wet or cold. In short, no lift, no winning flight!

In summary, the joint meet featuring free flight and R/C old timers went off very well. Noted were a considerable



Leonard Poor's Miss America, with Bunch floats and Brown Jr. power, just after launch over Lake Sunapee, N. H., in the summer of 1939.



The .020 Replicas come in all shapes and sizes. Jerry Vernon holds his Sadler Pacemaker (full size plans featured in April '74 MB). Hmmm . . . anyone for O.T. Pylon!?

number of new models and new faces, all trying to get ready for the Denver SAM Championships. If the times and competition are any indication, Denver is going to be a terrific meet.

HOME-MADE PRINT WOOD

Getting tired of tracing those plans directly on the wood, or failing that, cutting up the plan and pasting the parts onto the balsa sheet for cutting? Well, relax, old "Daddy Warbucks" just got

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Texaco flights can get rather tiresome, especially if you have to fly them by radio for over half an hour. Phil Bernhardt shows the way.



Just to prove that there needs to be a limit on ignition engine displacement too! Paul Lewis, Lancaster, Ca., put this one together.



This beautiful 3/4" scale Eaglerock A-2, spanning 28", was built by Salvatore Alu, Ozone Park, N. Y., using Smithsonian drawings prepared by Joe Nieto. Its best flight time, indoors, has been 40 seconds.

FREE FLIGHT SCALE

By FERNANDO RAMOS

● Last month, I discussed the construction of a simple fuselage jig, but in my haste to build the ME 109, I completely forgot about the possibility of making a so-called "universal" fuselage jig. This fixture could be used to accommodate several designs that are built by the "Half-shell" method.

Only a couple of considerations are necessary prior to starting. The major one is... what size? This, of course, would depend on how small or large you prefer your models to be. One good criterion is to check in the Flying Scale Models plan book, the Cloudbusters Racewing series, or even some of the old favorite Earl Stahl plans that use the half-shell method of construction, and measure the largest model you would expect to build from the series.

Once you have established the size,

cut your material accordingly for the fixture. The illustration pretty well describes the whole thing, but a few additional comments may prove helpful. For one, you may wonder what type of material to use. I prefer pine. It cuts easily and has a nice clean look to it. Since I have access to a planer, I can shave it down to any desirable thickness. For the FSM series, one quarter inch thick is sufficient. For larger models, I'd say 3/8 would be adequate. If you make it too thick, you'll find that the vertical members will be getting in your way. I personally feel that it would be worth the extra couple of dollars to have a cabinet shop plane the wood for you.

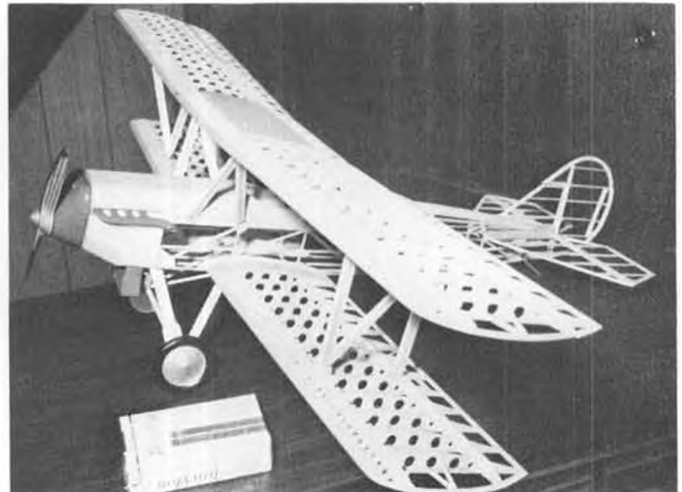
The parallel slots can be made several ways, depending on what power equipment you have available. The easiest way would be to use either a radial arm

or table saw for the cutting. The base for this fixture should be left longer than necessary during this slotting stage for easier handling, and SAFETY! The slots must be cut to the width of the screws that will be used to hold up the vertical pieces. Glue two small blocks of wood (the size will be determined by the amount of clearance needed for the wing nuts that are used) to the bottom of each end so that one side is even with the open part of the groove. For neatness, they should be at right angles to the base. When these blocks have dried, cut the excess ends off of the base.

The vertical members, once cut to size, are placed in a drill vise (to assure accuracy), and the holes for the two screws are drilled. These holes should be spaced the same width as the two grooves in the base. The fit should not be slop-



George Armstead built this P6-E Hawk from a Cleveland kit. A bit on the heavy side, but a beauty nevertheless.



Framework shot of Salvatore's Eaglerock discloses the meticulous work in building scale while avoiding excessive weight.

py, as then the center line will be off.

After the bulkhead locations are measured from the plans, each vertical member can then be slid into position, using a small square as an aid, and the wing nuts tightened. This "universal fuselage jig" should come in handy for some of those models you've been waiting to build.

A STICKY SUBJECT

There are several readers who have expressed an interest in reading more on glues and the gluing processes. I suppose that this is an area that all of us take for granted. However, one must remember that excessive glue is not only undesirable from an aesthetic standpoint, but it also adds unnecessary weight.

Let me digress for a moment. As I get further into the construction of my full size biplane, I can fully appreciate how much the designer was concerned with holding down any unnecessary weight. This same consideration should apply to models as well. Too much glue is definitely a cause of unsuspecting weight build-up. On small rubber models, this can hurt the performance considerably. Therefore, I will discuss a few techniques involving various glues and gluing.

A good starting point perhaps would be to cover the types of glues, cements, epoxies, etc., that I use, and how I use them for my modeling purposes. I know that many modelers use one type adhesive over another because that's what Grandad used, but things have changed, and so have adhesives.

In looking over my shelves, I have the following glues and cements: Titebond, Ambroid (*Grandad used that! wcn*), Wilhold white glue, Devcon's epoxy, Pliobond contact cement, 3M's Spray Contact Cement, and more recently, Hot Stuff. I have several others, but they are of limited use in modeling.

I use Titebond for the majority of my gluing, except where there is a seam,



Instrument panels in Salvatore Alu's Eaglerock. Just enough detail for effect without weight.



Wonder how many Guillow Fieseler Storch models have come out looking like this? Dick Johnson, Dallas, Texas did this magnificent job. Cox .020 power, working oleo struts.

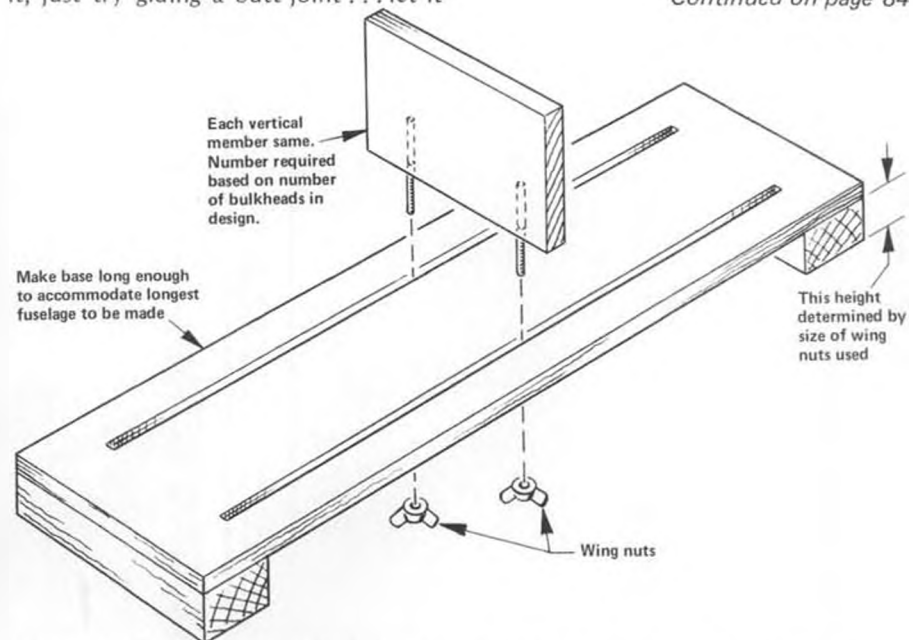


The answer to that question in the picture caption above has to be, "Only one!" Remember the old Lana Turner sweater-girl line, "You only get out of it what you put into it!"

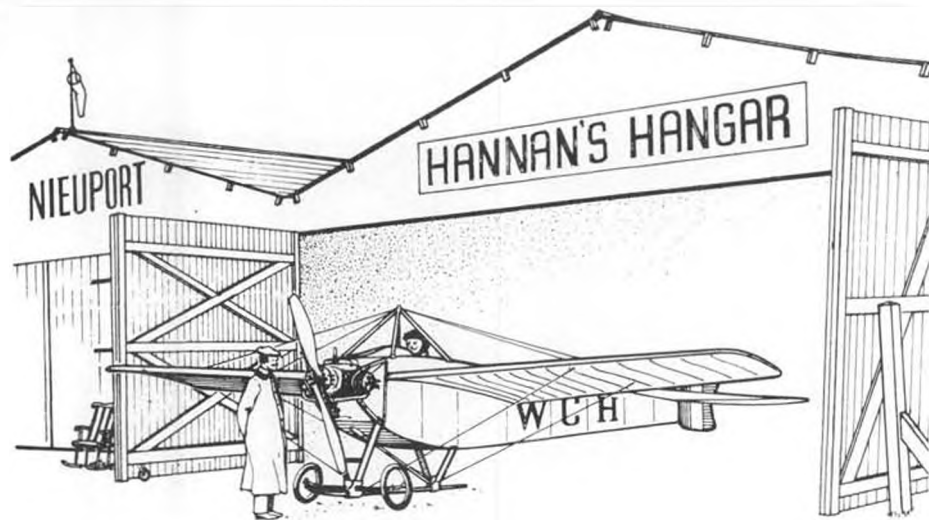
such as a sheet balsa leading edge on a wing, or a sheet balsa turtle deck on a fuselage, etc. Why not there? Titebond does not sand very well, and should be avoided in seams. I use Ambroid on these seams because it does sand well. However, any time that I use Ambroid, I pre-glue the joints or seams. If not, the joints will be weak. If you don't believe it, just try gluing a butt joint . . . let it

dry, then pull it apart. It will break cleanly at the joint every time. Ambroid, as well as similar type glues, is absorbed into the pores of the balsa so readily that little is left for the joint itself. Therefore, pre-gluing takes care of this problem, and is effective. However, I will not use Ambroid on bulkheads where sheeting is used, as it tends to

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Fernando's adjustable fuselage jig idea can be made to whatever size you think you will need. Chances are you'll come up with a model that won't fit anyhow, so just take a guess!



"Aeromodelling is a funny disease . . . it flares up every now and then!"

● Our lead-in line above is a direct quote from builder Brian Donn, returning to the hobby after a period of inactivity.

WALNUT SCALE

W.S. is now being promoted by the Tern Aero Co., who produces a fine line of small flying models. Thus, enthusiasts can now participate in Peanut, Walnut, or Coconut (Jumbo) classes . . . which tends to confirm that scale modelers are basically nuts.

RUSSIAN ENGINES, ANYONE?

William Dahlgren Jr. offers a very limited number, and at very reasonable prices. We have personally seen two different types of these engines, and found the workmanship to be good and the designs intriguing. These power plants would be suitable for free flight or control-line models, as well as offering appeal to collectors. Scale fans: What could be more logical than equipping a model such as a Yak-18 with a Russian engine?

The supply varies from time to time, so it would be best to drop Bill a line regarding current availability, including a stamped envelope for his reply: Wm. Dahlgren, Jr., 415 Hazelwood Lane, Glenview, Illinois 60025.

GENERAL MOTORS DE HAVILLAND?

Yes indeed, according to "The Coachman," newsletter of Fisher Body, sent to the Hangar by Frank Scott. It seems that during World War I, the Fisher Brothers accepted a contract calling for

the construction of the British De Havilland DH-4, the J-1 trainer, and the Italian Caproni bomber. Although only five of the Capronis were produced, the plant (now known as Fisher body Fleetwood) turned out 400 trainers and 1,600 De Havillands.

BARREL ROLLING UKIE

Not intentionally, of course, but let's have it straight from the builder, Steve Tracy, of Ft. Wayne, Indiana: "In our area, R/C is the thing, but there are a few of us die-hard types who still fly ukies (you remember them). Anyhow, I could not find any kits for twins that I felt like paying an arm and a leg for, so I built my own Henschel 129B (more or less). It flew fairly well and drew quite a crowd. I believe it to be the only ukie to do two consecutive barrel rolls and live to tell about it. It would not loop (that's how I found out about the barrel rolls!)." **INFLATION**

Remember when breakfast cereal only cost about a quarter and sometimes included a cardboard or balsa aircraft

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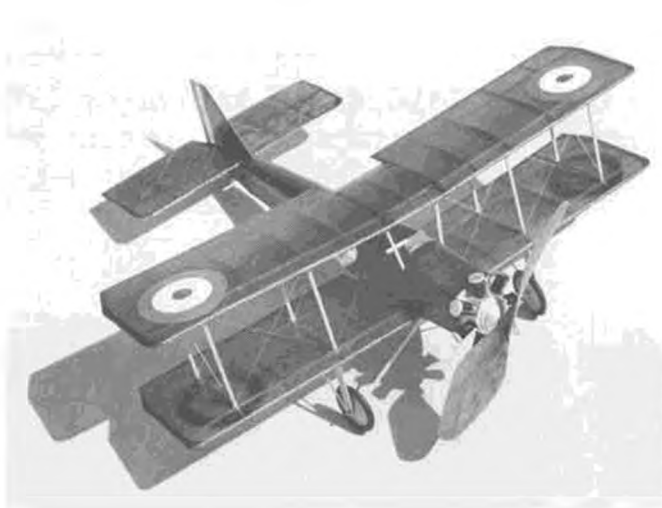
A mottly crew of modelers if we ever saw one! Gathered together for part of Dave Linstrum's Stateside visit (l to r): Bill Hannan, Clarence Mather, Dave, and Walt "Peanuts" Mooney.



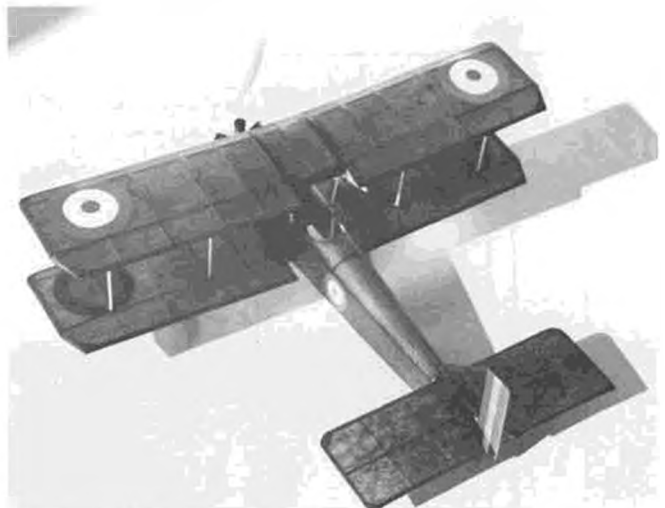
Dave Acker's Bleriot, constructed from Henry Struck plans. Bamboo struts, covering from Cleveland kit, flies on paddleball rubber!



Dimitry Ugryumov, of Russia, holding his dad's Nieuport 17C, in the Soviet Air Force markings as used during World War I.



It would seem that someone designed this airplane for modelers first, and then built it full size. Lots of area, wide landing gear, simplicity.



Long tail moment adds to stability, promotes smooth flight. To get the proper coloring, Walt dyed his own tissue. Explained in text.

Peanut B.A.T. Baboon

PHOTOS BY FUDO TAKAGI

Did someone write a recent article about using wierd names for airplanes? They were almost 60 years too late! The B.A.T. Baboon indeed! Another wild Peanut and some special hints by . . . WALT MOONEY

• There are a lot of different reasons that one can have for selecting a particular airplane to be made into a Peanut Scale model. Because Peanut Scale models are limited in span, it is desirable that that the design have relatively low aspect ratio wings, in order to obtain the largest possible wing area. This airplane meets the low aspect ratio criteria, and has two wings. The design should have a fairly long tail moment, which this design also has. For good R.O.G. takeoffs, it should have a stable landing gear arrangement. This aircraft probably has the widest track landing gear of any WW I airplane (*Or of any other era, for that matter! wcn*). Some dihedral is also desirable.

Of course, the real reason a design is selected to model may be different from

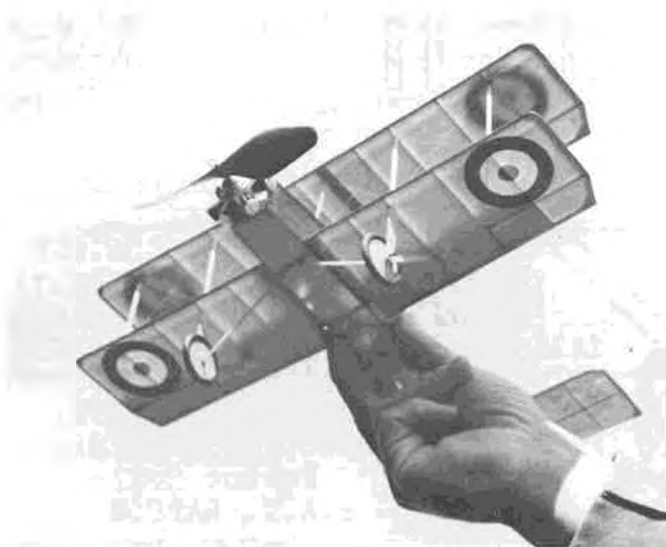
all of the above. In 1918, the British Aerial Transport Company constructed their Type F.K. 24, ("F. K." for Frederick Koolhoven) and gave it the name of "Baboon." What better reason to build a model than the fact that its name is unforgettable? Therefore, here is a Peanut Scale model of the "B.A.T. Baboon."

The basic design was meant to be a very simple-to-build, easy-to-rig, and simple-to-maintain, trainer. This tends to make for a simple model. The model is simple with the exception of the dummy seven cylinder engine. With the availability of Williams Brothers plastic cylinders, even the engine is not difficult to make.

The fuselage is constructed by first making two side frames directly over

the plans. The side frames to be constructed are shown hatched, for clarity. The very first bay of the sides is filled with sheet balsa. When the cement is dry, remove the sides from the plans and carefully separate them. (If desired the frames can be built separately, but I find they are more apt to be exactly alike when I build them at the same time.) Now cement the two side frames together at the extreme aft end. Set this assembly above the top view of the fuselage so the correct angle of the sides at the tail post is obtained, and let it dry thoroughly. Then add the horizontal cross braces at each station, moving toward the nose. Note that the longerons will have to be cracked at the first sta-

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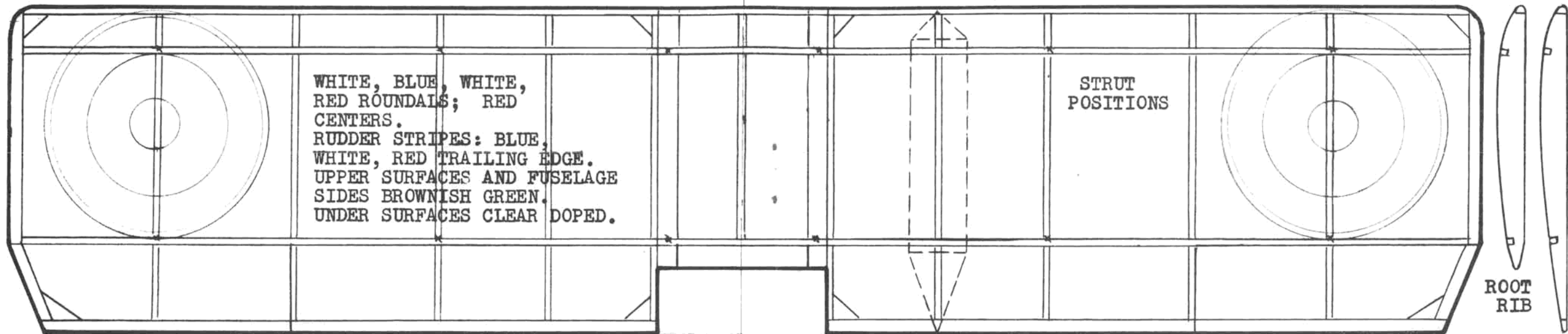


How to get 48 legal square inches of wing area in a Peanut . . . build a Baboon!

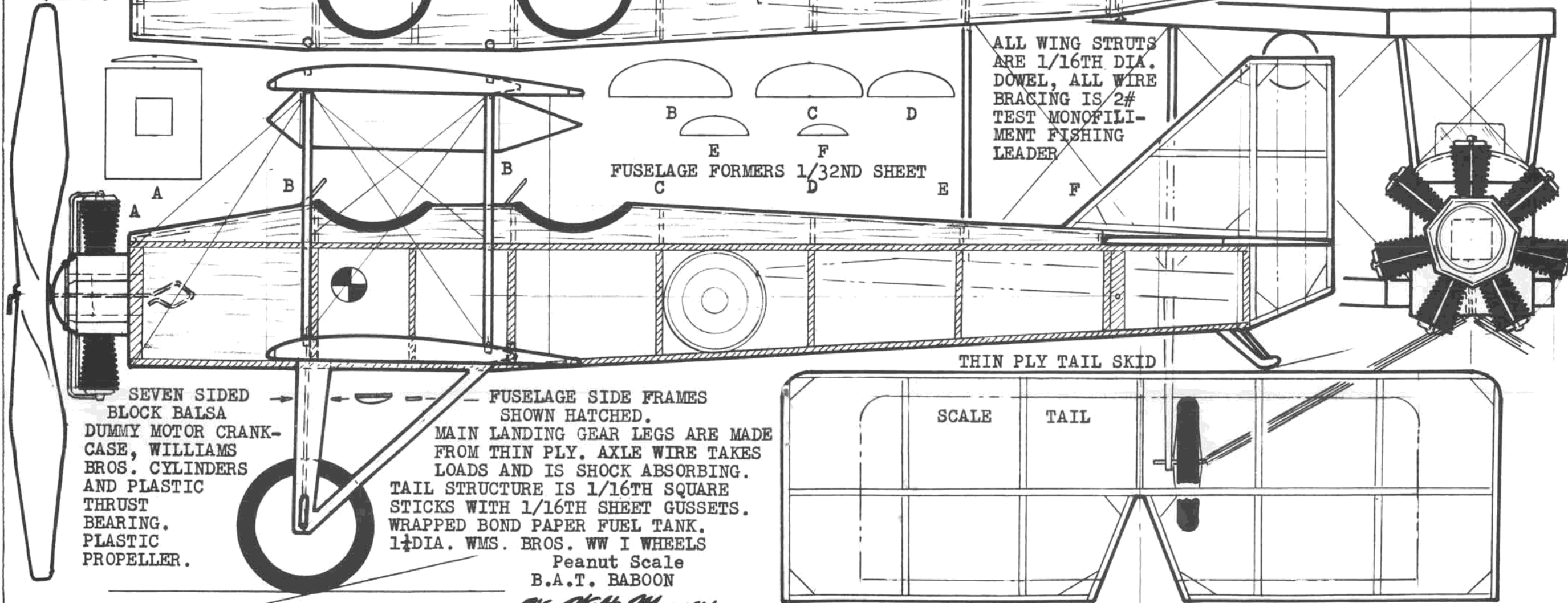
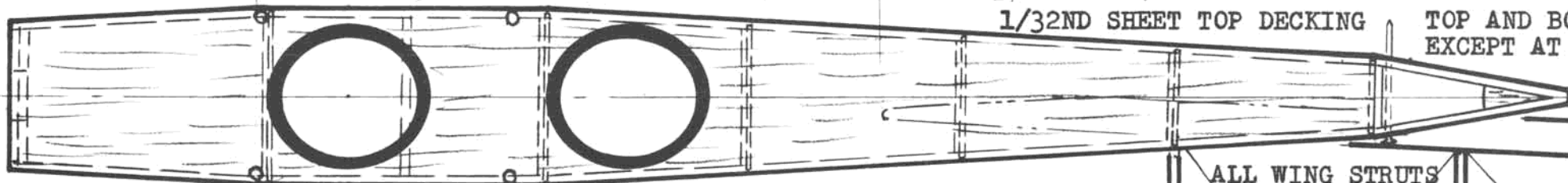


The extremely wide landing gear tread shows up well when seen from this angle. Williams Bros. cylinders used to make the engine.

