

# The **MODEL** **BUILDER**



**NOVEMBER**  
volume 1, number 2

**50 cents**



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**New Heathkit Sub-Miniature Digital Proportional Servo** utilizes an integrated circuit to trim off excess bulk. The Sub-Mini weighs-in at 1.25 oz., measures 1⅞" from mounting ear to mounting ear, yet provides the same 3-lb. thrust of much larger servos. Features include 90° rotation in 0.5 seconds; 1% position accuracy; ceramic variable control feedback element; nylon gears and molded nylon case. Just 18 components install quickly on printed circuit board. Includes 4 rotary outputs, is compatible with all Heath R/C Systems and most others. Measures 1⅞" H x 2⅜" W x 1⅞" L.

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GX-232



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**Discounts** on special items stocked by AMA Supply & Service Section—books, magazines, pins, decals, etc.

**Official Rule Book** included with all AMA memberships. This manual details the specifications by which different types of models are built and flown and clarifies most of the specialized model aviation terms—a real aid to understanding model magazine reporting.

**Super Decal Sheet**—three different 4" x 9" sets. AMA wings, FAI emblems.

\***The Academy of Model Aeronautics**—a non-profit organization, organized in 1936; guided by regional officers elected from among the membership. National headquarters is in Washington, D.C. AMA members have privileges in other organizations: National Miniature Pylon Racing Association (NMPRA) open only to AMA members. Membership in the Nat'l. Free Flight Society (NFFS) is \$1.00 less to AMA members. All AMA members are automatically part of the National Aeronautic Association (NAA) and the Federation Aeronautique Internationale (FAI); may become voting members of NAA—with other special benefits—for half price, and may obtain an FAI sporting license for international competition.

**Liability Insurance** is included with all AMA memberships. Bought separately, this insurance would cost more than the adult AMA membership fee. Coverage is for \$300,000!

**Competition Privileges:** All AMA members are licensed to enter the National Model Airplane Championships and all other non-restricted meets (over 500 each year—fun-flys, local, state and regional meets, and record trials); to establish national and international records; to compete on U.S. teams in World Championships (two held per year).

**Special Help for Youth Members:** Membership fee, with full competition privileges, eligibility for AMA scholarships, only \$2.00 for either Juniors (up to 15) or Seniors (15 thru 18). (Does not include magazine subscription—cost with magazine subscription only \$5.00.)

**TO JOIN AMA USE THE FORM BELOW:** AMA membership ends each year on December 31, regardless of the date a membership application is received. Late-year membership policy is as follows: those who apply between August 1 and September 30 pay full one year rate, but will receive half-year credit toward the next year's membership—they must, however, use this credit by July 1 of the next year; those who apply between October 1 and December 31 pay full one year rate and receive full membership for the following year, plus whatever days of membership remain in year of application.

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## from Bill Northrop's workbench . . .

● It is not our intention to use this column from month to month for the purpose of relating our own experiences, in or out of the hobby. The only exception will be in a case where the experience, directly or indirectly, has some bearing on a point we're trying to make editorially.

. . . That is, except just this one time, honest!

Once and for all, we must say to all of you who have shown faith in our efforts to launch this publication. . . to our many friends and acquaintances who plunked down their subscription money to The MODEL BUILDER, sight unseen, when we first introduced it at the Nationals; to

the model dealers, who without the urging of a publicity brochure (which has finally been mailed), searched us out to place standing orders for so many copies per month, and have since increased the quantities (!); to the contributors of articles and photographs who have worked extra hard and extra hours to help us meet those first, most difficult deadlines; and very specifically to the advertisers, those with us now and those who are joining soon, because without them it simply doesn't happen! To all of you. . . THANKS! THANKS! THANKS!!

\* \* \*

In this issue you will find the first of some new monthly features; namely

BACKFIRE, PHOTOGRAVIEWER, PYLON, The MODEL BUILDER'S CLASSROOM, and FREE FLIGHT. Their content is pretty well explained by the title, but we mention them for two reasons.

First, these features are a part of what we promised would appear with the pages of The MODEL BUILDER, and we're bragging just a little bit about the fact that we've gotten them on their way so soon. The others, plus more that were not previously mentioned, will appear soon.

Secondly, we wish to relieve your mind if you're beginning to think the editor is going to have his fingers in all the pies. It ain't so! Beginning next month, the PYLON and FREE FLIGHT columns will be handled by two very capable contributing editors who are already at work on the December issue.

\* \* \*

We had some most interesting visitors as a follow-up to the World Championships.

First, there was Bob Young, one of the competitors from Australia, who stopped by on his way home. Bob is proprietor of Silvertone Electronics, manufacturer of the Silvertone Mark VII proportional radio. The system is offered with Orbit PS-3 or PS-4 servo mechanics, and since Orbit's factory is only a stone's throw away. . .