WING TIP 1/8TH SQUARE, LEADING AND TRAILING EDGES 1/16TH by 1/8TH, SPARS 1/16TH SQUARE, ROOT RIBS 3/16TH SHEET, OTHER RIBS 1/16TH SHEET.



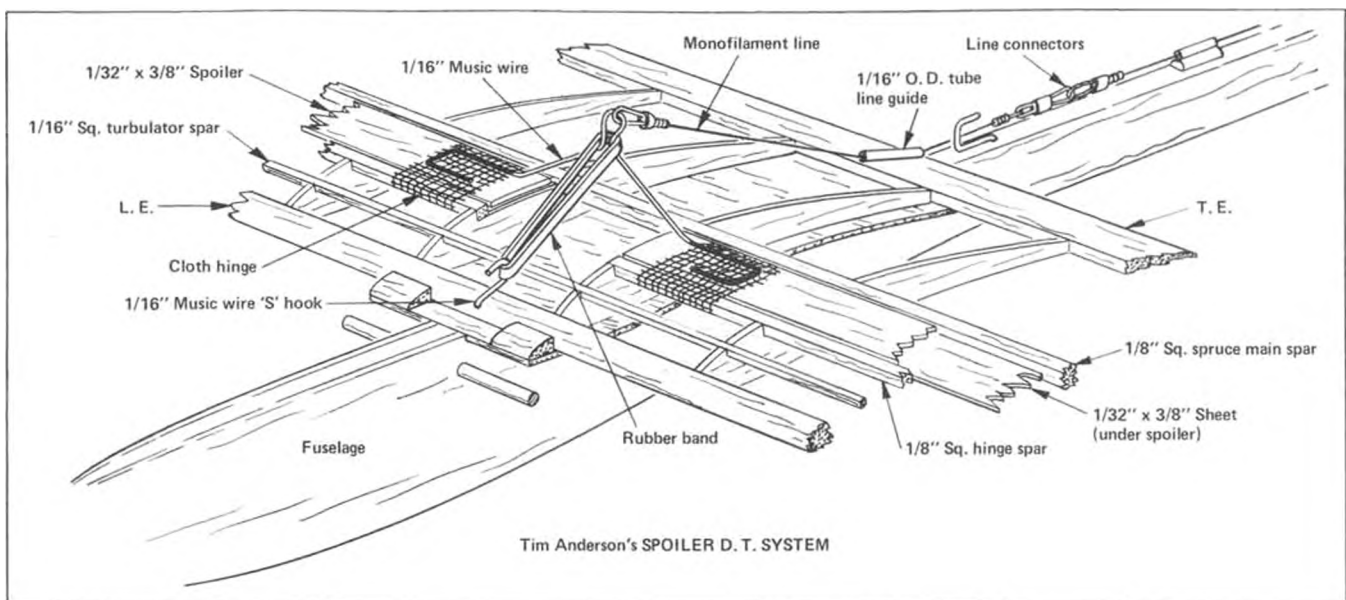
FORMER A 1/8TH SHEET & 1/16TH.



SEVEN SIDED BLOCK BALSA DUMMY MOTOR CRANKCASE, WILLIAMS BROS. CYLINDERS AND PLASTIC THRUST BEARING. PLASTIC PROPELLER.

FUSELAGE SIDE FRAMES SHOWN HATCHED. MAIN LANDING GEAR LEGS ARE MADE FROM THIN PLY. AXLE WIRE TAKES LOADS AND IS SHOCK ABSORBING. TAIL STRUCTURE IS 1/16TH SQUARE STICKS WITH 1/16TH SHEET GUSSETS. WRAPPED BOND PAPER FUEL TANK. 1 1/2 DIA. WMS. BROS. WW I WHEELS Peanut Scale B.A.T. BABOON

By Matt Moroney



FREE FLIGHT By BOB STALICK

• One of the really super things that modeling provides is a sense of camaraderie, a belonging. It seems that wherever you go, there is an active modeler. It's almost an international social club. Meeting people who you have written to for years, but have never met, is a thrill. This year, the Nationals will again be held in August, in Lake Charles, La. As much as this affair is a contest, it is also a yearly gathering of the clan. There are, of course, other such kinds of gatherings. The U.S. F.F. Champs, the SAM Nationals, the FAI Semi-Finals and Central Finals. This year's Nationals are special, though. Very special. An outstanding modeler won't be there.

When the National Free Flight Society was organized, I was selected to be in on its formation. During its early

years, several outstanding individuals, giving freely of time, energy, and money, devoted themselves to the cause. None was more devoted than Pete Sotich. Pete was one of those who received and sent letters by the dozens . . . all written in that meticulous engineer's lettering style, by hand. For several years we corresponded, and we talked cross country over the telephone. Then, finally, in 1967, at the last California Nationals, I met Pete. He was then and still is the finest of gentlemen associated with this hobby. On numerous other occasions, he and I have had the opportunity to share experiences, bunking accommodations, and parts of our lives.

The AMA, and even more, the free fliers who attend the Nats, owe this man much. At one time, he was AMA

President. And for what seems all time, he has been the F.F. Events director at the Nationals.

In no way are these brief paragraphs an attempt to chronicle the efforts of Pete Sotich, for this article is not long enough to do so . . . but when Pete hung up his Events Director cap last fall, and announced to all of us that he was retiring from the active modeling scene, a long pause followed . . . It was as though free flight, the AMA, and each life touched by him would never be quite the same. And, each life, I'm sure, won't be quite the same . . . Including his . . .

* * *

DARNED GOOD AIRFOIL . . . Gottingen 359

This section reminds me so much of the Goldberg G-610b in its shape, that I sometimes mistake the two. There are several differences in shape, but both fit into the good, all-around airfoil category. This one is touted as a good one for Wakefield stabilizers, and with a fairly forward high point and undercamber, it makes it one of the more non-critical, all weather sections for stab use. It provides non-critical longitudinal stability for all around use. I would consider it also as a wing section for beginner's rubber and glider models.

MYSTERY MODEL

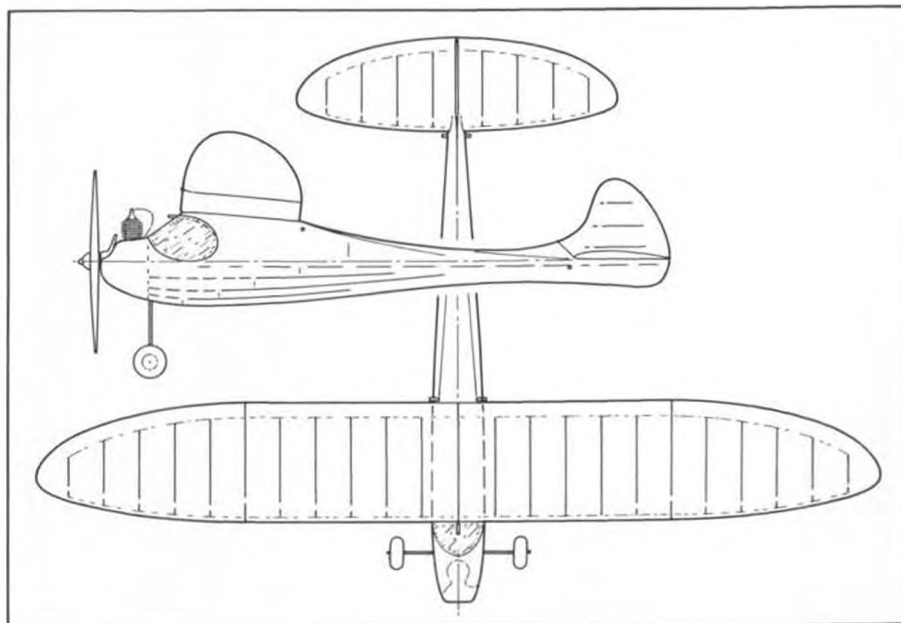
For all of you who can identify an Atom, a Little Hercules, or a Loutrel, this ship might be easy. It came about just at the same time that Ray Arden was fooling with his little coils of hot wire . . . which eventually replaced the spark plug. Designed for Arden's .09 ignition engine, this ship was touted as a real contest threat. Uncle Bill will send you a very nice gift if you get to him with its correct name before anyone else does.



Rudy Schuh (rt) presents still another award to Pete Sotich, who after many years of service to modeling, has chosen to take another direction in life. Whoever is in his path will be fortunate.



Ted Stalick models his Fly Free Flight cap. Info in column on how you can be the first one on your field to own one.



JUNE'S MYSTERY MODEL

JUNE MODEL OF THE MONTH . . . THE DRIFTWOULD HAND LAUNCH GLIDER

Steve Garaghty designed this ship several years ago, and it has been flown, not only by the entire Garaghty family . . . setting several national records in the process . . . but also flown by others with equal success. Because it is so simple and uncomplicated, it probably has little appeal to the technician, but it flies up a storm.

What I like about Driftwould is its ease of construction. Buying wood should be no problem, as 3 inch sheet is relatively easy to come by (compared to the 4 inch wide stuff) and everything else is really cut to a minimum to provide for neophytes. I've often wondered, for instance, why most gliders use a super-thin airfoil (1/4 inch sheet wings on a 4 inch chord equal an airfoil thickness of 6.25%). Steve's glider has an 8.3% thick section. Another point worth noticing is that the left wing main panel is washed in (instead of the right) and this keeps the ship from spiralling out of its glide circle . . . a common malady with hand launch gliders. I think this ship is a good one and one that can be put together with a reasonable expenditure of time. Build it tonight, fly it tomorrow. The Free Flighters ARF.

ANNOUNCEMENTS

I thought I had covered just about every conceivable item that NFFS Plans and Publications handled a couple of months ago, but I find that such is not the case. They also handle the excellent Free Flight News Yearbooks from England. If you are unacquainted with the quality of these products, drop NFFS Plans a line and enclose \$3.50 and find out just what you have been missing. Address: 5641 Diamond Hts. Blvd., San Francisco, CA. 94131.

Another Announcement: The cap you see pictured elsewhere in this column says: "Fly Free Flight." Several of us wore these to a recent contest and received excellent comments from the assembled modelers. After some negotiations, caps were made to fill the orders taken at that contest. Now, in case any of you out there in MODEL BUILDER Land are interested in buying a stocking cap with the words, "Fly Free Flight," knitted right in, you can do so. The cost is \$4.00 per cap, plus 50¢ for postage and handling. The cap is knitted in two colors of your choice (please state the colors), and each one is custom made. Since they are custom, allow *at least* 3 weeks for delivery. Direct all orders to Bob Stalick, 1120 Shady Lane, Albany, Oregon 97321. Enclose check

or M.O. for \$4.50. (*Gee Bob, we didn't know you could knit! wcn*)

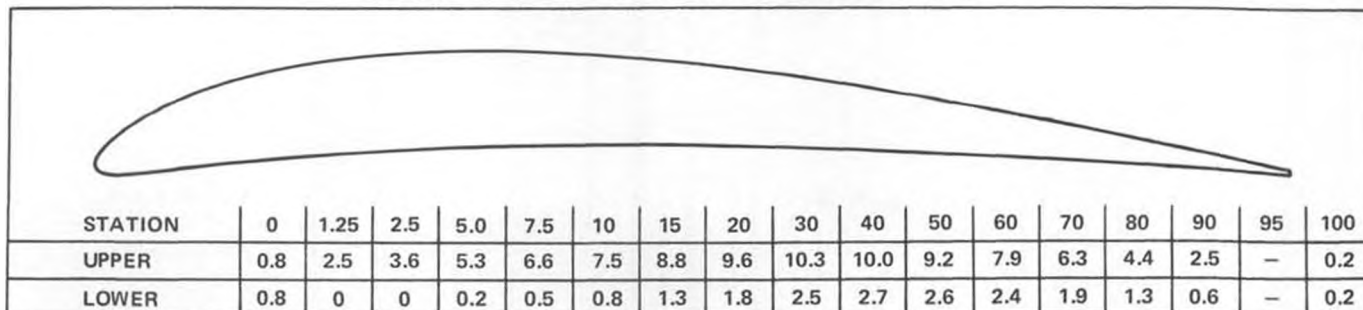
ESTIMATING HEIGHT AT END OF CLIMB

Most of us go through a free flight contest wondering just how high somebody's model might have gotten. We guess that it was 500 feet, 1000 feet or even a mile high. Many of us have some idea of how high an A/2 is when we release it at the top of the line . . . it must be 50 meters (now, let's see, if we convert that to feet, it's . . . ah . . . 164 feet.) One of our club members had a formula which has always stuck with me. It went, "I don't know how high it is, but it sure clumb, and clumb and clumb!"

Well, along comes Matt Gewain of Oklahoma, with a simple means of estimating the height. And it doesn't depend on triangulation or things like that. All you need is a watch with a sweep second hand (or a stop watch) and a calculator . . . or if you wish, Matt has provided a simple graph which should do the trick.

Matt says: "Last summer, while trimming a new FAI Power model, I came up with a method of estimating the height at the end of the climb. I used it to help me have more to go by when setting up the model . . . things like: which prop, trim pattern, and timer auto-surface sequence would give the maxi-

DARNED GOOD AIRFOIL - GOTTINGEN 359



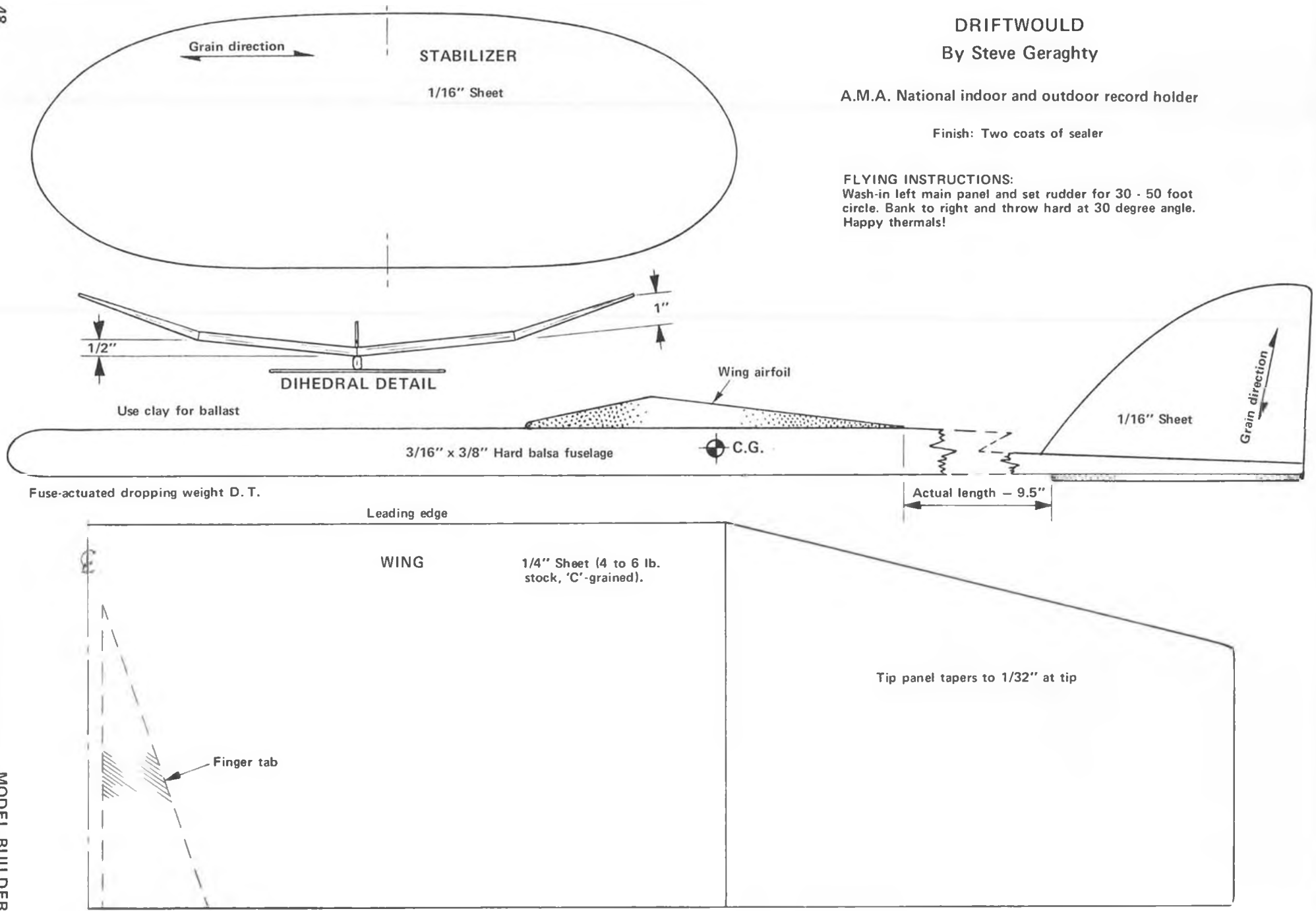
DRIFTWOULD

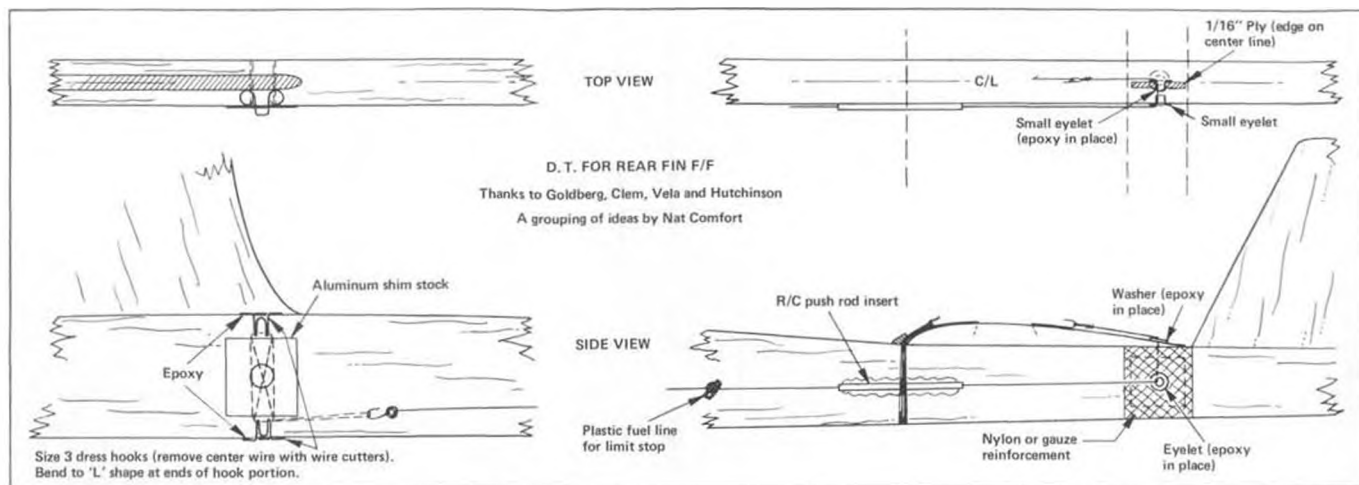
By Steve Geraghty

A.M.A. National indoor and outdoor record holder

Finish: Two coats of sealer

FLYING INSTRUCTIONS:
 Wash-in left main panel and set rudder for 30 - 50 foot circle. Bank to right and throw hard at 30 degree angle. Happy thermals!





mum height. The method is only approximate, and I am sure others must have thought of it. All I did was estimate the rate of sink of the model when DT'ed. Then measure the time from DT pop-up to when the model hits the ground. You have to assume dead air, naturally, so I always take 3 or 4 tests for each set-up, and if they vary only slightly, I assume the air is dead.

The method of estimating the rate of sink is:

$$W = D1/2GV^2C_D S, \text{ or}$$

$$V = \sqrt{2W/GSC_D}$$

W = weight, D = drag, G = air density (.002377), V = rate of sink, C_D = estimated coefficient of drag (1.25), and S = wing surface area (projected).

"Then, H (height) = $\sqrt{2W/GSC_D} \times T$, where T equals time to fall.

"Using the values for G and C_D above,

$$H = 25.9 \sqrt{W/S} \times T$$

"Converted to use W in ounces and G in square inches,

$$H = 77.7 \sqrt{W/S} \times T$$

"For my FAI power model, W = 27 ounces, and S = 470 sq. inches:

$$H = 18.5 (T)$$

"For my Nordic A/2, W = 14.7 ounces, and S = 430 square inches:

$$H = 3.96 (T)$$

"I have converted this to chart form also, so that it will be easier to use. Again, this is only an estimate, and is most useful to determine if a change made to the model has helped the climb height. But the method does give height rather simply without any fancy instrumentation."

DETHERMALIZING . . .

A COUPLE OF DIFFERENT IDEAS

It is easy to get into a rut and assume that your method of dethermalizing a model is the only way. However, there are others who are not afraid to share their own ideas. Here are two that are worth looking at:

1. DT For Rear fin free flights, by

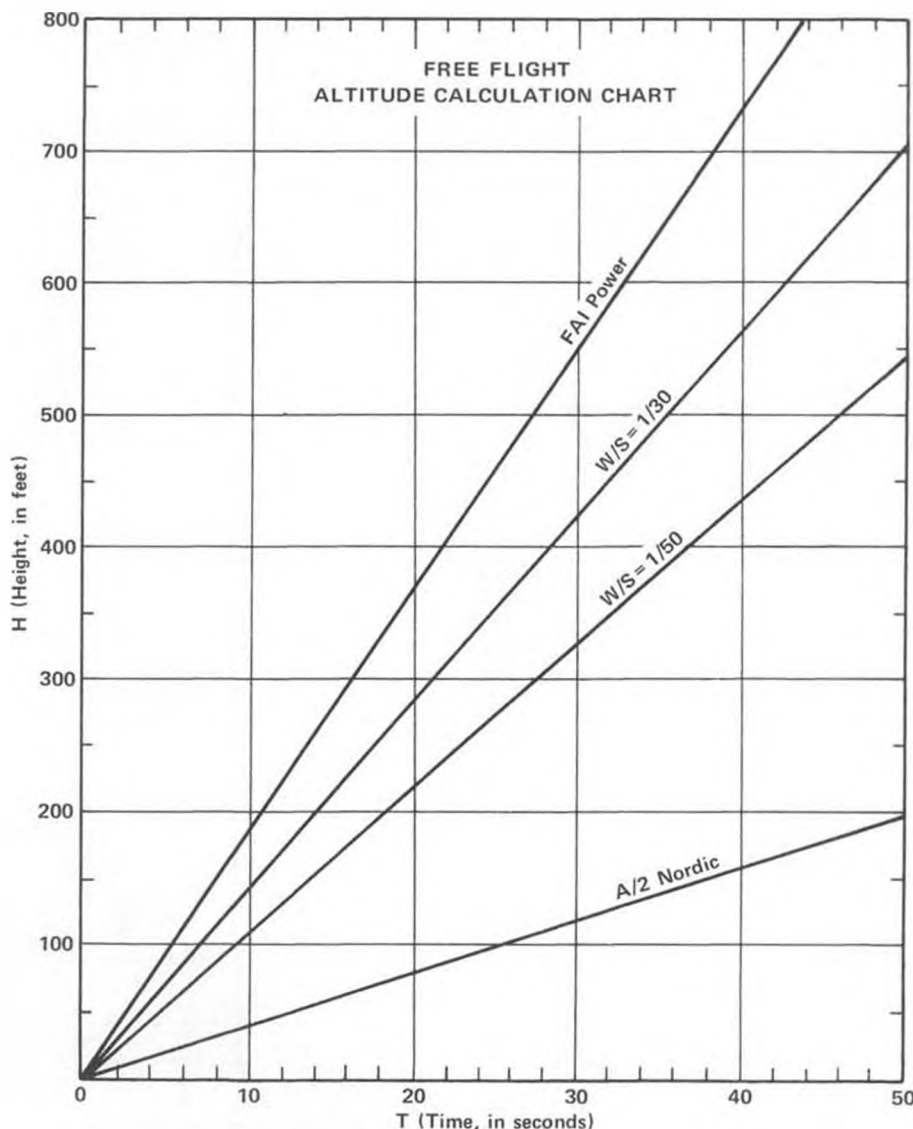
Nat Comfort:

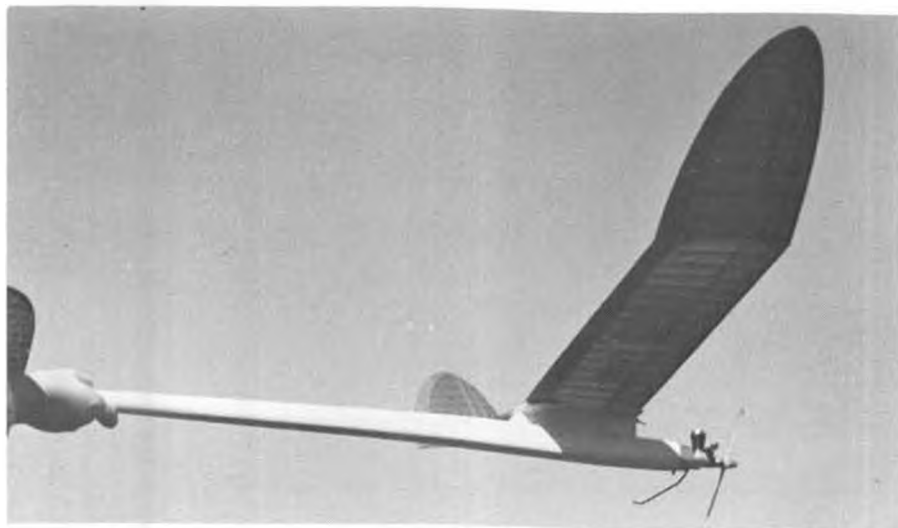
"Here is my favorite DT system, made up of pieces from some of the best in the business. First, taken from Goldberg's Viking, is the use of the common eyelet as a stationary pulley, or bearing surface. This eliminates the use of complicated bends in tubing for a transfer from horizontal to vertical.

"Second, from Jim Clem's Firewagon, the use of two hooks, one on either side

of the fuse. This provides a fumble-free, one-hand operation of wrapping the rubber band around the fuse. His idea of epoxying the hooks to the corners eliminate the need for plywood reinforcing at the points of stress. I moved my installation to the side rather than the bottom, because fuel running back on the bottom had occasionally drowned the DT fuse on my first Firewagon.

Continued on page 71





1/2A SHRIKE

Here's a competition ship that is better than average in looks and performance. It likes to climb!
By BILL LANGENBERG.

• Perhaps the most common type of free flight model which appears in the hobby literature is the "hot" 1/2A. Many free flighters, I suspect, can recall a host of these ships, most claiming in some degree to be the ultimate in light weight, rapid climb, and soaring glide.

I shall refrain from use of such superlatives to describe the Shrike. It is, however, an esthetic, consistent, competitive, and durable model which has been quite successful and enjoyable for me over many contest seasons.

During the past ten years, I have lived and flown competitive free flight in California, Arizona, Texas and surrounding states. From the modeler's standpoint there are marked differences in altitude, terrain, climate, and wind among these regions. Probably the most meaningful recommendation that I can make for this model, and its predecessors of the same general design, is that they have demonstrated consistency and durability in competing under these widely varied conditions. Originally designed for the 20 second engine run, 5 minute max rules, the Shrike has been refined over the years to be competitive under the 9-15 second power pattern and 3 minute maxes which seem more common today.

For those readers curious about the name, the Shrike is a predatory bird which impales its prey on thorns. If this model is built as shown on the plans, and flown intelligently, it should survive its competitors which become impaled on wheat stubble, barbed wire fences, or other flying field hazards, and continue to be successful for many contest seasons.

So if the plan appeals to your esthetic

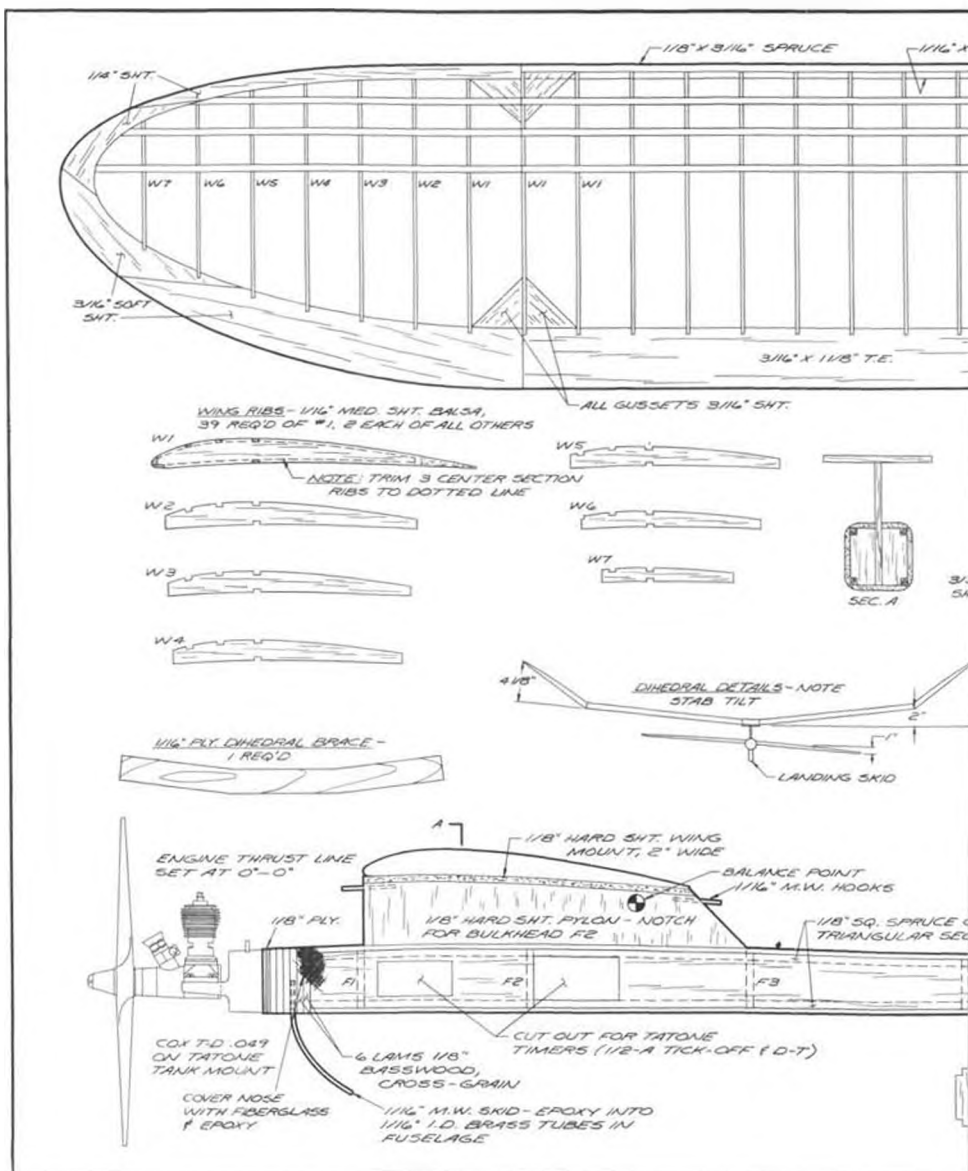
tastes, and you seek a consistent, durable 1/2A or A model which will permit you to compete rather than build, the Shrike may be for you.

STABILIZER

Begin construction with the stabilizer so that it can be covered, doped, and cured before any test flights are attempted. To withstand the rigors of DT landings and enhance durability, spruce spars and leading edge are utilized. Balsa can be substituted if weight is the ultimate criterion to the builder, although this is not recommended. The stabilizer should be covered with tissue and given at least three coats of thinned dope. I normally prefer nitrate to butrate dope because it appears less susceptible to moisture changes in the pair. If nitrate dope is used, a coat of fuel proofer must be applied as the final step. The stabilizer should be absolutely free of warps.

WING

Next in construction sequence is the wing. It is straightforward and should present few building problems. Here again, balsa can be substituted for the spruce shown on the plans, although I



do not recommend it.

Select the wood for the wing tips with care, as they should be kept as light as possible. For the two inboard wing panels, ribs should be cut from 1/16 quarter grain stock. The trailing edges are preferably carved from similar 3/16 sheet balsa. During assembly, the front of the trailing edge should be packed up to conform with the airfoil as shown on the plan.

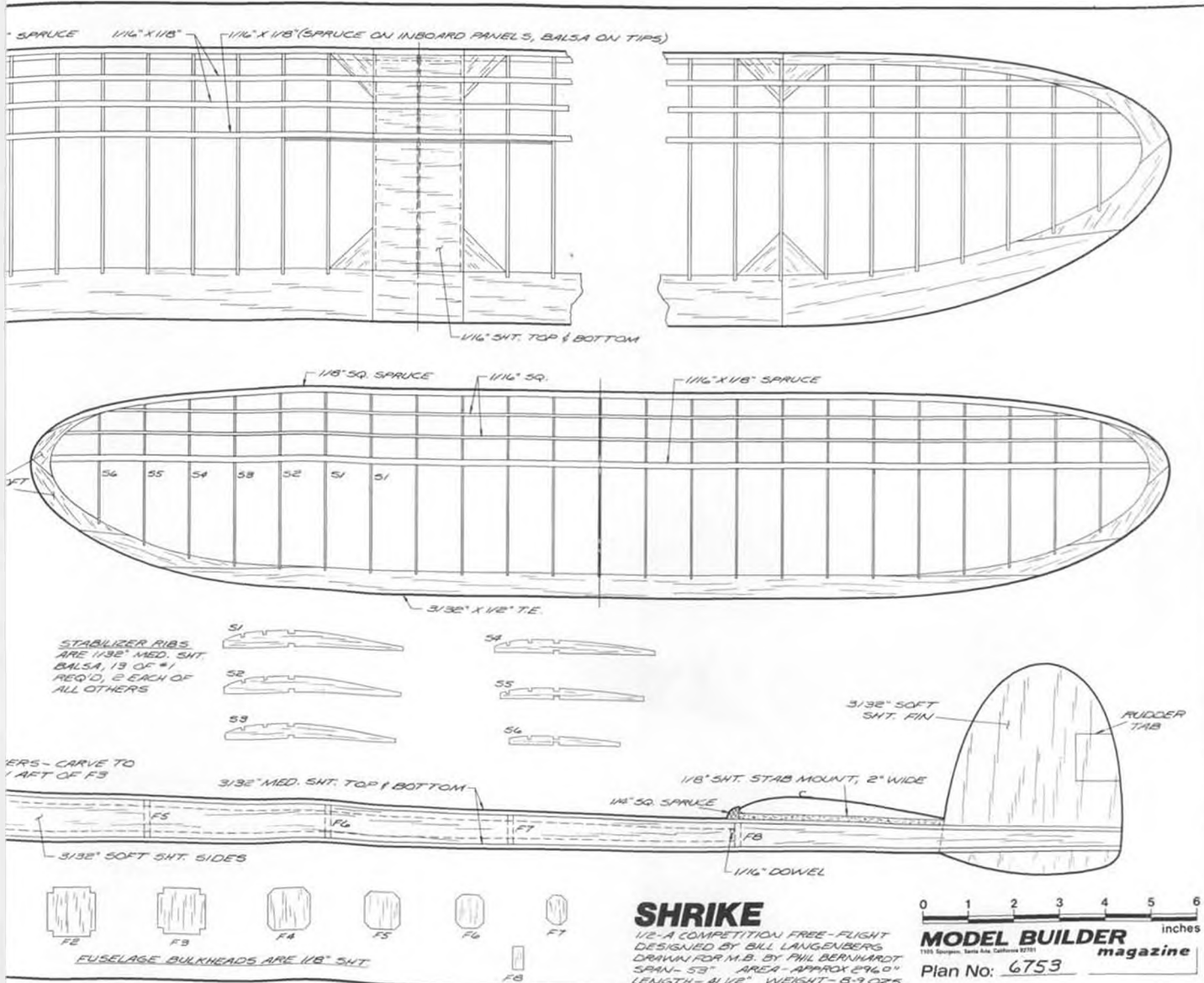
Assemble the wing panels to the polyhedral dimensions indicated, using liberal amounts of glue on all joints. Install plywood gussets and triangular reinforcements as shown. Sand the entire completed structure carefully to ensure an attractive covering job.

I recommend covering the inboard wing panels with GM silkspan to enhance torsional rigidity and facilitate field repairs and patches. If tissue is used, cross grained double covering of the inboard panels is desirable. As on the stabilizer, apply at least 3 coats of nitrate dope, plus fuel proofer on the inboard panels. Set the wing aside and allow it to cure thoroughly. The right inboard wing panel should have 1/8 inch wash-in.



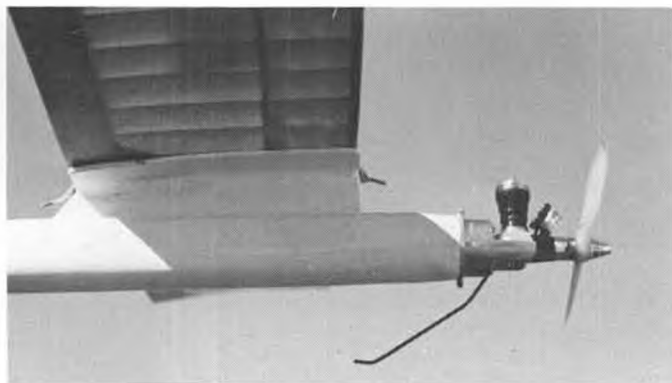
The Shrike's long tail moment controls power. The generous dihedral is also helpful in gusty weather. Closely spaced ribs assure a more consistent airfoil.

PHOTOS BY AUTHOR





Tail feathers. VTO peg facilitates takeoff and eliminates possibility of damage or detrimming of rudder tab during launch.



The "Go" end of the Shrike. Design is clean and simple, yet lines are smooth and streamlined.

FIN

The fin is cut from 3/32 soft sheet to the outline shown on the plan. It should be carved and sanded to a streamline shape as indicated.

FUSELAGE

Select four 1/8 x 1/8 straight grained strips for the longerons and carve them to triangular shape aft of Section A as indicated on the plan. Cut two fuselage sides from 3/32 soft sheet balsa. Now pin one side over the plan and glue the longerons to it. Insert 1/8 balsa bulkheads just forward and aft of the pylon, and spaced about every 4 inches thereafter to just in front of the fin. Add another one ahead of the D-T timer. Remove the first fuselage side from the plan, and glue the shaped longerons to the second side. After it dries, attach the second side to the bulkheads, making sure that the entire fuselage is properly aligned.

Select a sheet of medium 3/32 balsa for the fuselage bottom. Sand smooth the two fuselage sides, longerons, and connecting bulkheads, and then glue the entire assembly to the bottom sheet. This whole structure can be pinned to a flat surface. Cut the pylon, very accurately, from hard 1/8 sheet balsa, notch it for the bulkhead forward of the D-T timer, and glue it firmly in place. Ensure it is

perfectly vertical. Now sand smooth the fuselage top, and glue the 3/32 cover sheet on it for the entire length. Prepare the wing and stabilizer platforms as shown on the plan.

After the fuselage assembly has dried, remove it from the plan. Cut and drill the 1/8 plywood firewall to fit a Tatone tank mount. Install blind mounting nuts. Then glue the firewall to six cross grained sheets of 1/8 bass wood, and cement this assembly to the fuselage forward bulkhead as shown on the plan. Epoxy is recommended for this process. Now file, carve, and sand the forward fuselage into a smooth round shape to ensure a clean junction with the tank mount. Fiberglass and epoxy resin over this entire region.

Sand smooth the balance of the fuselage, then add the wing and stabilizer platforms. Cut out the fuselage for the fin, insert it as shown on the plan, check alignment and glue it in place. Add the 1/16 spruce dowel for the D-T bands, then the tubing for the external D-T string. Bend the wing hooks from 1/16 wire as shown on the plan and epoxy them firmly in place. Drill a 3/32 hole in the bottom of the nose and epoxy a short length of 1/16 I.D. tubing in place to hold the landing skid, which is formed from 1/16 music wire. Sand smooth the

entire fuselage and apply two coats of clear dope. Install the engine and D-T timers. I normally apply two coats of epoxy paint as a fuselage finish, primarily because it is durable and absolutely fuel proof. If desired, however, the fuselage can be tissue covered and doped. Ensure that adequate fuel proofing is applied if the latter procedure is used.

FLIGHT TESTING

The crucible of a hot 1/2A model usually occurs during testing. Normally, the first few flights are most critical. Once these have been completed without mishap, the rest becomes easier. The Shrike is no exception to these statements. Before attempting the first test flight, assemble the model and check it carefully for proper alignment, CG location, and absence of unwanted warps. Test glide it and adjust as necessary by small increments of packing under the leading or trailing edge of the stabilizer.

After the glide is satisfactory, the ship is ready for its first power flight. Set the engine timer for not more than a three second run, start the motor, and hand launch the model gently into the wind at about 45 degrees elevation. Climb should be straight out at the angle of launch, into a slight right spiral. Any tendency to go left in the climb should be corrected immediately, as this normally is fatal. On subsequent test flights, increase length of motor run as flight pattern, safety and intestinal fortitude permit. All of my models of this general design have required about 1/16 inch left rudder tab to keep the tail down during climb. The 1/8 inch wash-in in the right inboard wing panel helps keep it up during ascent.

One word of caution on this subject seems appropriate. If this model is to be used interchangeably in classes 1/2A and A, this test procedure should be repeated upon switching engines. Nothing affects the Shrike's climb pattern more drastically than major changes in power, hence speed. So unless you are absolutely certain your 1/2A and A engines are equal in power output, a few short test flights upon engine changes are normally prudent.



Earlier version of the Shrike with forward fin. Aft fin provides more consistent power pattern. Design has been well tested in all kinds of air.

Continued on page 57

MODEL BUILDER

AND

PANA-VISE®

presents the MASTER MODEL BUILDER of the month CONTEST

COLBERT INDUSTRIES, manufacturers of PANA-VISE, the unique hobby vise which turns and tilts to any position, in conjunction with MODEL BUILDER magazine, is sponsoring a design competition for MODEL BUILDER readers.

This monthly contest will be judged for originality and/or craftsmanship for all types of models (excluding plastic static scale). Entries will be judged purely on the basis of photographs and drawings supplied by the builder of the model. Emphasis in judging will be on originality, technical achievement, and craftsmanship, as found in the submitted material.

A MODEL 301 PANA-VISE WILL BE AWARDED EACH MONTH TO THE WINNING ENTRY



Requirements for entries:

1. Any type model may be entered (aircraft, cars, boats, etc.). Kits may be entered if significant modifications have been made to the stock kit.
2. Do not send the actual model. Send only black and white photos, showing at least three views of the model. Include some familiar object in at least one photo to indicate the size of the model. Try to include photos of any significant details.

3. If photos cannot offer sufficient information about the model, the construction drawings may also be submitted. Drawings should be clean, pencil drawings with all pertinent dimensions indicated. A print of the drawing is acceptable.

4. A written description should be included with photos and drawings, explaining in fair detail any unusual features of the design, and explaining any unique technical difficulties that the model may have achieved.

5. Please do not submit any designs that have been accepted for use in another publication. MODEL BUILDER requests first option on publishing any submitted design. Payment for published designs will be at our regular rates. Any prizes awarded do not represent an agreement to publish any design.

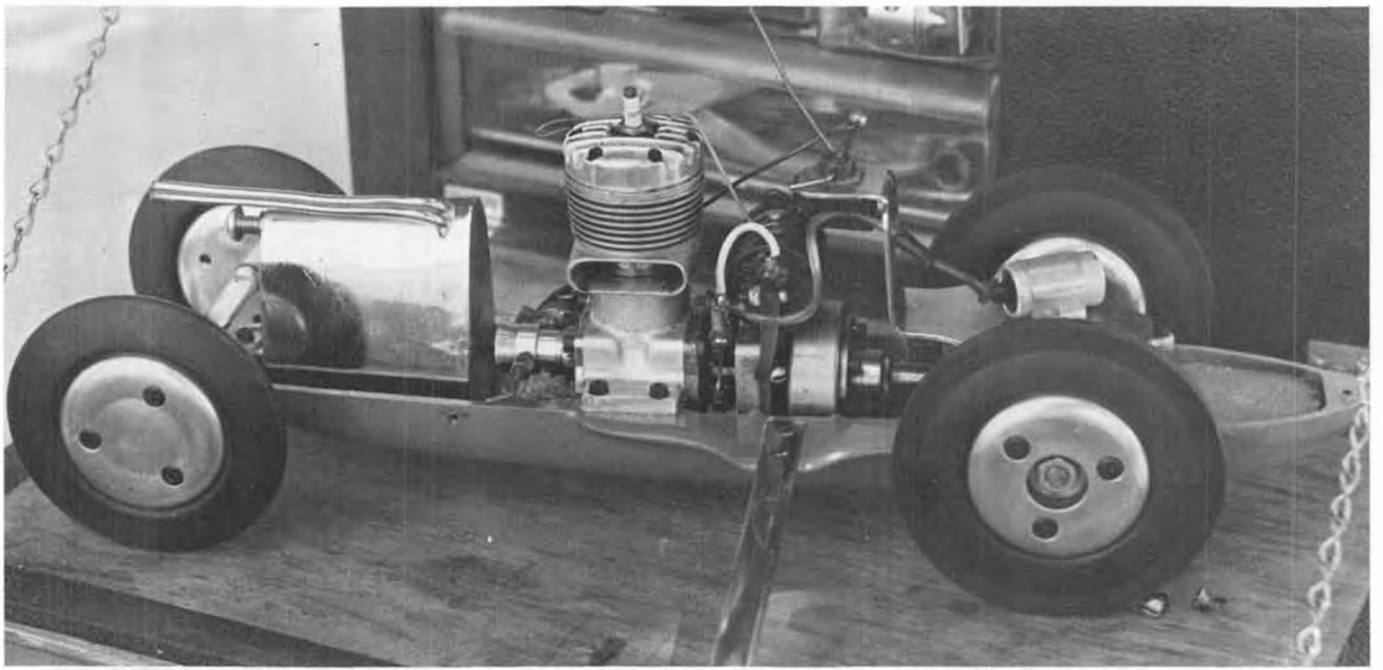
6. Entries will be judged by the modelers on MODEL BUILDER's editorial and art staff, and all decisions of the judges will be final.

7. Postage must be furnished if return of submitted entries is desired.

8. Deadline for entries in the first contest of the series is July 1, 1975, and winners will be announced in the September 1975 issue. Subsequent entries will be due the first of each month and winners will be announced the second month following each closing.

Send all entries to:

MODEL BUILDER/PANA-VISE CONTEST
1105 Spurgeon St., Box 4336,
Santa Ana, California 92702



This Fox car is typical of the older Class IV designs.

TETHERED RACERS!

By TED MACIAG
PHOTOS BY AUTHOR

The national championships of tethered car racing is coming to California in August. If you haven't seen these cars run, come on out, you might learn something . . . but you still won't see 'em run . . . they're too fast!

I still run into airplane modelers who have never heard of tethered cars or still think that they died out twenty five years ago. This could be because not everyone in the world reads MODEL BUILDER, and my occasional articles. Since that is rather unlikely, it must be that I haven't described this exotic and little-known phase of modeling in a while, so here goes.

Imagine one of the hottest racing 60s fitted into a fifteen inch long race car with a metal pan much like in an airplane, only much sturdier. Add inci-

dents like wheels, a gear box, and fuel tank, then top it with a wood or fiberglass body, and you have a race car capable of running 170 mph. This is providing that you do everything exactly right and the engine puts out as much power as the hottest airplane speed engines. Naturally, there is no way of controlling a free running car at this speed, so they go around in a 70 ft. diameter circle anchored to a center post by an .059 cable. This is bigger than the landing gear on a lot of free flights, but it is necessary because the six to seven pound

car pulls 40 G's at 150 mph, and the modern cars go even faster.

There are classes for every size and age of car, from the antique and near antique, to the most modern cars with tuned pipes. Sizes range from .09 cars that run 130 mph, through .15's, .29's, and the .60's that are still the most popular. There is now interest in a new class for the hot .40 size engines, which could be almost as fast as the big ones, but not quite as expensive.

Unlike the fragile airplanes, cars never wear out, so it is not unusual to see a



Two of the names in tethered car racing; Nick Tucci in front, Bill Geiger in back. OPS powered car in foreground with pipe.



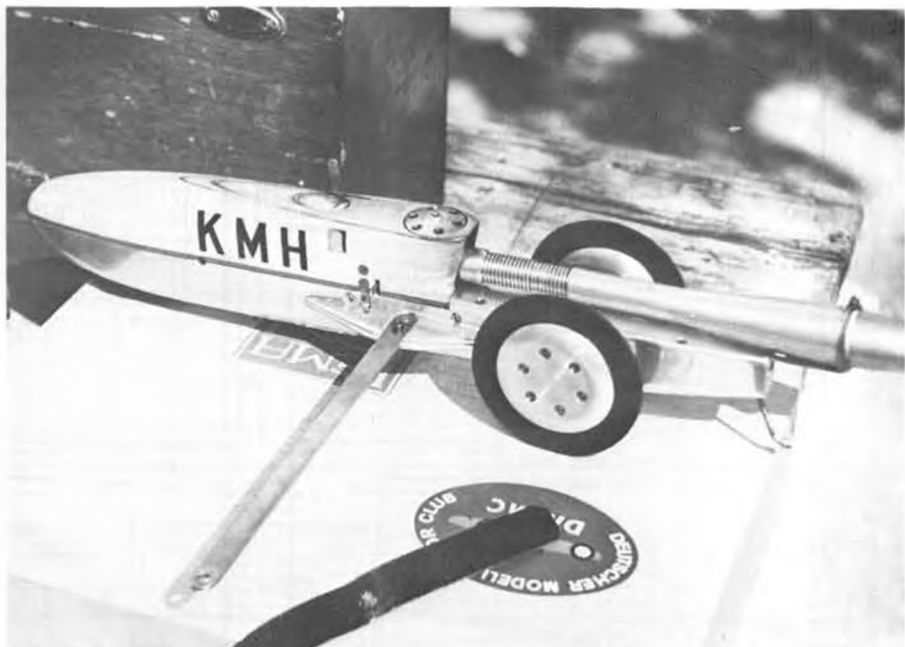
Bert Kuebler with two OPS powered cars. This engine seems to be the new dominator of tethered racing.



Cris Lupo, who spends most of his time working the center post, works on his Smith car.

25 year or older car running today, and going better than ever. In any racing event, most of the talk is about speed and records, as this is the most spectacular part of a race. However, many of our group do not own competitive cars, but run older cars just for the enjoyment of working on the machinery and watching the cars run. It is not necessary to be in the top three places of winners to enjoy running cars. (*Same goes for 90 percent of aircraft modelers. wcn*)

At the present time, there is more interest in tethered cars in Europe. They go in more for the smaller classes, and run phenomenal speeds, such as the 160 mph record in the .29 class. The Americans are way behind this. It seems that we have no trouble making a magneto fired Dooling 61 run, but can't get a glow plug Super Tigre to run in a car.



Very fast Rossi 15 powered car (?) by Adolf Malik of Germany. Just the thing to drive to church on Sundays!

The cars present a problem not found in airplanes. The engine must pull the car from almost a dead stop, so we can't use pressure fuel systems that will flood out at the low speeds. The small engines don't draw fuel well on suction, making the tank position rather critical.

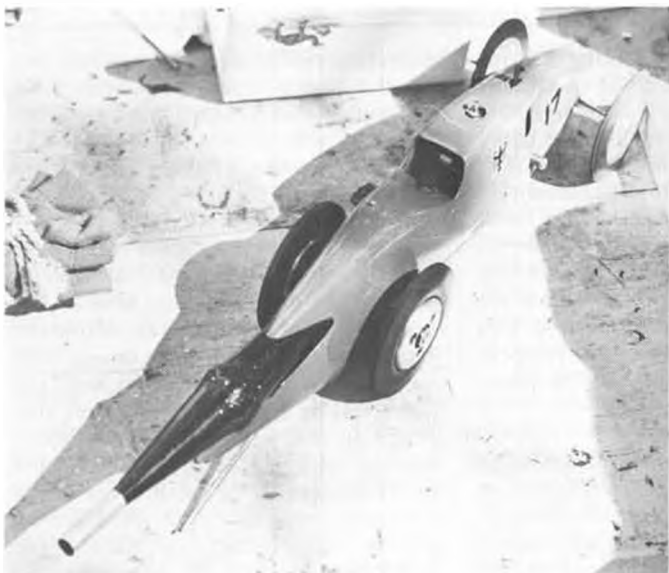
In a recent race there were five small cars entered and each had its own particular problem. Earlier in the day, the .60 cars roared off one after another, clocking in the 160's. Then we changed to the .041 cable and started the .29 race ... and the troubles. My old reliable .29 Borden car went first and wasn't so reliable when the fuel tank split before I could get a time. Bob Murphy, from San Diego, had no trouble with his Dooling .61 powered Arrow but couldn't get his .29 car to grip the track. The wheels were going at least 140 mph, but the car was only doing about ninety.

Bob's car is a nicely built Swedish model, and may be converted to the .40 class by just bolting in a larger engine.

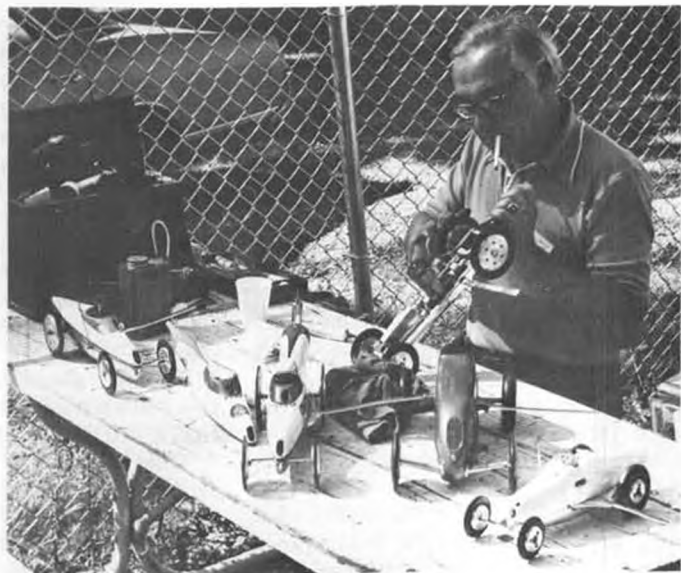
Ted Dodd found a new way to disassemble his OPS .29 car ... just run it and all the nuts and bolts come out! The problem is to find said nuts and bolts when you want to reassemble it (Loctite anyone?). Garold Frymire, who holds the American record in the .60 class, shed the gear box in his .29 car. And so it went through the day; no one got a good run on the small cars. One of the main problems is that no one takes them as seriously as they do the big ones. It looks as though the Europeans will be ahead of us in the small classes for awhile longer.

NATIONALS

Our national race is coming every year ... sounds like a politician ... This year it will be held at Whittier Nar-



Looks like a "stinger tail", this piped OPS car from Germany.



Garold Frymire and his fleet of very impressive race cars.

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KIT B24

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

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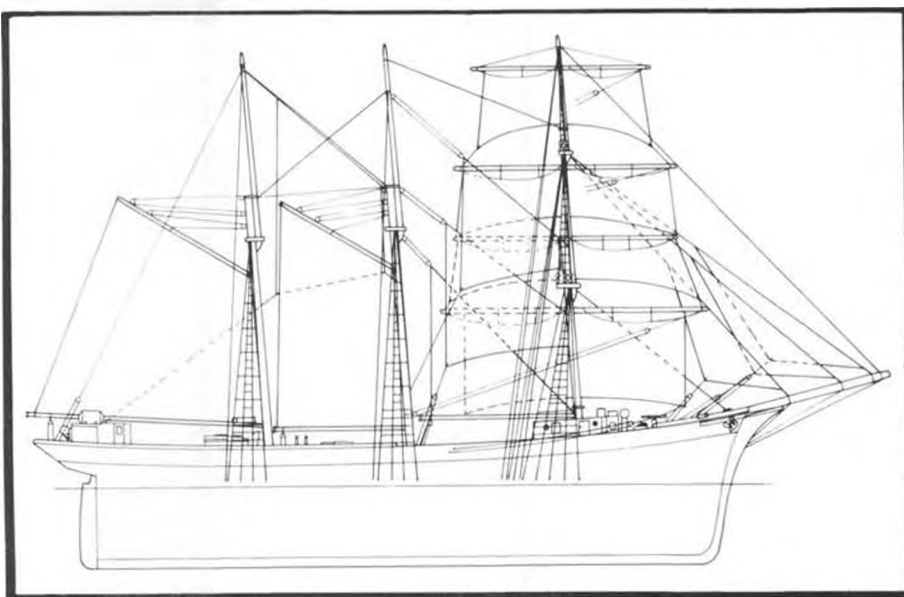


GAZELA PRIMEIRO

KIT D10

\$12.95

6 pack — 10 lbs.



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

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1/16th square crossbraces and to the up-rights and will provide some structure between the roots of the lower wings.

The horizontal and vertical tail are simple structures, built directly over the plans, using 1/16th square sticks and corner gussets cut out of 1/16th sheet balsa. Remove from the plans and carefully sand the outlines to a half rounded section. Don't omit any of the gussets, they are essential for keeping covering wrinkles from occurring.

The wings are conventional structures, using notched ribs, leading and trailing edges, and two top surface spars. The tip pieces are 1/8th square balsa. Again, note and install the gussets. Cut four root ribs from 3/16th sheet (or cut out twelve from 1/16th and laminate them three at a time to give the correct thickness). Cut out twenty-one of the regular ribs from 1/16th sheet.

Pin the leading and trailing edges to the plan. Cement the ribs in place. Cement in the tip structure and the gussets. Add the two spars, by cementing them into the appropriate notches. After the cement is dry in the rib notches, cut the spars to exactly fit at the tips and cement them in place. The spars should be flush with the top of the tips.

The lower wings end just at the inside of the root ribs. The top wing has a centerline rib. This is cut off even with the back of the aft spar and a triangular cross-section piece of balsa is used to

fill in between the root ribs. The dihedral break for all wings is located at the outside of the thick root ribs. Carefully cut the outer panels free of the roots and reassemble the wings with 5/16th inch dihedral under each tip. Taper the ribs to give a good fit.

When the cement is dry, sand the leading and trailing edges to the rounded and tapered cross-sections shown. Wing tips are also rounded.

Use lightweight tissue for covering all the components. To get an approximation of the right color for the upper surfaces I used "Brown" and "Olive Green" RIT dye, dissolved in rubbing alcohol, to dye a sheet of plain white tissue.

To dye tissue, you first have to make a frame to hold the sheet that is to be dyed. Cement one together out of 1/4th by 1 or similar balsa, like a picture frame, and cement your sheet of tissue to it. Pull it as tight and smooth as possible. Then spray the dye onto the tissue as evenly as you can. If you have no spray gun, it may be possible to dye the sheet using a cotton wad wet with dye, but much care will have to be exercised.

After the parts are covered, use a light fog of water to tighten the tissue. A single coat of clear dope (thinned about half and half with thinner), was applied all over, and then a second coat was applied to the fuselage. If you can get decals for the insignia, use them. If they

aren't easily available, now is the time to paint on the roundels.

Assembly of the major components can proceed after the struts are made up. The struts on the B.A.T. Baboon are of round cross-section, not streamlined, and can be made from lengths of 1/16th diameter dowel. Drill a small diameter hole through each end of the struts. This hole is used after assembly of the wings to facilitate the installation of the rigging. Cement the tail parts in place on the fuselage. Now cement the lower wings to the fuselage sides. Make sure they are accurately in the right place, and block up the tips to give the correct dihedral. Cement the four cabane struts in place on the top of the fuselage. A small hole will have to be cut into the top decking to accommodate each strut. Note that the rigging holes should be arranged to line up in a spanwise direction. Now carefully cement the top wing in place on the cabane struts. Look at the model from directly above and make sure the top and bottom wings are aligned.

When the cement holding the struts in place is dry, install the rigging, using 2 pound test monofilament fishing leader to represent the wires. Drafting tape is handy to hold the loose ends as the rigging is threaded through the holes. When all the rigging is in place, check the wing alignment and get it correct. Then put a small drop of cement at each

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of the strut holes to hold the rigging permanently. When dry, trim off all the overhanging ends.

Cut the tail skid and the two main landing gear legs out of 1/32 ply. Bend the main gear axle from 1/32nd diameter music wire. Cover the inverted "V" portion of the wire with 1/16th diameter spaghetti tubing to give the axle the right diameter. Cement the wire in place in the bottom of the fuselage. Add a filler to the bottom of the first bay of the fuselage to reinforce it. Cement the tailskid in place. Slip a wheel over each end of the axle wire and cement the gear legs in place on the bottom of the lower wings. A washer and a drop of cement can help retain the end of the axle in the leg.

Now make up the dummy engine. The crankcase is a piece of block balsa with the grain parallel to the airplane center line. Use the front view to get the seven sides accurately carved. Cut the square hole to fit the thrust bearing. Install the cylinders by making a hole to fit the thrust bearing. Install the cylinders by making a hole to fit the base of each cylinder exactly in the center of the seven faces. Add a circular balsa cylinder head to each one and use cut-off straight pins to simulate the valve lifter rods. Much more detail can be added to this engine if you have access to a copy of the 1919 Janes, which

has a picture of the engine, as well as the three-view of the B.A.T. Baboon.

The fuel tank is wrapped up out of three pieces of bond paper. The ends can be carved from block balsa, and the center can be wrapped out of bond paper. Paint it silver and cement it in place on the wing.

Before flying your model, make sure it balances somewhere near the C.G. shown on the plans. Look at the wings and make sure that you have about an eighth of an inch of washout at each tip. This can be instituted by holding the wings in the correct position and holding the airplane over a source of heat which will shrink the loose wires and hold the wing permanently twisted with the correct washout. Too much heat will break the wires, so hold a bare hand between the heat source and the model. When it hurts, remove everything from the heat source.

This is a rather large, draggy model for a Peanut Scale, and it requires a bit more rubber to fly than you might expect. The original was powered just about right for outdoor flying with a single loop of 3/16th Pirelli, about 12 inches long. Have fun. ●

Soaring Continued from page 25
one at polyhedral break or midwing, one on the nose, and the last one at the tail seems to be a good arrangement. Use

#28 or smaller wire and use masking tape to temporarily hold everything in place. The batteries are taped over the C.G. and the connecting wires are run underneath the wings, unless you feel you need turbulators. An even better approach would be to drill holes in the ribs and fit the wires within the wing structure.

Reflective or fluorescent tape stuck along the outline of the wings and along the bottom of the fuselage also seems to work well, even with dark shades of Monokote, but you must be certain not to fly out of the range of the spot light being used. A good source for this is bicycle stores, and it is sold as "safety tape."

An approach being studied by one of our club members to locate a lost sailplane in the darkness is a small but loud buzzer activated by an auxiliary servo. Perhaps a small distress siren or whistle could also be used.

It could be pointed out that only one sailplane is allowed per two spotlights, so unless you have a lot of lights, the contest would go very slow with a lot of entrants and you might have to worry about it getting light!

Determining towline release was a hassle, but a few strips of reflective tape stuck to the parachute took care of that problem. It should be applied to both the top and underside of the chute so it will be visible in the opened and in the collapsed position.

The weather always seems to be more tame after dark, with the wind dying down to a reasonable level. Another big plus for night flying in the hot summer time is the cool nights. Also, did you ever hear of anyone getting a moon burn?!

The local hobby shops cannot understand the sudden demand for white Monokote and pen light bulbs, and one even received an inquiry about fiber optics. Another night fly has been announced and everyone is getting prepared.

If any of you sailplane buffs happen to be in the Dallas area, look us up because WE FLY DAY AND NIGHT!

As a post script to the above comments on after dark flying, the Dallas League of Silent Flight held a formal Night-Fly Contest on April 5, 1975 using FULL LINE LENGTH winch launches. Fifteen serious competitive fliers (several drove in from over 200 miles away) skillfully flew their prize sailplanes in the total darkness of an over-cast sky, but within the beam of a hand held spot light. The novelty of this type of flying had worn off and the event is now approached as just another serious competitive contest. Difficult to believe . . . but true!!

The full length launches were made possible by using a very powerful hand held 12 volt spot light called the Q-Beam Sport Lite and manufactured by the

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Q-Beam Corporation in Bryan, Texas. This light uses a GE 4537-2 aircraft landing light bulb and is excellent for this purpose. The light produces a 200,000 candlepower super spot and is constructed of tough ABS plastic. It works off any standard 12 volt lighter receptacle and weighs only 2-1/2 pounds. In the past two weeks we have evaluated several lights for this specialized purpose and, as of this writing, the Q-Beam is best. (We've seen several similar lights at auto accessory stores, such as Pep Boys. We keep one in MB's rolling motor home office. wcn)

For the spot lights, 8 volt and 6 volt automotive type batteries were connected in series to form a 14 volt power source, and this worked beautifully. Remember, your automobile electrical system produces approximately this voltage with the engine running at a fast idle, and this results in a brighter beam.

The bulb may not last as long but its cost is much less than a sailplane. We purchased two automobile cigarette lighter receptacles from a local auto store and connected them in parallel across the power source. The spare receptacle is for the emergency "back up" light. The wire size for this purpose should be no smaller than Number 12, or you could get a noticeable resistive power loss with both lights in operation.

Reflective tape is an absolute necessity for these high launches, and provides unbelievable visibility. They should be applied to the sides of the fuselage and fin in addition to the flying surfaces to aid in orientation. Also, an uninterrupted band of this material should encircle the wings and stab at some point so that the ship is not lost when diving back to the launch site from a down wind flight. When in this position, the only portions of the sailplane visible will be the leading edge and top front of the flying surfaces.

The pilot must stand near the holder of the spot light when using this tape as maximum reflection is achieved over a limited angle of variance from the light source. Once this tape is applied to Monokote, it is on to stay, so be sure of the location before you press it in place!

Back to the contest . . . Yours truly, with a lot of luck, had the longest flight with a time of 7:52. That's right . . . 7 minutes and 52 seconds. The average time for the entire contest was between 5 and 6 minutes and, as you all know, this is better than the times achieved during many daytime contests.

The standings through the first five places for this more serious contest were:

Ron Fishell, Pierce 970, 6:51 . . . Jim Jones, Olympic 99, 6:45 . . . Doyle Modesto, Legion Air, 6:33 . . . Tom Williams,

Winddrifter, 6:12 . . . and LeMon Payne, Windfree, 6:06.

One contestant lost his sailplane when his ship knife edged at the top of the launch and was lost from view for just a second or two, but that was too long. A vain attempt was made to pick up the ship down wind with three spot lights, but without success. It should be noted that this was one of the few sailplanes in the contest flown without lights or reflective tape. This unhappy incident to an otherwise fun night has led some of us to ponder the idea of limiting the total tow line length to something near 1000 feet, and with the turn around out about 450 to 500 feet. This would provide competitive launches, cut down on the O.O.S. flights, and if the sailplane should become invisible it wouldn't blow

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down wind for 10 miles.

We hope these comments on this phase of flying will aid other clubs in enjoying this hobby more, and I am sure the slow flying characteristics of R/C Sailplanes will soon lead to other events of equal enjoyment.

In any event, my mission will have been accomplished if those active imaginations out there are kindled and new fun ways are discovered to pursue what has become a way of life for many of us. **JUST BE SURE TO LET THE REST OF US KNOW ABOUT IT.**

(The following final note from Jim Jones came with the photos accompanying this article. wcn):

One other note . . . J. P. Morere was

the 15 year old contestant who lost his sailplane around 12:30 am early Sunday morning. Well, believe it or not, Mr. Charles Harrell of 421 Sheffield Drive in Richardson, Texas, found it on the roof of his home about two hours later as his guests were leaving from a bridge party. J. P. was called about 4:30 pm Sunday by Mr. Harrell with the good news. Mr. Harrell had tried several times during the day to reach J. P. but J. P. and family were busily hunting his ship. The only damage incurred was a few scratches on the nose. How did Mr. Harrell know who to call? . . . one of the white envelopes taped to the bottom of the wing for night time visibility had J. P.'s return address on it. How

about that?!

Mr. Harrell later told me he and his guests approached the craft with a great deal of caution, because who would be flying model sailplanes at 12:30 am in the morning?!

Hannan Continued from page 42

model? Today, it's almost a buck-a-box, contains no premiums, but still TASTES like cardboard!

THE WINDY NOTICE

That's the name of the Maryland Kite Society newsletter, edited by Valerie Govig. If kites are your thing, you should join this group, for the exceedingly low fee of \$2.00, which includes:

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Inquiries should be directed to: The Maryland Kite Society, 7106 Camfield Road, Baltimore, Maryland 21207.

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Long before real planes had ever flown.

As a matter of fact, a certain Monsieur Penaud manufactured toy planes, sold them in Paris shops in the 1800s, and one of these fell into the hands of some tots named Wright.

Which whetted their inventive appetite.

When the Wright boys grew up, they made a large scale model and flew it in 1903, and now the toy makers make a fortune . . . and now they're making space age toys that defy all of gravity's laws.

It gives one cause to pause."

TRIBUTE TO BILL BROWN

We greatly enjoyed John Pond's tribute to Bill Brown, of Brown Junior engine fame. This modest individual has been creating miniature powerplants since the early 1930s, but is presently best known for his tiny CO₂ engines. History-minded readers may care to look up a copy of the February, 1943

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Mechanix Illustrated magazine, which features two photographs showing the very first one, built by Brown while he was an instrument maker at Pennsylvania State College.

THREE JIMS IN A GYM

According to (honest!) the "CIA INFORMER" club newsletter, the indoor meet held in the Anderson High School gym, was attended by flyers from Milwaukee, Cincinnati, Indianapolis, Toledo, Bloomington, Ft. Wayne, Chicago, Kentucky, St. Louis, Cleveland, Dayton, Michigan, and other areas. A total of 331 official flights were made, and classes included Hand-Launch Glider, Penny Plane, AMA Scale, and of course, Peanut Scale. Evidently it was a help to have the right name to compete in Peanut, as the winners were: *Jim Gerz, Jim Miller, and Jim Pelley!* Nice going, fellas.

HANDY HINTS DEPT.

Two letters related to the same concept, but with different twists arrived recently: For years, the problem of transferring bulkhead and rib patterns from plans to sheet balsa has been a bother. The "Stick 'em" patterns handled by MODEL BUILDER have been a good solution, but of course are only available for a limited number of plans at present. Stan Fink, of Eugene, Oregon, offers this thought: "I would like to pass on this tip, first shown to me by

Earle Moorhead, Prexy of the Willamette Modelers Club. This technique solves the problem of transferring plans parts on to wood without tracing the parts, or damaging the original plans. First, Xerox a copy of the plans, or if working from an old-timer kit you may wish to preserve, simply Xerox the printwood sheets. Second, rubber-cement the Xerox copies to the stock of your choice. Third, cut out parts through Xerox AND wood. Fourth, after parts are cut out, simply peel off Xerox paper patterns and you're finished!"

Walt Takatsuka, of Honolulu, Hawaii, offers his approach: "I usually Xerox the pattern sheet or trace it out on velum or tracing paper. Then put a couple of layers of Scotch Magic Tape over the patterns. Then cut them out (usually with an uber Skiver) . . . A sharp pair of scissors works o.k. too, if the curves aren't too severe. The tape layers stiffen the patterns . . . especially long pieces, such as keel parts.

"There are two ways to cut the wood; one with the patterns slightly oversize, and cutting through both pattern and wood. With a Skiver, the tape offers no resistance, and in fact seems to aid cutting. The other way is to cut the pattern exactly, and cut the wood immediately around it. Either way works well, but I prefer the first method for thin or soft sheets.

"I generally spot the pattern backs with rubber cement . . . not to glue to the wood, but to prevent sliding. The biggest advantage is that you can place each pattern exactly on the portion of wood to be cut and therefore reduce wastage and get the wood grain direction right."

WANDERING EDITOR PAYS A VISIT

Dave Linstrom, editor of Model Airplane News' VTO free flight column, has just returned from an assignment in Lebanon and Kuwait. Dave mailed his Proxy Peanut contest entry from Kuwait, but arrived at the MODEL BUILDER's Santa Ana offices only a few days after the model did. Next stop was Peck-Polymers near San Diego, where the Peck family, the Walt Mooney family,

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Clarence Mather, and yours truly, were privileged to hear a resume of Linstrom's many adventures, ranging from a narrow escape from rebel road-blocks, to a visit to the FAI office in Paris. Without doubt, Dave has been one of the most active voices in modelling. In addition to having served as overseas team manager on several occasions, columnist, National Free Flight Society newsletter and Symposium editor, Dave has still found time to design a large number of original models, running the gamut from beginner types, through Penny Planes, rubber speed jobs, towline gliders and gas models.

The problem, of course, in meeting such an accomplished personality, is the fact that the clocks seem to gain speed, and time simply evaporates! Our conversations continued until about 3 AM, and still many subjects were left uncovered. It was a pleasure, Dave!

PATTY'S PINKIE

This is the name of the newsletter of the North County Aeromodelers (Ms. Patty Sak, editor). We got a chuckle out of the latest edition of this VERY limited circulation publication which said: "If your club is having a contest, let us know about it. The 'Pinkie' reaches more homes today in Southern California than does American Aircraft Modeler magazine!"

HUGHES PLANES FIND NEW HOMES

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We've got good news and bad news!

The good news is that the famous Howard Hughes H-1 racer is finally being removed from its Culver City hiding place to be put on display in the Smithsonian Institution. Since the machine has been beautifully maintained all these years, very little restoration should be required.

It is presently equipped with its transcontinental speed run long wings, but the short wings could be easily refitted, which might ease the problems of finding suitable display space for it in the Smithsonian.

The bad news is that Hughes' other famous aircraft, the HK-1 flying boat, is doomed to be dismantled. Although the original suggestion was that the mammoth be towed out to sea and burned, somewhat less drastic measures are now planned. Under present arrangements, the Smithsonian will receive first pickings at the carcass of the bird, probably taking portions of the cockpit and part of one of the wings, as well as some of the wood which will be made into a 1/72 scale model.

Eight other museums in various parts of the country are scheduled to receive portions of the behemoth, with the rest to be destroyed. A pity the machine could not have been converted to a museum in complete form, as was done with the Queen Mary luxury liner. But such is the shortsightedness of man, that

this, the world's largest aircraft, is doomed to extinction. In tribute we'd like to sign off our column with the following poem, contributed by Ed Leiser:

SPRUCE GOOSE PASSING

O great Spruce Goose, hail and farewell.
A greater bureaucrat sounds your knell.
You spread your wings and flew but once.
Since then you waited scores of months
On man's whims and wishes that never bore fruit.
Let us near you once more to make a salute,
Before they come to saw you in two,
Biggest wooden plane that ever flew. ●

Workbench . . . Continued from page 4

tion tells other spouses how to diagnose an infection which their husbands may contract. Once we discovered that the article wasn't excerpted from an Army training manual, but was talking about the *modeling* infection, it began to dawn on us that the author was quite possibly someone we had been looking for . . . a contributing editor who could conduct a column for the distaff side of modeling!

Whether the men care to admit it or not, the amount of pleasure they derive from this hobby has a great deal to do with how their wives or girl friends accept it. In many cases, wives of modelers are the unsung heroes who man . . . er, person the registration tables at contests, who take care of all the grueling tabu-

lating, or who handle the food wagons. There are those who are to be blessed though they outwardly contribute nothing, but silently and without sign of bitterness or jealousy, become "modeler widows." And there are those who go "all the way," glue coated fingers, balsa dust in the hair, and all . . . the female modelers.

No matter which category they're in, the gals associated with modeling need . . . and deserve, some editorial space of their own. We're not out to convert those who dislike it . . . for whatever reason they have, but we do want the gals to become more involved and enthused about the hobby.

Men! Show this to your women and get them to read Char's article. Also, gals, write to Char, or to MODEL BUILDER, and tell us about your involvement in the hobby. Tell us what you'd like to see in Char's column. Wanna talk about what to wear at the field? How to convince your husband to take you to out-of-town trade shows and contests? Do you want to say something to those wives who are against their husband's involvement in the hobby? Speak Up! Now is the Hour!

Write to Char Rohring, at 4494 Tanglewood Trail, St. Joseph, Michigan 49085, or c/o MODEL BUILDER.

PROXY PEANUTS

Lucky for us that many modelers are procrastinators. At the end of the

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registration period, we were threatened with around 480 entries for our world wide Premier Parcel Post Proxy Peanut Contest! As it turned out, we have just a little over 100 models, and fortunately, almost all of the foreign entries came through . . . Most of the "puter offers" were U.S. modelers.

But now we have another problem. Because of a needless and carelessly exaggerated editorial by a nationally syndicated Washington reporter who is well known for using people to "help" them, military bases all over the country have been closed to the people who paid for them . . . the civilian tax payer. As a result, the blimp hangars at USMCAS Santa Ana, the location for many harmless indoor flying sessions in recent years, have been put "off limits." Our apologies to modelers from Australia, New Zealand, Canada, England, Scotland, France, Germany, Austria and Czechoslovakia, whose Peanut Scale models will not share the hospitality of our government. But don't feel too bad . . . we in the United States were also turned away!

We are now working on arrangements for an alternate space. One is a college gym that is 117 by 120, with a 40 foot ceiling. Hopefully, by the time this is published, the contest will have been concluded for this year and we will be able to announce the winners in the July or August issue.

BENT . . . OR BROKEN?

The following was written and handed to us by Dale Kirn. Being a Contest Board Chairman, MB's editor prefers to refrain from commenting, however, be reminded that he is in control, and responsible for what is published in the magazine.

"There is a new precedent in AMA rule making! If you don't like the results of first 'Final Vote,' get the ballot revised and have it voted on again! Also, don't get concerned about waiting for the normal 2 year rule change cycle. Just label it as a 'safety matter' and get on with it.

"The AMA Control Line Board recently published the *Final Vote* on the control line coupled line matter. The results of that *Final Vote* was that coupled lines would not be permitted in any control line event except for certain speed classes (where they would be competing only with Mono-Line systems). Certain individuals (in speed) did not think that the ballot was worded properly, and convinced the CLB Chairman to have it revised and voted on again. The 'second time out' it passed by ONE vote, to ban coupled lines in ALL speed events.

"On the *first* final ballot, one district member did not get his vote in on time . . . so it did not count. However, on the 'second final vote,' the full number of

eligible votes were cast!

"Foul!!

"So, two issues at question here. One, the fact that it got to the first vote stage before the regular 2 year cycle . . . and two, the revote aspect.

"The original proposal was presented as a 'safety measure,' but when it got to the final voting stage, the safety thing was not the real issue at all. Thus, the final ballot should have been put into the regular 2-year rule change cycle.

"Now you know how the AMA rule making procedures can be bent. Keep it in mind when your favorite proposal comes up for a Final Vote!"

THE MULTIWINGS ARE COMING!

The third annual National R/C Multi-wing Championships are scheduled for for July 12 and 13 in Omaha, Nebraska. The host, Olie Olson, informs us that there will be 5 events: 3 Pattern, Sport Scale, and High Noon Barnstorming (a novelty event). All events are limited to aircraft with more than one wing (one wing on each side of a fuselage doesn't count as two!).

Briefly, the Omaha Freestyle Flight Pattern is much looser, less demanding, and perhaps less exact than the N.S.P.A. flight pattern. It consists of 12 school maneuvers (normal A.M.A. Class A Pattern) plus a program of 5 pre-selected maneuvers of the pilot's choice. The NSPA pattern will probably be preferred

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by the more experienced contest flyers, while the newcomers and less competitive modelers will go for the Omaha Freestyle pattern.

The High Noon Barnstorming Event was introduced for the first time last year, and is a novelty affair, flown off during the lunch break, for the benefit of spectators and the hot shot barnstormers who enjoy "thrill-a-minute" type flying. There is no entry fee. A single 5

minute time period is allowed each participant. Scoring will be a single 1 to 10 grade from each of 6 judges. Anything goes that is not unsafe for the spectators or the contestants themselves. Wanna have a mid-air explosion? Do it away from the crowd!

If you'd like further information on this contest, which has developed into the country's foremost biplane fracas, contact Olie Olson at 6111 Maple Street,

Omaha, Nebraska 68104. Phone (402) 551-4662 days, (402) 393-7951 evenings.

MODELING'S "DUNCAN HINES"

Following a rapid tour of Southern California, combined with business, M.A.N.'s really roving raconteur of free flight, Dave Linstrum, is on his way back (in fact, by now, he's there) to Saudi Arabia. While traveling in the Eastern U.S.A., Dave visited an aeronautical oriented restaurant in Richmond, Virginia, and remembering that we had mentioned the subject in a previous issue, he suggested that we "add it to our collection of beaneries in aero motif."

Perhaps Dave has given us an idea worth developing. In our travels around the U.S., we have come across some really great restaurants . . . and some really rotten ones. In addition, we have also found some which were very obviously owned and operated by individuals with an extra special leaning toward aeronautica.

The thought occurs that many of our modeling friends do a lot of traveling in their chosen field of earning a living and/or when taking in contests. So, why don't we do the "Duncan Hines" bit, and offer the names and locations of selected eating spots around the country which have been highly recommended by modelers for (1) excellent food, (2) generous and unwatered down . . . er, beverages, (3) proper and enthusiastic service, (4) reasonable prices, and (5) an aeronautical atmosphere. In our opinion, the features have been listed in their order of importance.

If you care to participate in this experiment, drop a note describing a place or places you have been that meet all or most of the above requirements.

For a start, Dave's recommendation is the FLYING MACHINE, at 6000 Broad Street., Richmond, Va. 23230 (804) 282-3123.



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

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- Busch Gardens
- Magic Mountain (children's day)
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- Marineland
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- Ports O' Call
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Camping, Motel, Airline, or other information, please contact . . .
 Don Gutridge, 2401 Gondar Ave.,
 Long Beach, Ca. 90815
 (213) 596-3567

Also, we have two favorites in Orange County, California. The NIEUPORT 17, 1615 E. Seventeenth St., Santa Ana, Ca., (714) 547-9511 is owned by an ex-Navy pilot (Korean action), Bill Bettis. The walls of the lobby, bar, and dining rooms are covered with photos and paintings of aircraft and flying personnel. A Proctor Nieuport, flown by Joe Bridi in the 1969 World R/C Scale Championships in Bremen, Germany, hangs in a prominent spot, along with several other models and full size aircraft parts.

There is live entertainment in the bar, the selection of food is great, and you *must* order the shrimp cocktail . . . the highly seasoned sauce is something else!

On the west side of Orange County Airport, where you can sit upstairs to eat and/or drink and watch aircraft land and take off from two of the nation's busiest runways, is the "94th Aero Squadron." Though practically new, the structure has been made to look like a large farmhouse converted to an aerodrome operations building in World War I. As you enter "voices" can be heard, coming from nowhere in particular, discussing hair raising escapades between the squadron's Spads and a flight of Fokker D VII's, or singing WW I songs such as "Over There."

Spiral stairs lead either to the upper level with a view of O.C. Airport, or to the "basement". In the basement, you can search a narrow hallway to find an empty candle-lit cozy booth for two to four diners, or you can sit at small round tables opposite the bar.

But, the best treat of all at the "94th" is the continuous running movie, just on the other side of the basement bar. The "theater" has chairs with small tables on stepped down levels. A steady supply of popcorn assures that your thirst continues, and waitresses are there to take care of that situation too. The walls are "barricaded" with sandbags and the "beams" and "columns" show signs of previous "bombings." The movies are old and include news clips from WW I, aviation stuff from various eras, Laurel and Hardy episodes, and other goodies . . . To say the place reeks with atmosphere is not even mild exaggeration!

OK, we've made a start. Let us know if you like the idea and send us your recommendations.

SOMETIMES YA CAN'T LOSE.

ON THE OTHER HAND . . .

We hate to admit it, but this is too good to keep to ourselves.

Since publishing Bob Aberle's article on "How to Prepare Articles for Publication" (April 1975 MB) we've had many favorable comments on how great and informative it was. Funny thing is, it was even greater than was thought. After all, how many articles could have the sequence of paragraphs all screwed up and still come out intelligible?!

Just for the heck of it, pick up that

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issue, turn to *page 28*, and try it *this* way: The article *should* start with, "Recent model magazine surveys . . ."

When you finish the paragraph that ends with " . . . pet ideas to the magazines.", skip back to page 28 and continue with the paragraph that begins, "Before getting into . . ." When you finish the paragraph that ends with " . . . against the Jacob's straight edge.", jump over to the middle column of page 29 that begins, "Next, I had to stock up . . ." and read that and the following paragraph which ends with an italicized comment by MB's editor.

Now go back to the beginning of the article on page 26 and pick up, "When

you first start on a design . . ." and read through the paragraph that ends on page 29 with " . . . viewing cameras."

Finally, jump over to the third column on page 29 that begins with, "My first article . . ." and you're OK from there to the end.

Hmmm . . . maybe it was better the *other* way.


THINGS TO DO

The West Jersey Radio Flyers is having a World War II "Scramble" on July 20, 1975, at Thompson Park, Jamesburg, N.J. Events will include AMA Scale, AMA Sport Scale, Maneuvers, Mission, and Combat. There will also be a Maximum Effort to sink the "Atlantis."

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* * *

The 3rd Annual Southeastern Control Line Model Airplane Championships take place on June 14-15, 1975 at the Memorial Coliseum, Winston-Salem, North Carolina. Contest Director will be William A. Pardue, Jr., 1201 Surry Dr., Greensboro, North Carolina 27408, and sponsor is the Golden Triad Model

Masters, Winston-Salem.

* * *

This writer is so intrigued with the idea of night time R/C soaring, as described in this issue by Jim Jones ("R/C Soaring" column), that immediate plans are being made to sponsor a night contest in the local area. Tentative plans are to hold the contest on a night with a full moon. In fact, we intend to call it "MODEL BUILDER'S First Annual HOWL AT THE MOON Contest for R/C Sailplanes."

With so many conflicting events taking place in the area, we may have to pick a week night for this contest, but at least it won't be held during working hours! Your editor will be CD, assisted by Taylor Collins, and hopefully, by the time you read this, we'll have all the details worked out. Call MODEL BUILDER'S office (714) 547-3963 for information. Payment of entry fee will entitle each contestant to one liquid chemical light, as described in Jim Jones' article. Extras will be available at the office or the contest site.

Hare Continued from page 11

middle and work toward the ends.

While you're in the wire-bending mood, you might as well sculpture a nose gear too. Nowadays, however, there are several ready-mades that can be modified to do the job. You don't need a steerable rig. When taxiing, hold some up elevator and the direction you want. As the "Rabbit" hops along, the nose gear will bounce, and each time it's off the ground, the rudder will take effect. It'll work on anything but a glass-smooth surface, and who has *that* kind of a flying field!?

Install push-rods or tube-in-tube control connectors before planking top or aft fuselage. As described earlier, the original "Hare" was designed in the days of escapements, pulse rudder, and Galloping Ghost. Multi, which was only in reed configuration at the time, was way too big for a ship this size. Undoubtedly, today's radio will be a 3-channel installation similar to the Heathkit GDA-1057 rig shown.

Complete fuselage by adding inner and outer wing opening doublers, filler B-1, and the 1/8 inch music wire forward wing rubber hook.

TAIL SURFACES

These are the extreme in simplicity. Mark out directly on the wood, using the square and ruler. The stabilizer stiffeners probably wouldn't be needed if you're going to Monokote. The original "Hare" was finished natural, with 3 coats of sanding sealer and several of clear, followed by some color for trim.

In this case, the stiffeners were essential. The 1/4 inch triangle fillets are also quite important for keeping the fin attached to the fuselage . . . real convenient for stability.

WING

When you have finished this wing, you'll be amazed at how light, strong, and totally warp resistant it will be for the length of its life. Also, the built-in wash-out will stay there for the duration. By the same token, if you build it crooked, it's going to stay that way, so "don' duit!"

Another screwy thing about the wing . . . you built it from the top down, instead of from the bottom up . . . honest. You gotta do it that way, or it won't go together correctly. Please . . . Do it my way.

Start by butt gluing 3/32 and 1/16 sheets together to form upper and lower surfaces. To get good joints, trim the gluing edges with a metal straight edge. Hold two butted surfaces together on a flat board and tape them together in about six places. Pick them up, fold them back, and apply a cellulose model cement, such as Duco or Testor's, to one of the edges. Now open the fold, lay the joined surfaces on the board, taped side down, squeeze out the excess glue, wipe off, and repeat the taping process. Now you can stand the 8 inch wide plank in a corner and start on the next pair!

Glue the pre-tapered leading and trailing edges to the UNDERSIDE of the TOP surfaces. Be sure the surfaces have been tapered at the outer 8 inches of the trailing edge. Make a LEFT and a

RIGHT panel. If you forget, and make two 'lefts' or two 'rights,' you might as well go back and start another fuselage!

Make two aluminum rib templates; one for straight and one for diagonal ribs. Cut 5 straight ribs from 1/4 inch stock, and 12 diagonal ribs from 3/16 stock. And one last step before actual assembly starts . . . give the underside of the top surfaces two coats of dope.

When you're ready to begin, go to the bathroom, take the phone off the hook, and lock yourself in your shop. Once you start this job, you can't stop in the middle.

With a slightly damp sponge (not very wet), wipe the top surface of one top panel. It will curve. Now fit, glue into place, and pin, *from the top* all ribs for this panel. Leave out center rib. Shorten tip ribs to fit, but DO NOT trim the bottom of them to fair into the trailing edge . . . yet! Pin the whole structure down on a flat board (if you're hard up for a building surface, you can pin the structure to the back side of closet or cellar flush panel door!) Repeat with other panel. Unlock the shop door, put the phone back on the hook, and take care of any other pressing matter.

In case you hadn't noticed, the purpose of not tapering the tip ribs is to keep the upper surface of the wing completely true. Later, when the bottom of these ribs are tapered, and the bottom sheeting is added, you'll have that all-important, tip stall-killing wash-out built into the wing tips . . . See? This also explains why you *can't* build the wing from the bottom up.

When the wings have cured for about 12 hours, remove them (from the door?) and try an experimental twist. Even before the bottom sheet is added, you'll see that they already have warp resistance. Block each wing tip up 3 inches and sand in the dihedral bevel (same as you'd do for a hand launch glider), then firmly glue the two panels together. Next, add the 1/8 inch plywood dihedral gussets, and the center 1/4 inch rib, which has been shortened an 1/8th inch at each end. Finally, trim those tip ribs down to fair into the trailing edge and then plank the bottom with the previously prepared 1/16 sheets.

After final shaping, sanding, filling, etc., wrap a 3 inch band of celastic or fiberglass cloth and resin around the center section. The only way you'll break that wing is to take it down to the Post Office . . .

The original "Wectangular Wabbit," as stated earlier, was finished natural, and being all sheet balsa constructed, if you like to look at natural wood grain, this is the showcase for it. A trim color for accent really sets it off.

The present "Bunny" got its . . . ahem . . . color scheme(?) as a result of our search for a particular roll of Monokote. In the process, we came across a box of scraps. What happened after that is ob-



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F/F Continued from page 49

"Third, Al Vela mounts his stab hook in the middle (on his EZ Boy), taking most of the stress off of the trailing edge.

"Finally, I used Tom Hutchinson's idea of simply tying a piece of plastic fuel line in the DT line for a limit stop. This prevents a hardware-to-hardware shock when the fuse does its thing."

Hope the drawing helps explain."

2. Tim Anderson, from Decatur, Ga., also sent along an unusual system. He is a member of Atlanta's only F/F Club (The Metro Atlanta Free Flight Indoor Association, or M.A.F.F.I.A.). His system is self-explanatory because of an excellent sketch which he sent along. Basically, it is a spoiler system operated either by fuse or by mechanical timer. It is really an excellent system for models which have a fixed stabilizer, such as on many of the old timers. It is also something that could be designed into some of the more recent kinds of designs. Although it doesn't indicate on the sketch, each spoiler should be about 4 inches long or more. Ted Enticknap used to fly an 1100 square incher around the wilds of the Northwest, equipped with a spoiler system. This ship DT'ed very nicely, using a similar kind to that shown in Tim's sketch. Ted's was a slight bit wider (about 1/2 inch or so), but only about 4 inches long. Never failed to bring it down . . . except once when the timer failed.

MODEL DESIGN . . .
ONE MAN'S THOUGHTS

Don Himmel, of Louisiana, recently has corresponded with me regarding his thoughts on model design. I have excerpted some of his thoughts for your reading.

"We (in the Baker, La. area) are using smaller stabs (20%+ of the projected wing area) on all of our power ships. We use V.I.T. on all AMA and FAI Power classes. My flying buddy is using a 480 sq. inch wing and 100 sq. in. stab, Rossi powered FAI ship, 60 to 65% C.G. The larger wing does not seem to slow

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the climb speed enough to even notice.

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Well, troops, as you can see, there are several different ways to get 'em to fly. Although all of us have arrived at what we consider to be the standard way to get them into the air, someone from somewhere else has found another way. Funny how most of us arrive at much

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the same conclusion.

THE ACADEMY AWARDS OF FREE FLIGHT

Next month, right here in the column as well as throughout the modeling press, the National Free Flight Society will announce its Annual Awards for the Models of the Year. Since this is being written nearly on the eve of the Motion Picture Industry's Oscar Awards, it is only fitting that we whet your appetite with some pre-announcement hoopla concerning these deserving and outstanding designs.

What mechanical contrivance has allowed free fliers more technical abilities than ever before possible in the past?

What FAI Power design series has caused more talk and more controversy than any other of recent date?

What Unlimited Rubber model looks unlike any other you might see on the contest field . . . and wins even more? (*Heck, even I can guess that one! wcn*) What large gas model is so inauspicious that you would never realize that it's even there, except when its owners keep winning first, after first, after first? Which is the Coupe that most of us never heard of . . . in this country, but has placed higher in competition recently than any other? These and other perplexing questions will be answered when the announcer says: "May I have the next envelope please."

That's it for now. Tune in next

month. Same time. Same channel. (*Watch it, Bob! That last word sounds like R/C talk. wcn*) ●

Skyfarer Continued from page 29

drawing, the aft portions of the tips are tapered to 1/8 inch thickness to match the trailing edge. Also observe that the inner ribs of each wing panel are tilted about four degrees from vertical, so dihedral will be correct upon assembly. Shape the leading edge and tip cross-sections to complete the wing frames.

For best flight performance, the model must be equipped with an efficient propeller. Select a hard, straight grain block 1 x 1-1/2 x 8-1/2 inches long. Before cutting the blank to shape, drill the hole for the shaft, a drill bit of about .045 inch diameter should be used. Carve a right hand prop, thinning the blades as much as practical consistent with strength requirements. Shape the blades using a paper pattern traced from one to make the other identical. Carefully sandpaper and balance the nearly completed propeller, then apply several coats of clear dope to produce a hard surface. A freewheel gadget, as shown on the drawing, may be made from thin brass or steel. Attach it with cement . . . likewise fix a washer or metal bearing surface on the back to make firm the shaft axis. This will enable the prop to spin freely once power is exhausted and thereby improve the glide.

Bend the propeller shaft from .040

inch music wire. Place several washers between the propeller and the nylon thrust bearing, and then bend a loop into the front of the shaft to which a mechanical winder can be hooked.

A neat, attractive covering job is a necessity for any fine flying scale model. Colored tissue is used, and since this was a general aviation aircraft, most any color scheme might be appropriate. Our test model is colored blue, yellow, black and silver, and it is eye-catching. Before starting to cover, every bit of the structure should be lightly, but thoroughly sanded to prepare for a quality job. Cellophane or other light plastic should be glued in place for the windows. Keep in mind that only stringers and longerons should touch the tissue . . . cross-members should not. To avoid wrinkles, numerous small sections of tissue, carefully lapped, were used in completing the model pictured with this article. You may prefer to use the wet tissue method to cover compound surfaces. This procedure, as well as the use of thinned white glue in place of thinned dope, was described in detail in earlier issues of MODEL BUILDER. The balsa cowl and other exposed wood parts are covered with tissue also. Once covered, all parts are lightly sprayed with water to tighten the tissue. Flight surfaces should be restrained while drying to avoid warping. Do not apply dope to the covered parts until they have been assembled.

Commence assembly by checking the windshield pattern for exact fit to your model before cutting one from thin acetate. Cement smears on the plastic must be avoided as they will mar the appearance. (*Hot Stuff is just the ticket for clean application of windows. wcn*)

Landing gear realism is created in this manner: Plastic tubing of the correct diameter is slit and slipped over the upper strut of the nose gear. Once the seam is recemented, thin diameter, tightly woven cord may be wrapped about the strut to simulate the real craft's compression spring. Tubing of thinner diameter is slipped over the fork halves. The fairings on the rear struts are cut from very light weight 1/4 inch sheet balsa. These fairings should be shaped to a streamline cross-section. Cut 1/8 inch deep grooves in the covers to conceal the wire struts. Epoxy the fairings to the wire, and then cover them with colored tissue. Note on the front view that the upper ends of the fairings are not attached to the adjacent fuselage structure. This will allow the struts to flex without marring the covering. Wheels are 1-9/16 inch diameter; they may be made from laminations of 1/8 inch sheet balsa.

Fins are cemented to the extremities of the stabilizer. Carefully remove the tissue covering from the insides of the fin ribs which will contact the stabilizer ends; this will permit a solid wood-to-

wood juncture to be achieved for maximum strength. Also remove an appropriate amount of tissue from the center bottom of the stabilizer so the tail surfaces can be fitted to the rear fuselage at the correct position and angle.

Attach the wings to the center section with each tip elevated for 1-9/16 inch dihedral. Wing struts, 1/16 x 1/4, should be trimmed to a streamline shape, and then glued between the lower longerons and the lower wing spar and rib as shown on the drawing.

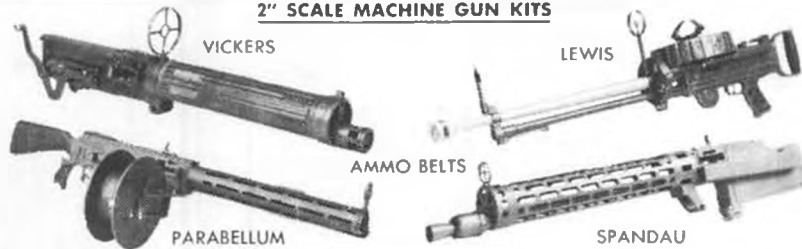
Trim details enhance the appearance greatly. License numerals, trim stripes, cowl openings, flap, aileron, and elevator outlines are all cut from contrasting tissue and attached by thinned dope. In completing the construction, brush on several coats of thinned clear dope, and paint bare wood surfaces with colored dope.

Ten to twelve strands of 1/8 inch flat rubber will probably be right to power your model. Lubricate the strands before dropping them through the fuselage. Remove a small section of tissue from the lower back of the fuselage for access to the rubber. Insert a bamboo dowel to retain the strands at the rear.

FLYING
 Although you have constructed a model of sound design, maximum flying performance will require careful handling. First, adjust the center of gravity by adding weight to the nose or tail so the model balances about the lower wing spar. Select a calm day and a grassy field for testing. Achieve satisfactory hand glides before trying power. Adjust power flights by tilting the thrust line down to eradicate any tendencies to stall, and sidewise to control the rate of turn. The Skyfarer is capable of smooth, long flights; building and flying one should become a rewarding and memorable experience.

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DUES STRUCTURE - 1975

1975

Article V - Dues and Fees

Section 1: "Membership dues and number of subscriptions to the Journal of this organization shall be in accordance with the following schedule:

	Dues	Subscription
a) Individual	\$10.00	1
b) Club	20.00	2
c) Family	15.00	1

(Any Senior or Open AMA member and any of his immediate family who are also AMA members.)

d) Junior	5.00	1
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(Any Junior AMA member.)

Each subscription to the society publication SAILPLANE starts with the first issue published after payment of dues and continues thereafter through the membership year.

Dues are payable prior to December 31 of each year for the ensuing year. Subscriptions commence with the first issue after payment of dues through the membership year.

In the event a member joins during the dues year, he shall submit dues as follows: between December 1 and June 30, full annual fee, between July 1 and November 31, one-half the annual fee. Members joining during December of a year shall also be members of the ensuing year.

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National Soaring Society

1975 Membership Application

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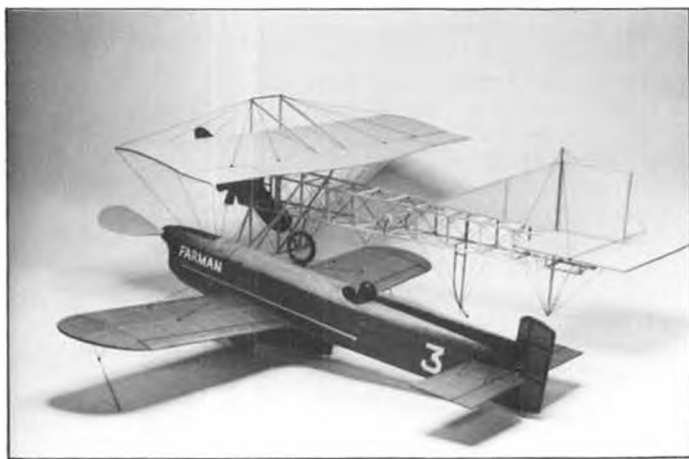
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Counter Continued from page 7
only other materials required are: three 36 inch lengths of 3/32 music wire, control rods and horns, and glue. Hot melt glue, the type that is pushed through a glue gun and cures rather quickly, is recommended. In addition to holding well, it also fits into the spirit of fast construction, which is typical of this model.

Marine Specialties, P.O. Box 588, Saratoga, CA. 95070, may be hearing from other than power boat modelers when this announcement is published. The company now has available special tuned-pipe couplers made of silicone rubber with a wall thickness that allows

it to withstand continuous 475° heat without deterioration.

The tube couplers are available in 7/16, 5/8, and 11/16 inch I.D. sizes for \$2.00, \$2.25, and \$2.50 respectively.

A biplane with a record is now available from Cass Engineering, Box 420, Rutherford, N.J. 07070. Called the Pulsar Biplane, the model won the Omaha Biplane Nats and the Lakehurst Biplane Championships, and placed in FAI pattern at the Tangerine, Johnsville, and Lakehurst contests.

Span of the Pulsar Biplane is 54 inches, weight 6-1/2 to 7-1/2 lbs, and it can be powered by .40 to .61 engines. The kit features a gel-coat fiberglass fuselage, foam wing cores, wood tail surfaces, Unilock cabane struts hand fitted to each fuselage, fool proof method of mounting engine, stab, and locking wings. Full size plans and 7 pages of instructions. Price is \$95, at your dealer or direct from Cass Engineering.

Wanna test your will-power? Get a copy of "The Best of the Golden Age of Flying Models," published by Golden Age Reproductions, P.O. Box 13, Braintree, Mass. 02184. Price \$4.50 postpaid, and when you start flipping through the pages, see if you can put the darn book down before you've closely examined nearly every one of the approximately 146 reduced size plans. In fact, it's just about impossible to count them accurately, because every time you get part way through, you get so interested in some plan that snaps your memory back about 35 or 40 years that you forget your count!

Now don't get the idea that this Golden Age plan book only appeals to us old fogies, who can get our jollies by just looking and reminiscing. The book is actually a catalog of some of the full size plans that are available from G.A.R. There are others now, and there'll be more in the future.

All of G.A.R. plans come from kits or magazines that were, at some time, produced or published. When you realize that there were more than 500 model airplane kit manufacturers that came

and went, and in a few cases, stayed throughout the Golden Age of Modeling, you can see that the supply can be as endless as match book covers. Just as a sample in flipping through: Peerless Model's Kinner Sportwing, Curtiss R-6 biplane racer from 1936 Flying Aces, Fleet Trainer by Dallaire, Megow's Monocoupe (and Fairchild 24, and Curtiss Hawk, and Gulfhawk G-22, and Arrow Sport V-8, and . . .), Paul Lindberg's Boeing P-26A (and Waco Custom, and Bristol F2B Fighter, and Corben Ace, and Bellanca Aircruiser C-27A, and . . .), TOMASCO's better-than-Cleveland Boeing F4B4/P12-E, Peerless better-than-Cleveland Mr. Mulligan (and Hawker Hind, and Bird Biplane, and Curtiss "Swift," and Waco "YKC," and Doolittle's Gee Bee Super-Sportster, and . . .)
See what we mean?

The nearest thing to "add glue and shake the box" kits that we've seen to date, are being produced by Tyro Model and Supply, P.O. Box 11511, Palo Alto, CA. 94306. And the best thing about it is that all of the models being kitted are well designed free flight models that should assure success to the young or inexperienced modeler who is getting his first tastes of balsa dust and glued fingers.

The Tyro Glider is a 16 inch span H.L.G. with spruce fuselage and balsa surfaces. All parts are cut to shape, and fuselage is grooved and notched to receive wing and tail. Wing panels have triangle airfoil and dihedral angles finish. You just "add glue and shake . . ." Price is reasonable — \$1.49.

The Tyro Racer is an 18 inch span rubber stick model with single strut (and wheel) landing gear. Fuselage is shaped, groove, slotted, has wing saddle in place, and precision double thrust bearing with plastic prop, all installed. Glue on ready cut tail surfaces and wing, attach gear with rubber band, hook on flying rubber, crank, and fly. Price \$2.49.

Most amazing kit of all is the Tyro Combo, a real competition machine that can be used in Coupe and Unlimited. Span is 38-1/2, length 32-1/2, and the

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fuselage will accommodate either the short Coupe rubber or the long Unlimited rubber. The kit is 99% pre-cut, even the verticals and cross pieces for the built-up fuselage! A completely assembled folding propeller front end; nose block, shaft, aluminum hub, hinged hardwood slotted blade hubs, and all, is included. Molded balsa propeller blades are also furnished... "Add glue and..." Three colors of Austrian tissue... you guessed it... pre-cut to size, are included. Price is only \$10.95.

All parts of the Combo are big enough for easy handling by beginners and young modelers. One thing to watch: parts are so exact that if one of them doesn't fit, it's probably not the right one!

Fiberglass epoxy propellers, quickly recognizable by their green color, are now available from Kelly Products Inc., P.O. Box 38, Western Springs, Illinois 60558. The company specializes in competition racing props for Sport, Good-year, Rat, FAI & Team Racing, Free Flight, and Quarter Midget. With prices ranging from \$3.50 to \$4.50, the props now available include 7x3.5, 7x6 (thick hub), 7x6 (thin hub), 7x6 (thin hub QM), 7x6 (thick hub QM), 7x7.4 and 7x7.6 (Russian types), 7x9 speed, 7x9.5 speed, 8x8, and 8x8.5. Other sizes made to order. Send SASE. QM props are finished, while others are as moulded, untrimmed.

Remotely Continued from page 14 got into the spirit of things and was running up and down the aisle, telling jokes while serving snacks.

The final touch was created by the pilot, who, undoubtedly aware of the common interest shared by the majority of the passengers, announced in a calm voice as we approached Toledo that he would do a Split-S onto the runway! Actually, he did whip the little hot shot 737 into a pretty steep, dropping turn and just leveled out in time for a fast touch down. As it turned out, gusty cross-winds reaching 30 to 40 mph, necessitated the hot landing. Even at that, the ship was bouncing around like

a cork until ground compression straightened it at the last second. After such a long and tiring day, no pattern judge would have denied the pilot a 10!

The Toledo Sports Arena is undoubtedly much larger than the Lucas County Recreation Center, scene of recent Toledo Trade shows, but in spite of the increased size, the aisles seemed no less crowded. The old axiom about the amount of accumulation being directly proportional to the space available certainly seems to have held true. Unfortunately, parking space never made it. Some spectators turned around, parked in town, and took cabs out to the Sports Arena!

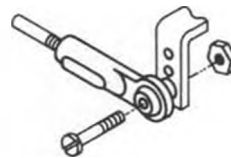
Most all of the exhibitors, and many long-distance spectators, stayed at the Commodore Perry Hotel. It was situated about 2 or 3 miles from the Sports Arena, in downtown Toledo. The hotel was very convenient, with a connected, elevator-serviced parking building. In addition, it had a nice bar with live entertainment (even livelier with Phil Kraft, Tony Bonetti, and Le Grey's help), a 24-hour coffee shop, miscellaneous little specialty shops, and an excellent dining room which included a buffet style service, if you chose. Most people "chose," because the large, rectangular, self-service, "come back as many times as you want," food bar included a huge, iced boiled shrimp bowl that wouldn't quit... the kitchen kept pouring 'em in as fast as we could eat 'em!

The rooms were on the small side, but adequate. A very old hotel, the Commodore recently had been remodeled in such a way that the old features were still apparent. The door to each room still contained the valet service compartment. In earlier days (perhaps even now, though we didn't try it), you opened the compartment door from the inside and hung up the clothes you wished to have cleaned and/or pressed and put your shoes at the bottom. The valet could then open the outer compartment door to pick up your clothes and return them, in your absence, or without disturbing you.

So much for the background side of

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the Toledo show. See Taylor's article for the details.

NO. 19 IS BACK

Following an initial vote by the R/C Contest Board, proposal RC-76-19 was voted down as recommended by the National Soaring Society. Now it appears that the society, after a ballot of its membership, feels that it wasn't such a bad idea after all.

Basically, Dave Corven's proposal was to have 3 sailplane classes: Standard with two controls, Standard with unlimited controls, and Open with unlimited controls. With so much debate centered on the fate of Standard class (two controls or unlimited) everyone seemed to forget that by having both

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classes in the rule book, it would simply be up to the individual hosting clubs to decide which classes would compete. This way both factions are satisfied. Simple, no?

Technically, it would seem that No. 19 can not be used, however, one of the surviving proposals can be modified to suit, if it becomes necessary. In any event, it would seem that the use of a multiple choice of classes, as in the case of tasks, has solved the whole debate. Q.E.D.!

SCALE WHAT!?

Wanna drive the scale rules hounds nuts? Show up at a contest with a 22 foot long model of the LZ127 Graf Zeppelin! There is no wing span or surface

loading; the five electric motors cannot be compared to an internal combustion engine limited to 10 cc displacement; the weight varies from minus (!) to plus; and the speed is too slow to finish even the briefest pattern in time!

The one we're talking about was built as a private venture by Andres Gasser, a modeler in Zurich, Switzerland. The photos and information were sent to us by Emil Giezendanner, brother of former R/C Pattern World Champion, Bruno Giezendanner.

Framework of the huge model is balsa, covered with 12 gores of metalized plastic foil 0.013 mm thick, which is joined with thinned contact cement. Not a true dirigible, the outside covering forms a huge gas container. To compensate for released gas, an air pump brings air into a 300 liter chamber, so that the covering remains tight from a continuous pressure of 3 mb.

Two servos for the rudder and elevator are built into the fins. The five electric motor gondolas and the cabin gondola are made from styrafoam. All radio parts (except the servos) and batteries are housed in a sunken container just forward of the middle of the hull.

Development and construction of the entire airship took about 400 hours, and the cost of materials, less radio, amounted to around 700 francs.

Unlike the Hindenburg model, which was built for the latest in disaster movies and "flies" on wires in a studio, the Graf Zeppelin is a flying scale model in every sense of the word. The 34-inch diameter ship weighs 6-1/2 pounds, has a volume of 100 cubic feet, and flies at about 12 mph.

Suggestion: Don't build one unless you own a moving van!

USPJA

Under the urging of Joe Bridi, president of the National Society of Radio Control Aerobatics, the United States Pattern Judges Association has been founded. Sam Crawford, San Rafael, California, was named president; Bill Semler, Torrance, California, is Secretary-Treasurer; Noel Allison is Membership Chairman; and Gerry Doyle, Chair-

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man of the Board, is working on a set of by-laws.

Primary goal of the USPJA is standardization of judging throughout the country. As part of this goal, the association will provide trained, qualified, and impartial judges for all contests . . . from local fun flies, up to the Nationals and Masters.

In order to achieve its goals, the USPJA will have five levels or grades of judges, based on accumulated experience. A qualification board, presently headed by Bill Northrop, and including Bob Upton and Dave Lane, will be in charge of level assignments and promotions. The board members are Nationals, Masters, and Internationals judges. The writer has also judged two World Championships (Bremen and Doylestown) and will be judging the World Championships in Berne, Switzerland, this coming September.

Since it cannot personally observe the judging accomplishments of all members, the board will make many of its assignments and promotions upon the recommendations of Area Directors, plus its own investigations. At this time, area directorships (based on NSRCA Districts) have been taken by Bob Reuther, Sally Brown, and Gil Horstman.

Associate membership in the USPJA is available to anyone interested in becoming a qualified pattern judge. Send your name and address, along with \$6.00 membership fees, to USPJA, 21103 So. New Hampshire Ave., Torrance, California 90502.

In addition to an identification card, members will receive a periodic newsletter on new ideas and activities. Those with experience in judging should include this information along with their membership application so they may be considered for immediate assignment to their proper level. ●

Toledo Continued from page 19

Leisure Products, a new face in the R/C sailboating world showed its Huson 36, which is a 36 inch long fiberglass

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racing cruiser, to compete in the 36/600 AMYA class. It comes complete with all fiberglass gel-coated hull and deck, and a cast aluminum, filled-epoxy rudder and all necessary sails and fittings. They also showed the Yankee 50/800 (featured in February and March 1975 MB) and the East Coast 12 Meter ship. Also for sailboaters, Carr Sails showed its complete line of ready-to-use sails and sail material.

The big news in power accessories was probably the newtime glo-plug designed by oldtime Ben "Nimbus" Shershaw. It is completely unique, featuring a vent hole down through the center electrode, which allows priming. The hole is sealed on the compression stroke of the engine by a ball valve, which at low RPMs, hangs open, decreasing compression and improving idling.

Adjusto-Jig showed its A.J. Fuel Cell, which looks like a miniature round accordion. To fuel your plane, just press down on the top of the cell, this compresses the cell, forcing the fuel out through the filler line. To empty your tank, hook up the filler tube, after compressing the cell, and the accordion will automatically expand, emptying the tank.

George Aldrich, the engine man, introduced a complete line of Magnum fuels, available in seven grades, and in pints, quarts, gallons, and 55 gallon drums. He is soon to come out with a line of glo-plugs designed strictly for racing.

V.K. Model Aircraft, an oldtimer in the industry, plans to re-introduce its old-timers of 1938... the Challenger and the Master. If you don't remember these, look in a handy copy of the June, 1938 Model Airplane News.

V.K. was also enticing the R/Cer with its WW I kits and accessories. One new plane in the line will be a 2 inch scale Sopwith Camel. Also shown was an Alexander Eaglerock (Fearless Leader Bill Northrop went nuts over this one...).

A ready-to-iron on, painted, silk-like finish that's darn near indestructible... Impossible? Not so. Coverite showed its new Perma-Gloss Coverite material which

does all of that and more. Ideal for the lazy or the short-of-time fellow, it irons on, shrinks up snugly, and looks just like a silk covering job with a dozen coats of dope. And if you don't like the factory color, you can paint it with just about anything, in any color, that suits your fancy.

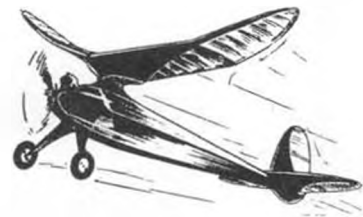
Pettit Paint Co. showed a new Metal Flake additive to be used with its Hobby-poxy enamels, which allows metallic finishes to be custom mixed. The metalizer and basic color are mixed to suit your taste, and then an equal amount of catalyst is added. Varying the proportions of the metalizer can produce some amazing results.

Dave Platt Models showed a prototype Waco UMF in 2 inch scale. Maybe World War II is over for them?

In the model competition, all we can say is, "If you haven't seen it... do!" Competition in all categories of models is unbelievable. This writer started out with the idea in mind of photographing only the outstanding entries. Some 150 photographs later, we were literally shaking from the sheer impossibility of singling out one model over another to photograph. We're grateful that we didn't have to judge the models. The level of craftsmanship and ingenuity exhibited has to be seen in person to be believed!

Buford Gross of Peru, Indiana won Best of Show honors for his Wright Model 'B' biplane. This is a very large 100% accurate reproduction of the Wright brother's first successful powered aircraft. It is complete in every detail. The radio receiver, and servos are buried inside of Wilbur and Orville's figures. They move the control surfaces through the sticks with their hands and feet. Directional control is accomplished by warping the wing structure. The big twin props are chain driven by a Fox .60, which is buried inside the scale reproduction of the original engine. The Fox will be water cooled, through a radiator alongside the engine... just as the Wright brothers did it. No detail was overlooked. The model will fly off a rail type launching apparatus, and not too surprisingly, Buford plans the maid-

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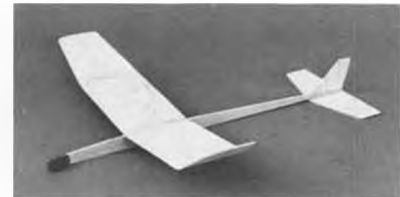
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en flight on the anniversary of the Wright's first flight, at Kill Devil Hill, Kitty Hawk, North Carolina. The model was started in December of 1974, and finished in time for Toledo... less than five months. Buford has already been contacted by the Smithsonian Institute, and following the flight reproducing the Wright brothers first, the model will go on display in the Smithsonian.

One of the most dazzling competitions was for the Best Finish award. There wasn't a plane entered that didn't appear to be perfect... not so much as a fly speck in the multi-color paint jobs. There isn't a full size plane or automobile available today that has a better finish than these miniatures. Jerry

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Worth's Phoenix 6 took top honors, though for sure, we don't know why they didn't simply have six or eight first place trophies!

Best Original Design was won by a team effort of Don Prentice and John William, for their Derriere Mk. I. This is a pusher powered, jet style canard. Surprisingly, their Derriere Mk. II took second place honors.

Following is a list of the first trophy winners, naming category, winner, home town, and model:

- Best of Show; Buford Gross, Peru, Indiana, Wright Flyer.
- Pylon; Greg Doe, Charlotte, N.C. Stegall Minnow.
- Helicopter; Don Chapman, Tallmadge, Ohio, Hughes 300.
- Original Design; Don Prentice and John William, St. Catherine, Canada, Buffalo, N.Y., Derriere Mk. I.
- Best Monokote Finish; Thomas Ingram, Chicago, Ill. Aeromaster II.
- Sport Biplane; Bob Buzash, North Canton, Ohio, Acro-Star.
- R/C Cars; Bill Miller, Chicago, Ill., McClaren M8B #4.
- Outstanding Finish; Jerry Worth, Griffith, Ind. Phoenix 6.
- Scale Boats; John Fryant, Alexandria, Va., Riverboat Chaperon.
- Non-Military Scale; Buford Gross, Peru, Indiana, Wright Flyer.
- Military; Bob Jones, Warren, Ohio, P-47 Thunderbolt.

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Scale Sailplane; Gordon Pearson, South Lyon, Mich., Ibex.
Boats (Mono-Hull); Skip Stratton, Gnadenhutzen, Ohio, Butcherfootinit.
Boats (Hydros); Bill Jarski, Oxford, Mich., Screaming Yellow Zonker.
Non-Military Stand off; Dick Speidel, Buffalo, N.Y., Curtiss Racer R3C-2.
Military Stand off; Bill Moultrie, St. Charles, Ill., Nakajima KI 4311B.
Sailplane; Paul Weigand, Rochester, Mich., Lamreht 2000.
Junior; Jeff Mrlik, Birmingham, Mich. Pitts S-1A.

Choppers . . . Continued from page 23

ready to fly, and observe the safety instructions. Rather than rewrite those instructions, let me tell you the sequence of events that happened on my first start-up . . . Perhaps you can then avoid the problems I had subsequent to that experience.

As I had suggested in the previous article, I had broken in the engine for two hours on the bench (sans clutch and gears) and was satisfied with its easy starting and smooth idle. After bolting the engine back in the chopper, we fueled the tank, connected the glow clip, turned on the radio and set throttle to idle for start. My son, Kim, held the main rotor head for safety and tilted the chopper a bit for inserting the starter. The engine came to life immediately but was running rough and exceedingly rich . . . so I cautiously jogged the throttle to keep it running.

POW! All of a sudden the engine smoothed out and the gear train started to rotate and it was ready to fly . . . except that Kim was still holding the main rotors and everything else was turning!

After shutting down the engine, it wasn't hard to tell what had happened. The clutch had engaged and the main rotor shaft started turning . . . Since Kim was holding the rotor head, something had to give, and it happened to be the plastic rotor head. To make a long story short, the rotor head alignment set-screw simply tore the plastic head to pieces, and we were out of business. Further

disassembly of the clutch showed that the plastic shoes were welded to the clutch housing, probably from melting under the friction. I also noted that the clutch shoes had been installed backwards by the factory so that they tended to "stub their toes" against the clutch bell-housing during rotation. After checking the drawings in the manual, I discovered the drawings were identical with the installation, so apparently they were meant to be that way! I still don't know the answer to that one, but I did reverse them according to my best instincts, cleaned off the welded plastic bits, and put it together again.

Naturally, I had to purchase a new plastic rotor hub and rebuild the head, I also modified the attachment to accommodate two set screws (just like the big main plastic gear at the bottom of the shaft) to provide twice the resistance to torque. Just to make sure, I used torque-seal on the fittings . . . I didn't want to go through that exercise again!

The following weekend, we were plagued with a rough running engine. No matter what we did, the engine simply wouldn't idle below clutch engage speed, and we had to quickly shut down to avoid clutch damage again. The Perry carburetor was disassembled at least 3 times and reassembled in "clean room" conditions. No problem with the carb was ever noticed, except that the engine was flooding consistently and fouling the plug. I finally found a set of instructions for a similar Perry carb which stated "open the needle valve only one turn," so I tried it and it worked fine! First time I've ever had to close the needle valve less than 3 turns, but you can't argue with success . . . it now runs smooth and cool!

Last week-end, we were ready to try it again, strapped on the training gear and fired it up. Blade track was found to be perfect and it looked like it would fly without further adjustments. How wrong I was! On the first lift-off I applied too much back cyclic, and the tail skid contacted the ground. From there on, parts and pieces went flying all over the backyard. The main rotor blades struck the

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tail and almost severed it . . . blade holders (plastic again) shattered, tail rotors demolished, etc. Funny thing though, there wasn't a scratch on either main rotor blade!

New blade holders were secured and the entire rotor head assembly rebuilt again. Coincidentally, at this same time, I received a communication from Fisher R/C in Framingham, Mass., and a set of modifications for the Graupner 212. They looked like good ideas, so I incorporated them into my rebuild project. In light of the ultimate results, I must agree that these modifications are considered to be imperative to prevent catastrophic failure.

Modification No. 1 is the installation of servo blade stop plates to the main rotor head. Two 1/16 aluminum plates are attached to the main rotor head to limit the servo blade excursions. Without these stops, the cyclic control can be extremely sensitive . . . in flight control with the stops is not impaired and is very smooth.

Modification No. 2 is the installation of an aluminum fuel tank support plate, which provides clearance between the tank and rotating main drive gear. Without this plate, the gear will probably rub through the tank with eventual failure.

An additional convenience modification is to turn the exhaust muffler end for end so that the exhaust is blown forward and away from the mechanics. This requires driving out the aluminum exhaust pipe end and rotating it approximately 180 degrees. Very simple and very effective.

Well, after all that work, yesterday she flew! There's no doubt about it, the Graupner 212 is an extremely smooth flying and responsive machine! We had it airborne for about 15 to 20 flights, and never once was concerned about the outcome. I think the Kavan gyro would be a welcome accessory in the 212 for the beginner, but not at all necessary for the average pilot.

I'm still not convinced about the plastic clutch shoes . . . next week I'm going to convert to the Schluter clutch

because I could hear it rubbing again on my last flight and causing the engine to run rough at idle. And I guess I'll replace the plastic landing gear strut brackets too, since they are fatigue cracked in 5 places. Oh yes, my oldest son John Jr. is machining a steel main rotor hub . . . I just noticed a new internal crack developing topside!

FINAL APPROACH

You can probably tell from the foregoing, that I have a "thing" about plastics. I do feel they are remarkable materials when used in the right place, however, I do not concur that plastic parts should be used at high stress points (rotor hubs), heat sensitive areas (clutch), or in conjunction with other materials where the integral construction is such that the entire assembly needs replacement when the plastic portion fails (blade holders). I'm a little let-down when I see this kind of thing in such a remarkable construction kit like the Graupner 212. Its other features still place it very high on my list for ease of construction, exact engineering, and precise flying characteristics. ●

C/L Continued from page 33

should be fun. Going to a contest with novice ability or even advanced, and having to compete with the pro's as per the AMA stunt class, to me, is not fun. I used to go to meets and just watch the pro's . . . because a man flying only 2 or 3 years knows he can't beat them.

"So, as per the old AMA class, about half the stunt flyers would not enter contests around the country, because of the bad way the class is set up. And so, enthusiasm is lost to a great extent. With the P.A.M.P.A. classes being used, I *would* travel 200 miles to go and fly because my *enthusiasm* would be high and I know I would have a good chance to win in my own class."

PROFILE CARRIER DILEMMA

Ron Duly, my good friend and local Carrier event director, has been keeping me informed on the various let downs of the event (poor pun). The problem with Profile Carrier has been the engine rule. It was intended as a beginner's

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event in preparation for Class I or II Scale Carrier. The event is interesting, because of freedom of expression in plane design.

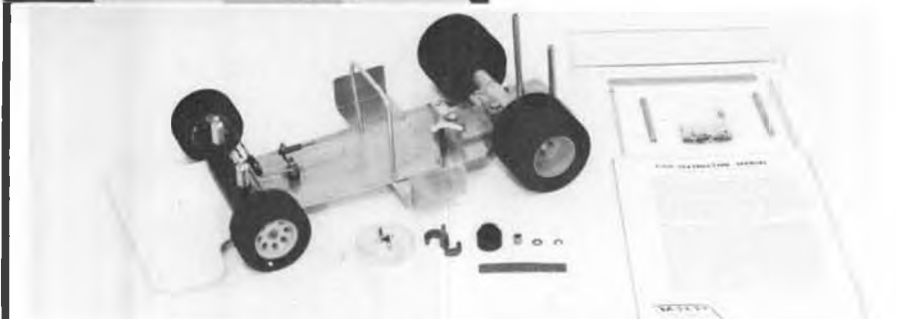
In trying to prevent "experts" from dominating the class, a plain bearing R/C, factory production engine without modification, was specified. Well, soon the experts began to pick apart the rules to their benefit. (*So what else is new? wcn*) The AMA then came up with a dumb definition to interpret the stupid rule. That is how it stands now. The proposal by Higley is for fixed bushing, front intake engines. That being the only rule (possibly) the future seems brighter . . . maybe!

Since modifications will be OK, the expert will still win in regular J-S-O competition. That, I believe, is how it should be. The expert must set the pace for competition. Local club meets can modify to suit their own promotional needs, but AMA sanctioned contests should require the highest degree of competition. The AMA should not try to define who is a beginner and who is expert.

The lesson learned here in SCCA contests is that a beginner is a beginner, because he has just started, not because he is stupid, or poor, or untalented. The SCCA beginner events (and several AMA events) almost cater to the lazy flier . . . not wanting to bother to be good, but still wanting a trophy.

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I have come to feel that wide open AMA events with winners being those who are good, result in better competition than all the weird special beginner events we could ever dream up.

STUNT MOTORS

Through the *Headwind*, bulletin of the Lodi Model Association, comes the news that Al Unger has produced a light weight McCoy series 21 stunt .40. It weighs 7-1/2 ounces and turns a 11-6 prop at 8500 rpm before breaking into two-stroke operation. He uses the head, piston and cylinder from the new Series 21 and the case from the old style Red Head .40. It's what the stunt event needs, a light weight .40.

CONTROL SYSTEMS by Bart Klapinski

This month we'll talk a little about some of the control systems. Let's start with the control device closest to you . . . your hand. How many times have you flown three or four laps only to wish you had wiped the dirt and oil from your hands before making the sixty yard dash to the control handle? So, you

clean your hands next time, only to find that after the second sixty yard dash your control handle is still greasy!

It is important that you keep your hands and handle clean . . . especially when trying to fly precision maneuvers, or when the plane has an excess pull on the lines. It's also important that the control handle fit your hand properly and is comfortable. Many of the top stunt fliers actually mold a handle grip so it fits their hands exactly. The handle should also be adjustable enough so that minute "up" and "down" adjustments can be made. Also, you should be able to move the lines closer together or farther apart so the sensitivity of the model may be changed. In addition, I find that the handle should be as light as possible. This enables the pilot to have a better sense of feel of what the plane is doing or what kind of air the model is passing through. This is especially important on stunt models where it is so necessary to "play" the wind during maneuvers.

I also suggest that when the controls are in the neutral position the handle should be in the vertical position rather than "slightly down" as many pilots prefer. This will help you have an equal amount of "up" and "down" control.

How often do you inspect your line clips? I try to carry several sizes of good quality line clips in my field box (so I can loan them to my buddy who forgot his). This allows me to make bigger line adjustments in an emergency. Always make these adjustments at the handle rather than at the plane. It will help to hold down drag and weight at the wing tip.

While we're on the subject of line clips . . . I suggest that you *never* use swivels. They are not only illegal in AMA competition, but I've heard of them

failing in flight in more than one instance.

Now that we've progressed all the way to the control lines, we may as well say a few words about them. Do you realize that on most control line planes that most of the total drag comes from the control lines? It's true! In fact, on most speed models, about 85% of the total drag is created by those funny little wires. Next time you fly your stunter or sport ship, notice how the control lines bow in flight. When you are in the pits, notice the whistle on the wires when your buddies plane is in a fast glide.

I cannot over emphasize how important it is to keep your lines clean, especially "solid" lines. Clean them only with a cleaner that won't leave residue, such as lacquer thinner. No . . . I don't mean the stuff you cleaned your paint brush with last week! Also, you should never put oil or any kind of wax on your lines. Just keep 'em clean!

Use the smallest diameter lines that the AMA rules allow for your particular engine size. For instance, if you are flying a .40 powered stunter and you are using braided lines, use .015 diameter lines rather than .018. It will improve line tension and reduce drag. Solid lines have different requirements though, so be careful. Solid lines create less drag but are much more difficult to keep clean, especially in grass.

Be sure to constantly check your lines for signs of kinks or fraying. Either can cause line breakage, which usually ends in the destruction of the plane and causes the gophers to go farther underground.

Wow! we've finally reached the plane! At this point, I'll quickly mention a few things about lead-out wires. My experiences have taught me to use small diameter braided cable ("Perfect" makes them) with brass lead-out guides, when flying .15 powered or larger models. This combination has been very reliable for me and the wires have a minimal amount of drag over the guides. Also, the lead-outs may be pushed into the the wing when flying is done, which helps to protect them . . . with only the hook up loops showing. Cleaning and transporting the model will be just a bit easier. I personally don't care for solid leads because, if they become bent at the lead-out guide, they are difficult to straighten, especially after the third or fourth bend.

Be sure to keep all controls and hinges free of dirt, and anything else that may retard control movement. You should be able to move your controls without any effort at all . . . It's important!

One more quick point and I'll close the hangar doors for now. At the start of any flying session . . . or after any mishap, be sure to thoroughly inspect, not only the controls system, but the entire plane. This may not only save your favorite model from total destruc-

tion, but may save the life of your favorite flying buddy, so you can borrow his latest issue of MODEL BUILDER that you haven't subscribed to yet. (No comment. wcn)

Girls Only . . . Continued from page 15

mother's comment on the newest addition to the family room is "Oh," and your father says "Uh." This leads you to believe they don't understand, and you are so right. Just smile and look gay and don't let Mama sit on the wing tip.

Should you find that your man is saving small screw-type bottle tops by the drawerful, let me explain. His is not perverted in any way nor is this his answer to the ecology problem. He mixes glue in these caps. Count the caps and figure 10 or 15 to an airplane and you will be able to project the extent of his desires. Frightening, isn't it?

Maybe you have gone to a contest or two with him. This is where everyone brings an airplane to a nine o'clock pilots' meeting that starts promptly at 10:30. Usually these happen on very windy or rainy days. Go equipped with lawn chair and suntan lotion anyway. Our role is to be optimistic. If the contest is for something called Stand-Off Scale, you can expect more than a fair share of accidents. I used to believe Stand-Off Scale had something to do with smelly fish skin, but now I know it is really a test of research ability . . . trying to find a picture of a certain plane that has the same markings as the plane you built. Sounds simple, but this can be trying and brings on periods of gloom and fretfulness.

We should deviate now from the bad to the good side. Everyone needs a hobby. True. And if he is infected, I'm afraid there is no cure. Face it. Buck up. You can make a million points by being understanding. Maybe your tit-for-tat Aeronca C3 can be little diamond earrings. Get the message?

Think of the travel possibilities. You might as well enjoy his disease. I know Toledo isn't everything, and I can take or leave the Toledo Show, but I like the motel and the eating out. Shopping isn't bad either. It brightens up the season and gets the old boy off his builder's stool.

Do you realize you are a weather man now? You can be esteemed in your own home. Go to the window first thing on Saturday morning. Look out long and hard. Then turn to your man and say, "Gusty!" He will nod and pat you affectionately on the shoulder. Or you can say, "Perfect," if the weather matches, and stand back as he gathers his gear. Now you are in line for a "touch-and-go," which is an on-the-move kiss consisting of puckered lips on the dipping approach, low and fast. Sometimes he makes it and sometimes he misses. That's life!

Now about the gliders. They don't make as much noise and they cost less,

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unless you give him a Thermal Sniffer for his birthday. You can take reading material along when he flies gliders, and it will be quiet enough to think. However, the power planes let you know when they are in the air near your head. The gliders are sneaky. Glider pilots wait until the last minute to yell, "Heads up!" They might as well yell "Heads off!" I think it's something about pride and being in full control.

The really sad part of this whole thing is when other members of your family are struck down with the R/C Syndrome. The feeling is unbelievable when you see your thirteen year old daughter grasping the transmitter, raptly gazing into the sky, and raving, "Oh, this is fun!" Nobody is immune.

Now a word about the clutter. How many airplanes do you have scattered about the house? Five? Six? Some are finished. Some are half finished. Some still in the kit boxes. All are gathering dust fuzzies. They are delicate to clean so leave them alone. I recommend giving up housework in general, and just pretending you are a visitor at an airplane museum. Enjoy the tapered leading edges and those darling machined dural gears. Learn to love the low bounce neoprene rubber wheels and the Wankel engines. Appreciate the neat radio installations and the fab cover jobs. Clean out your sewing drawer for the electric heat gun, soldering iron, Dremel tool, Monokote iron, and Unimat.

One way to feel a part of it is to suggest a color treatment for a new plane. Don't expect too much cooperation. One has to nag a little. Because of my decorating talents we now have a pink and purple Todi at our home. I didn't think it was that bad, but he spoiled it by printing "Yes Dear" on the wing. It



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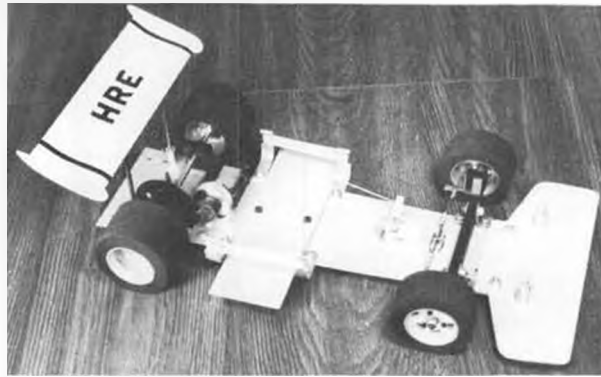
didn't make Model of the Month. I'll just wait for his faith in me to build and then I'll suggest the pink and orange.

Don't forget to read your Competition Newsletter. Learn the code and circle everything that appeals to you. This is a bonanza of travel ideas. He's ready to go in anything from a '57 Volkswagon to a new motor home. And, he's ready to go anywhere from the field next door to the Tangerine Open. Suddenly, money is no object. Even when he returns without the trophy, you are always the winner. He loves it when you realize the field that was described as closely cropped was really never chopped and a cow pasture to boot.

Did you ever stop to think that if there is a Nats there must be an Internats? This opens the possibility of foreign travel. Pour on the encouragement and let's see what happens. Maybe I'll see you there.

So, in the lingo of the Modeler, I leave you with these words. If you want to be the CD in his "L" Pattern (Game of Life), you have to give a lot, but you

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application to established racing classes seems a long way off. My prediction is that we will first see the routine use of spinnakers in larger boats such as the "A" class, and the new "J" class, where the additional weight of a spinnaker handling system does not harm the boat, and where the extra equipment for the chute can be handled by a "foredeck hand" who is operating a separate radio system on another frequency. Another probable use for the spinnakers will be by some clever fellow in the 50/800 class who uses an 800 square inch cat-rigged mainsail, and a fairly flat chute with around 1500 square inches which can be used to reach in apparent winds as far forward as 60°. Won't that scare the pants off of the race committees?

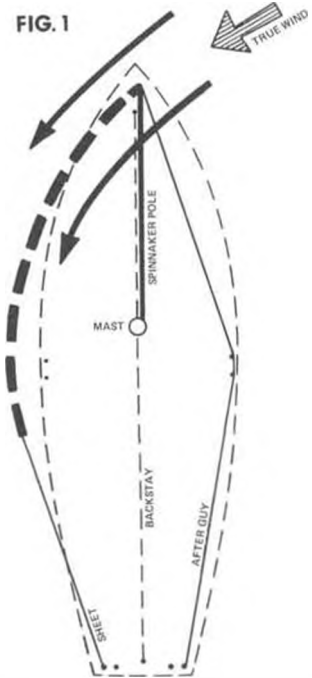



Figure 1 shows a very basic spinnaker arrangement. The spinnaker pole needs to be as square to the wind as possible and will have to be hoisted someway up the mast in order that the spinnaker be allowed to lift and assume its proper shape. The pole is carried on the same side of the boat that the wind is coming over. In this configuration, the jib is powering the boat due to its aerodynamic lift. Should the wind direction, or your course change, as in Figure 2, the pole is changed by hauling in the guy, and the sheet is slackened.

Since the sail shape of a spinnaker is cut into it by the sailmaker, we see our chute which did so well while reaching, is not bagging out so well as we progress toward a run. A good compromise chute would be fairly flat in order that the reaches be well taken care of.

Finally, in Figure 3, we assume a downwind running posture, and the spinnaker assumes its more familiar "parachute" shape. Here it is acting as a giant air brake and dragging the boat to leeward with it. Projected area becomes


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can expect favors in return. Like the time my husband wanted to name one of our sons Heath. I didn't think it was too bad an idea. But I couldn't see Kit as a middle name for a boy!

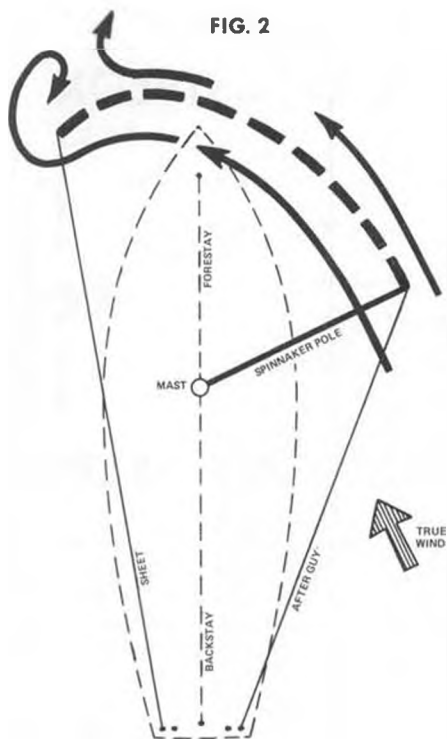
I won that one. ●

Sailing Continued from page 31

ments. We are in reality looking at an amount of halyard equal to the hypotenuse of this triangle, or $1^2 + 1^2$. On a 36/600, this may be as small as 38 inches, while on Vanguard's monster Whirlwind, it stretches to 102. As a result, one needs a halyard winch capable of rapid processing of long stretches of line. This has been solved utilizing an

adaptation of one of T&A's Dynamic Balance Sail Control Units.

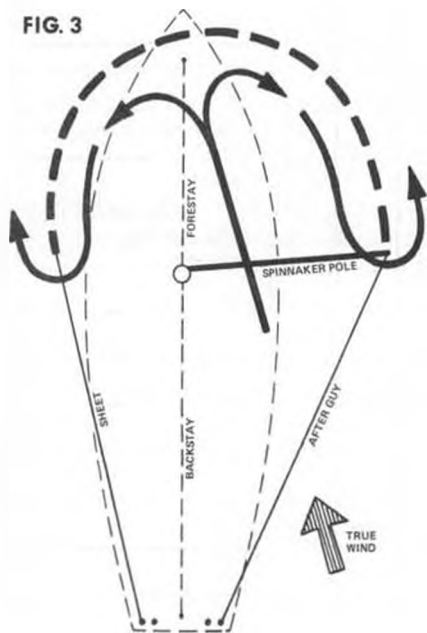
Now that we can hoist and douse it, what control do we need to put on the sail while it is flying? First, it must be realized that spinnakers can produce drive for your boat in two ways, in the classic downwind running mode, or in the reaching mode which has so rapidly developed of late. In either case, the relationship between the sail and the apparent wind must be controllable. This will mean that we will have spinnaker poles, sheets and guys to control the attitude of the beast. At the present time, such control functions would require so much attention that their direct



relatively more important than airfoil shape on this point of sail.

Should we continue to head to port we will eventually observe the wind to have crossed our stern. We will have jibed. On a full size boat, the pole would be changed from the old tack to the new tack, while the mainsail was brought over the stern. In our one pole system, we are without the means of continuing to swing ship to a broad reach and then a close reach without seeing our spinnaker collapse. If we use two poles as previously mentioned, we seriously limit how close we can get to the winds on the reaching legs (That is unless someone can come up with a way to telescope the poles while underway!!!).

This ability to slew the spinnaker



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from port side to starboard side in a jibe is taken care of in Wally Gitchell's system, by having two spinnaker poles which are attached to either gunwale (edge of the deck) and which can swing from side to side under the pressure of the weather sheet. This allows the wind to swing from aft on the starboard side, past the centerline to the port side, and the spinnaker is swung to compensate. The photo gives you an idea of their relationship to the standing rigging and the spinnaker exit point in the bow of Wally's PETREL. The effect of spring loaded spinnaker poles is to make spinnaker shape directly related to the wind strength. As the speed goes up, the chute pulls harder against the poles, bending

them toward the centerline, and collapsing the foot of the chute somewhat. On the other hand, the system works, and would certainly be a good beginning for someone who wants to start with a tried method of spinnaker handling for which there is hardware, guidance and experience available. The PETREL in the photo gives you a good example of the fascination which the sail holds for us types. Having seen some movies of it in action, I can imagine how I would feel if I heard a "pop" from behind and looked back to see this monster moving up on me.

I wonder if another way to approach the problem and maintain the geometric relationships required, would be to have

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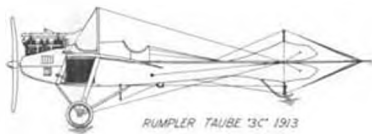
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two separate chutes. One for either tack. (You'd expect a sailmaker to make a suggestion like this, wouldn't you!!!!) The problem might come in jibing on downwind legs of the course, but it seems to me that the benefits to be gained on the reaches would make it most attractive. In the larger classes, where the individual legs of the course are longer, we might well see discussions as to best tactical approach to the leg being held as the skipper and foredeck hand reach a mark. Roller furling, main and jib trim, and rudder, would be handled by the captain; the spinnaker would be handled by the foredeck hand, who would double as tactician and timekeeper on the weather legs. Really starts to

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sound like a new dimension in model yachting.

While we have attempted a short excursion into the art of rigging and handling a spinnaker, I am not basically a rigging expert, and am looking forward to some input from our readers on their ideas. By the time the rigging is perfected, there will have been an equal amount of effort expended to ready the sails that you will need to fly. One photo shows a radial headed spinnaker we made for an East Coast 12 skipper. How he is going to fly it from that boat we don't yet know, but will keep a close eye on him to see what his solution is.

As is our usual custom we would like to alert you to new AMYA Sanctioned Model Yacht Clubs which have organized:

No. 44 - Gold Coast R/C Model Mariners
Bob Cryslar, 2709 So. Federal Highway, Del Ray Beach, Fla. 33444 (Boynton, Delray, Deerfield, Pompano Beach, Margate, Boca Raton)

No. 45 - Oregon Model Yacht Club
Herb Hoser, 675 S.W. 238th Ave., Hillsboro, Oregon 97123 (Greater Portland area)

No. 46 - Oshawa Model Mariners
Barry Fletcher, 1444 Oneida Court, Oshawa, Ontario, Canada L1G 4M6

We are also happy to report that AMYA has announced the appointment

of Tom Protheroe to fill out the unexpired term of Ed Shipe as an AMYA Director. Ed found his time spoken for and asked that the post be filled by somebody who had the necessary hours to donate. Luckily, we still have Ed's address and he will be called, I'm sure, to lend his expertise as the need arises. Both Ed and Tom were associated with Vortex, the former as Sales Manager and the latter as the designer of the Santa Barbara. Can you think of two more savvy fellows? This is a good example of the caliber of folks who have put and continue to put their shoulder to the AMYA wheel, with no pay or praise, out of a sense of "it needs to be done."

Write to Bud Salika, 3917 Sunnyside Ave., Brookfield, Ill. 60513 with your \$5.00 dues for the AMERICAN MODEL YACHTING ASSOCIATION. He'll love you for it.

Suggestions and other column related comments can be sent to me directly at 7608 Gresham St., Springfield, VA. 22151, or in care of MODEL BUILDER. I'd like to thank all the folks who stopped by our booth at Toledo and offered criticism on this columnists effort. It was all quite constructive and greatly appreciated.

F/F Scale . . . Continued from page 41
shrink while drying, causing scallops on the sheeting between bulkheads. So I

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use both Titebond and Ambroid in the same gluing process. The Ambroid on the sheeting edge, and the Titebond on the bulkheads. More trouble perhaps, but worth it.

I use Wilhold's white glue strictly for covering, nothing else, except when laminating woods that have been soaked in ammonia water. On occasion I use balsa instead of basswood for laminating. When I do, I usually soak it in water, with ammonia added. Titebond curdles when it comes in contact with the ammonia, but it has no effect on the Wilhold white glue.

I find that I'm using less and less epoxies for modeling. For a while, it seemed that I was using epoxy for nearly every gluing need. Now, about the only time I use epoxy is for gluing plywood bulkheads to fuselage sides. Pliobond contact cement is the best I have found, where this type of cement is required. For one thing, it is not stringy like so many other brands. I like using contact cement for attaching wing struts, etc., or wherever you want a small amount of flexibility. Spray contact cement is ideal for laminating large sheets of wood, such as fuselage doublers, wing "skins" onto foam wings, etc. Just spray each side, let dry a couple of minutes, line up the sides carefully, and press together. That's that! No pinning, no oozing glue, and no waiting for glues to dry.

How much glue should be used? One new aid that will help regulate the

amount of glue is Peyton's glue gun tips (they sell three for 99¢ and are available at your dealer, or from Peyton Products, P.O. Box 6423, Orange, Ca. 92667). The tips fit most every kind of glue bottle or tube, and the nifty thing is that they help dispense just the exact amount of glue you need for small parts, etc. Since the tips are tapered, they could be cut down to give you whatever size opening you desire.

Some modelers feel that the more glue you use the stronger the joint will be... not so. Maybe this held true at one time, but not nowadays. If you were to see the wooden wing to a homebuilt, you would see no excess glue in the joints. (Generally this is true, but homebuilders are like modelers, some are more meticulous than others.) I try to get just enough glue on the joint to do the job and no more. Using a vertical stick between fuselage longerons as an example, I'll put on just enough glue to cover each end of the stick. Rather than place the stick in its proper position immediately, I'll put one end into place, remove, and repeat for the opposite end. Then I'll put the stick into place and pin it down. By doing this, it transfers some of the glue onto the longerons as well. Any excess glue that may ooze should be removed, using a stick with a tapered end.

This basic technique is used throughout the construction of the entire model. Any glue that may have seeped to the opposite side of the structure while

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pinned down should be sanded off completely. There's really a great deal of satisfaction in seeing the structure of a model which is clean and void of excessive globs of unsightly glue.

Hot Stuff... The name implies several connotations, all of which can be taken literally. This adhesive is truly something else, it sticks right now, and to almost everything... including skin! For this reason it has to be used with a great deal of caution. I keep my bottle out of reach of my children.

I'm still new to Hot Stuff, so there is a great deal to learn about this magical substance. One thing for sure, all joints have to be a perfect fit, otherwise there

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information, photos, 3-views, etc. So for sure, I'll get this one going in the next issue.

Vintage Aero has come out with some additional kits from the Golden Years of Modeling. The most recent supplements to its already growing line are Megow and Continental replica kits. These include a Fokker D-8, and a SE-5 (both Continental) and a Megow DVII. They each sell for \$4.49. They include original plans, high quality print wood and balsa strip, plastic prop, wood wheels, fine tissue covering, and complete hardware. Write for the complete catalog (\$1.00) ... Vintage Aero, 1 The Glen, Tenafly, N.J. 07670.

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will be no bond. Hot Stuff doesn't "fillet" like other glues. Once the joint or joints are mitered to fit, you place a single drop of Hot Stuff at each joint. The capillary action is something else. Because of this ability, I prefer not to use it for building fuselage sides when building both sides on top of each other. I find that the two sides when built together are too difficult to separate, even using the old reliable double edge half-razor blade.

I'm still learning how to use Hot Stuff and the more I use it, the better I like it. However, I have found on occasion that a seemingly tight joint will not bond

after it has been applied. Another thing is that Hot Stuff will not adhere to itself. So if you have a failure the first time, use another glue the second time around. With this adhesive each joint is truly clean, strong and light!

I'll have more to report on this product as I learn more about it, but at any rate, the above is a brief rundown on various glues, that may prove helpful.

Next month I will start on a gas kit conversion of Flyline's excellent Curtiss Robin. After looking over several monoplanes, I felt that this one had more potential than all of the others. My starting point will be to research available

Plug Sparks . . . Continued from page 39
some good ideas from Bill West of Cambridge, Maryland.

Like most of us, Bill got tired of trying to transfer layouts from plans to printwood. He has hit on a novel way to do it painlessly. First off, obtain the three sheet correspondence paper (Perma Copy Products is one producer) that have the normal original white sheet in front, followed by the light brown tissue and carbon paper thereafter. This is actually stencil paper but the idea really works. Try the following:

First, remove the white sheet (the one you normally type on). Now place the purple sheet; *purple side up*, under the plan with the brown tissue on top. Onion skin paper will also work instead of the brown paper.

Using a sharp hard pencil, say 4H to 6H, trace the part needed. Press down hard with a smooth hard surface under the plan like a formica table top. Next, place the brown sheet on the balsa in the desired spot. The brown paper (or onion skin paper) is then enough to see through, enabling you to optimize your location. Note purple liner is down.

Using the side of a soft pencil point or the eraser end, rub over the lines and the pattern will be transferred to the balsa. Voila! Instant printwood! If some care is exercised, the same tracing can be re-used several times. You get better results using the soft eraser end of the

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SAILPLANE DESIGNER'S HANDBOOK: Design instructions, 180 airfoils, 63 designs, 3rd printing, \$4.96. Eric Lister, 953 Klockner Rd., Trenton, N.J. 08619.

pencil. Incidentally, the purple sheet can be used over and over. All that is required is a new onion skin "master."

One word for those who like to save a nickel or so. You don't need new stencils; used purple sheets work well. A lot of people who work around duplicating machines will find a lot of these purple sheets in the paper trash. It should be noted that in normal stencil work, after the master is completed, the front white sheet is the one that is used and the rest thrown away!!

Now, if you have trouble getting this stuff, write to Bill West at RFD #3, Box 263, Cambridge, Md. 21613. He is in the enviable position of being able to salvage all those important purple sheets. One word of caution, this stencil type is purple, not black and is used in con-

junction normally with a liquid type ditto machine.

(If all of this seems like too much work, don't forget the Stick 'em Patterns available from MB for certain Old Timers. At present, we have the Scientific Mercury, Lanzo Stick, Buhl Pup, Powerhouse, Out 'O Sight, Red Zephyr, and T.D. Coupe. See page 88 for ordering info. wcn)

CORRECTION DEPT.

Oops! Did it again. Sorry to give the impression that Gordon Coddling was going out of business. What he has given up is the building of full scale airplanes (homebuilts). He has actually expanded his line of scale plans at 1" and 2" to the foot scale.

Gordon will be moving to 3724 John L. Ave., Kingman, Arizona, where he

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

The MODEL BUILDER, 1105 Spurgeon, Box 4336, Santa Ana, Ca. 92702

will be in cahoots with his old time buddy, Clyde Austin. (Remember Austin timers and the lot?) While Gordon is not able to get around too much, his wife will attend to the details of getting the plans out.

INDOOR COMPRESSED AIR!

Received a report from Bert Pond, foremost compressed air exponent, that a compressed air model was successfully flown indoors at Glastonbury, Conn.

FULL-SIZE PLANS SERVICE

(with instructions)

No. 6751 SQUARE HARE R/C	\$3.00
All sheet balsa trainer with long history. Span 52", .19 power. By Bill Northrop.	
No. 6752 SKYFARER	\$2.75
Rubber powered 1" scale model of trike geared high wing cabin. By Earl Stahl.	
No. 675-O.T. DIAMOND DEMON	\$2.50
Popular .020 Replica of Bay Ridge cabin Cl. B job. Span 34". By Phil Bernhardt.	
No. 6753 SHRIKE	\$3.00
Hot Half-A free flight, with good looks, and top performance. Bill Langenberg.	
No. 5751 FLEET BIPLANE	\$4.00
Fast-building 2" Sport Scale R/C model of famous 1930 biplane. By Romey Bukolt.	
No. 5752 SEA FURY	\$3.90
Semi-scale model of WW II British fighter, for 1/2A R/C pylon. Jerry Holcomb.	
No. 5753 GREMLIN	\$2.75
Sharp little Half-A C/L Stunt model. Will do complete schedule. By Tom Dixon.	
No. 575-O.T. MERCURY	\$4.00
Designed by Ben Shereshaw, kitted by Scientific. 72" span. By Phil Bernhardt.	
No. 4751 R/C AUTOGYRO	\$3.50
Semi-scale twin rotor R/C autogyro for .35 engines. Very stable. By Skip Ruff.	
No. 4752 OKIE BIRD	\$3.50
Red hot Class A/B free flight. Plans show sub fin and rear fin types. By Jim Clem.	

No. 475-O.T. G.H.Q. SPORTSTER	\$4.00
From July 1936 M.A.N., also kitted by G.H.Q. By Louis Loutrel. Phil Bernhardt.	
No. 3751 CURTISS F9C-2	\$6.00
Navy airship-based "Sparrow Hawk" biplane, 1-1/2" scale C/L. Charlie Smith.	
No. 3752 CALL AIR SNOWCAR	\$2.50
Radio controlled, semi-scale prop-driven snow car, .30-.40 engines. Fred Sanford.	
No. 3753 GROOVY TUNA	\$2.50
Top-notch Wakefield design from 1973-1975 FAI U.S. team member. Jon Davis.	
No. 375-O.T. 1936 WAKE WINNER	\$2.00
Englishman Albert A. Judge's Wakefield Cup design. Redrawn by Phil Bernhardt.	
No. 2751 TOP SLIDER	\$3.50
R/C Slope Racing glider. Will sport fly in light winds without ballast. Ken Willard.	
No. 2752 CUT-LESS	\$2.50
Half-A R/C Pylon Racer for 2 ch. radio. Elevator and aileron. By Dave Katagiri.	
No. 2753 FORD TRI-MOTOR	\$2.00
Super-light rubber scale model of famous Tin Goose, 32 1/2" span. By Tex Newman.	
No. 275-O.T. MYSTERY MAN	\$5.00
Famous Elbert Weathers Class C gas job. Used takeoff dolly. By Phil Bernhardt.	
No. 1751 R/C TYRO TRAINER	\$3.00
Powered glider with removable .049 powerpod/hatch. Span 74". By Hank Cohan.	
No. 1752 BEACH'S FLYER	\$2.50
Stagger-wing-bi-plane, canard-tractor for .049 Super-simple, but wild! By Kloth/Beach.	
No. 175-O.T. FLYING OQUAKER	\$5.00
First gas model kit by Megow, 1937. Span 7 ft. Redrawn by Phil Bernhardt.	

STICK 'EM PATTERNS

"Stick 'em Pattern" numbers correspond to plan numbers. Order with plans and they'll be mailed together . . . 3rd Class. Add 50¢ per set to mail patterns 1st Class.

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No. 11743 SP "C-QUELL"	\$3.95
No. 1174-O.T. SP LANZO STICK	\$1.95
No. 91074-O.T.SP BUHL PUP	\$4.95
No. 8741SP WOODY PUSHER	\$1.95
No. 874-O.T.SP POWERHOUSE	\$3.95
No. 7741SP CURTISS A/12 SHRIKE	\$3.95
No. 774-O.T.SP OUT 'O SIGHT	\$2.45
No. 6741SP TRIXTER BEAM	\$2.95
No. 674-O.T.SP RED ZEPHYR	\$3.95
No. 12711SP CURTISS-WRIGHT Jr.	\$3.95
No. 574-O.T.SP T-D COUPE	\$2.95
No. 11731SP BIG JOHN the FIRST	\$5.95

Watch this space for more patterns to come.

No. 12741 85' HARBOR TUG	\$8.00
Complete plan (3 sheets) for R/C tug. All wood, 37" LOA. By Francis Smith.	

Price includes 3rd Class postage and reprint of building instructions (if any). Add 45¢ PER PLAN for 1st Class postage. Add 50¢ for overseas orders (except APO's).

Send self-addressed, stamped business size envelope for free copy of complete plans list.

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Considering the large size airplane (5 to 6 ft. wingspan) required to carry the load, this is simply terrific! If you want a new indoor kick, try this one. Best part about compressed air is that you can graduate the power by the amount you put in the tank.

A.M.A. MODEL MUSEUM

You may or may not have heard of the proposed Academy of Model Aeronautics Model Museum but, believe it or not, the dream of Johnny Clemens, AMA Prexy, is rapidly coming to a head.

Received a letter from Joe Beshar, SAM President, asking all regional vice-presidents for inputs and ideas on the museum. What could be more natural than to have S.A.M. act in one of the leading roles. After all, if it wasn't for SAM, one heckuva lot of stuff would have gone down the drain. Of course, all efforts (and work) is generally a love of labor, but this writer is confident there are a zillion guys out there in never-never land who would love to contribute some of their beloved modeling treasures to the museum . . . with proper acknowledgments, of course!

If you are really interested in this most worthy project and have something (old model, motor, equipment, etc.) that you feel has historical interest, contact this writer or Joe Beshar at 198 Merritt Drive, Oradell, N.J. 07649. Better yet, if you have time to spare and want to devote some free labor to this project, let us know! We're gonna need

all the help we can get!

SPOTS CLUB

This most enjoyable group (as reported by Randy Carmen (wife of Howard) is still showing the way modeling should be enjoyed. They meet at different homes each meeting. It appears each host tries to outdo the last one. With all those good eating goodies, how does one ever possibly miss a meeting?

Jim Clark reports he will be contest director for Central Jersey R/C Club's SAM Nats Warmup meet on June 29 at Middlesex County Model Airport. He will also run the SPOTS Sunday OT R/C meet at 4H Field at Bridgewater, N.J., on September 28. In between times, he will CD the Somerset Signal Senders O/T meet, also at the 4H Field on October 26. Busy man! Incidentally, all meets will feature classes A, B, C, Antique, .020, and Texaco. Whew!

NEW KORDA WAKEFIELD KIT
Reports from Ed Kelly, head man of the four Kellys (4 K's Mfg. Co.), who presently produces the Buzzard Bombshell kit, indicates the old Korda Wakefield will be kitted in Ed's usual superlative style. One thing for sure, it won't sell for \$1.00 like the original Megow kit!

SAM CHAMPS

By the time you read this, you'd better have gotten in your advance entry form. Tim Dannels, of the host Denver Model Museum Club, states that after-hour activities, such as the expedition

in the Coors Brewery, will be filled first by advance registration and then as applications are received. Get your request in early, otherwise you are liable to miss a lot of the extra-curricular activity.

All SAM members will automatically receive the advance entry forms. Kits should be mailed out around the first of May. Non-SAM members can get entry kits by simply writing Tim Dannels, 1265 Yates, Denver, Colorado 80204.

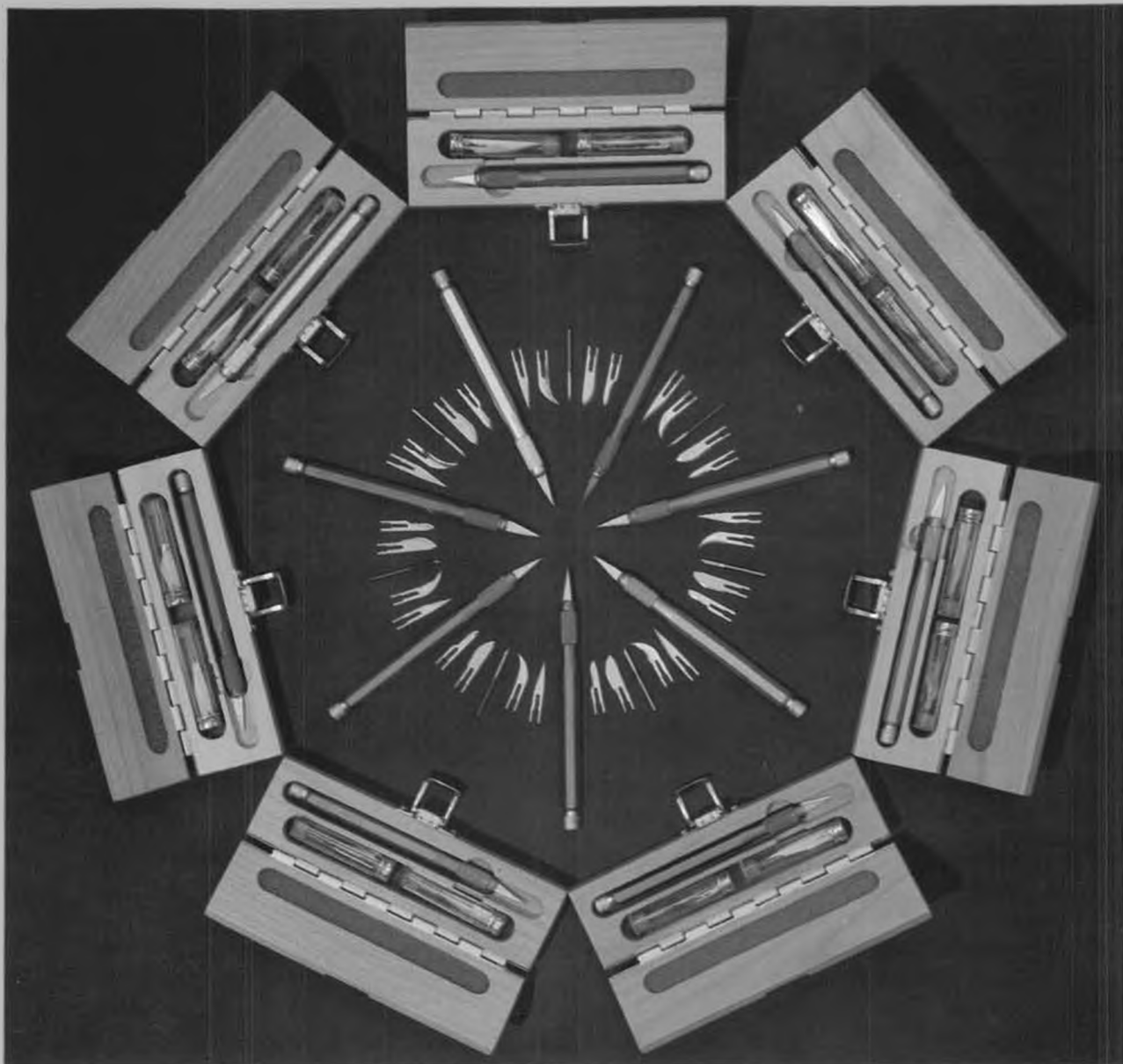
The SAM Champs in finalized form features twelve free flight events and five R/C events. This should be enough for anyone. To properly plan which events to enter, it is a must to register in advance. There are just too many good events to miss any you really like!

Oops, almost forgot about the engine collectors. Entry forms for the Collectogether on July 28th will be sent by Dannels to all MECA members. Get your displays ready!

CLOSING SHOT

Lee Freeman is probably the reporter's dream for good copy. Best part about it all is that he can be easily photographed while doing these antics completely unconsciously. At the SCIF-SCAMP Kick-off meet, he blew the .020 event, smashed his Jersey Javelin, ran over Brickner's tool box with his motor-bike, and kept everyone awake in the motel with his snoring. The weather had been so threatening that other occupants thought it was the thunderstorm! Haw! (and a note of thanks to RJB) ●

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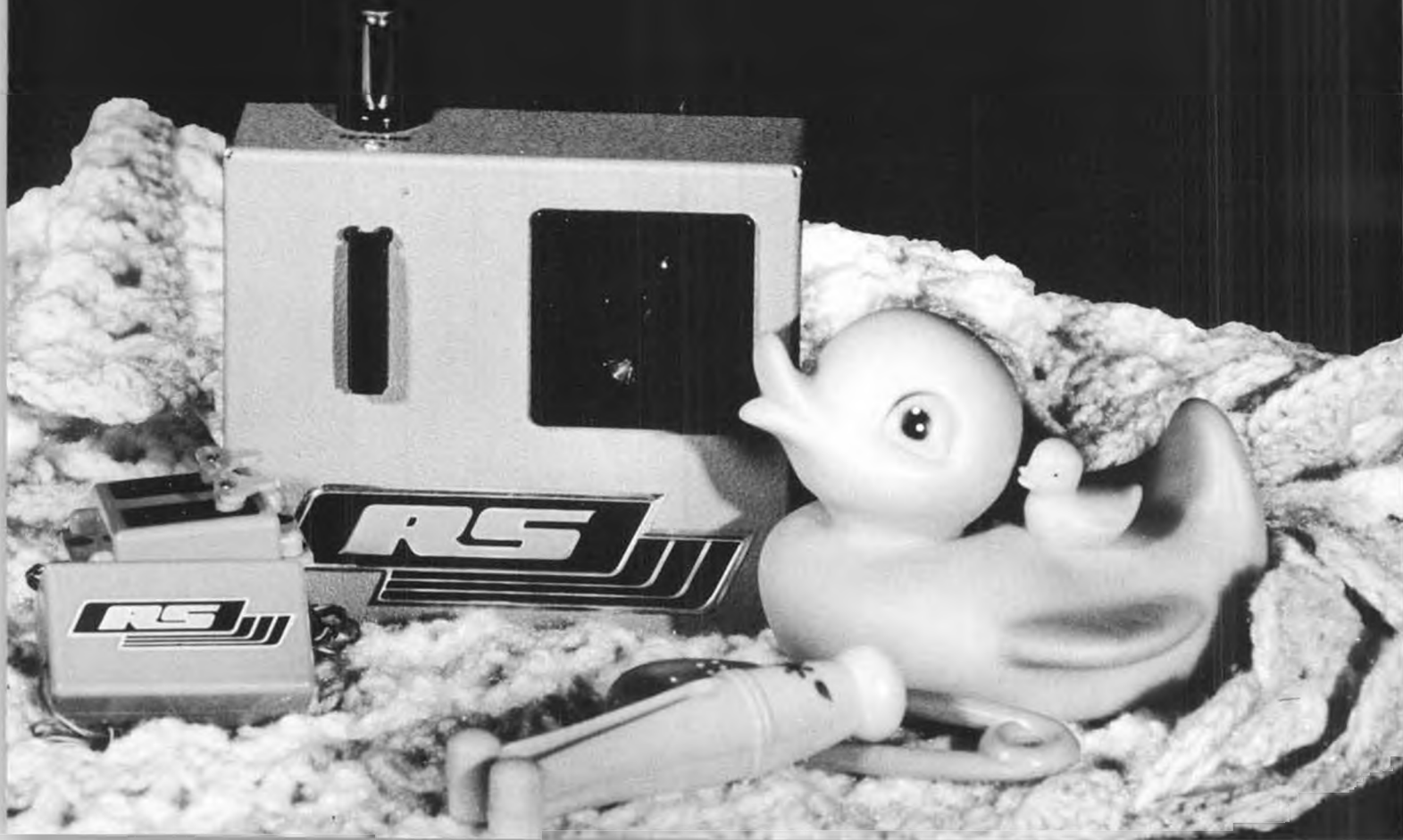
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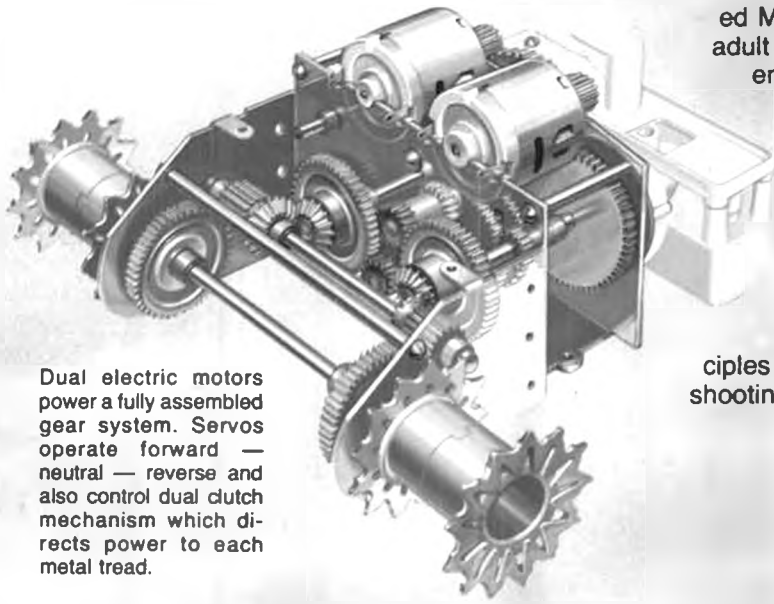
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