We had never realized the full impact of living south of the equator until noting the power switch on the Silvertone transmitter. Up is OFF, down is ON! Do you have a better explanation?

Next to appear were some delightful people who we e, in e fect, reciprocating. Following the World Championships in Bremen, Germany, Maynard Hill and I

## The MODEL BUILDER

November

1971

volume 1, number 2

Cover: Sopwith Tabloid, winner of 1914 Schnieder Trophy races, built to 1 1/2" scale by Fernando Ramos, Villa Park, Ca. Power is 1.5cc Mills diesel. Scene is Lake Elsinore in southern California. Photo by Bill Northrop.

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took a fast tour which included the Graupner factory in Kirkheim, and the home/office of Flug Modell-Technik, in Baden-Baden. Flug Modell-Technik is Germany's leading model magazine, dealing mainly with radio control. The editor/publisher is Alfred Ledertheil, who like someone else we know, is currently producing the magazine from his home, in partnership with his wife. To tie the whole thing together, Alfred and Betty Ledertheil's daughter is Monica, and she happens to be the wife of one Jerry Nelson, former U.S. R/C World Champs team member, founder of R/C Goodyear or Formula 1 pylon racing, and now proprietor of Nelson Model Products.

With Monica as tour guide, the Ledertheils have been seeing the U.S., following the 1971 World Championships, and luckily for us, we were included on their must-stop-and-visit list. Fortunately, the second spare bedroom had not yet been taken over by The MODEL BUILDER.

The up-shot of all this should be of special interest to many of our readers. We have arranged with Mr. Ledertheil to make available, through The MODEL BUILDER, full size plans from many of the fine construction articles featured in Flug Modell-Technik. As with MB Plans Service, the construction article is included with each plan, and in most cases the whole issue is included.

We anticipated your question. Although the plans are very thorough, you may desire a translation of the article for additional information. This we will make available for an extra charge. However, a glossary of most common words appearing on the plans will be included at no extra cost, and this should suffice.

Over 100 airplanes and about 30 ship models are included in the complete list of plans. In aircraft, there are many glider designs, ranging from 8 to 16 foot wingspan, powered scale, sport, and stunt ships, deltas, seaplanes and several novelty designs. Ship models are scale power and sail, both for R/C and shelf. From time to time, and as space permits, we will reproduce a sample plan to give you an idea of what is offered. Generally, the cost will run about the same as or a little higher than our own plans service items.

\* \* \*

#### REQUESTS

We have sent out post-cards to as many club newsletter editors as we can get addresses for, asking to be put on the subscription list. If your club has a



Hazel Sig's Clipped Wing Cub, which she and husband Glen flew from Montezuma, Iowa, home of Sig Mfg. Co., to the World Championships. Sitting beside it, in the hanger at Doylestown Airport is Sig produced model, available in kit form. Model was demonstrated by Maxey Hester during airshow.

newsletter editor, or even just a secretary who is willing to write a letter about your club's activities once in a while, please ask him (her) to put us on his (her) communication list.

While we're asking favors, here's one we'd really appreciate. You've heard it before and you'll undoubtedly hear it again. When you're talking to anyone even remotely connected with one of our advertisers, tell 'em you read about their product in The MODEL BUILDER . . . even if you didn't read about it in MB, tell 'em you did anyhow. What's a little white lie between friends?

\* \* \*

#### BULLETIN BOARD

Something we read in the latest AMA release inspired the following script:

"I had a fly-away yesterday. Radio quit."

"That's too bad!"

"No, that's not bad, the plane landed in a nudist camp."

"Oh yeah! That's good!"

"No, that's bad. An armed guard brought it to me at the gate."

"Oh. . . that's too bad."

"No, that was good. The only thing she was wearing was the gun!"

Sorry about that, but what brought it on was a report concerning the latest good and bad activities between the FCC and AMA. It goes like this:

In November 1969 the FCC proposed the mutual sharing of the five frequencies on 72-76 MHZ for all types of models. That was bad.



The prototype "Big John" as it appeared shortly after completion in 1963. Ship was simplified test model for final design that was published in RC MODELER magazine. Plans are being redrawn and will be available soon. After that, watch for.... "The F.L.Y."!!





Kraft display in the Exhibition Tent, which was open to all comers during week of the World Championships in Doylestown, Pa. USA.



"Postman's Holiday." Jim Whitley of PROLINE fame, and contestant at Doylestown, takes time between flights for public relations.

Because there were so many objections, particularly from model aircraft users who were basically responsible for our having the Citizen's Band usage in the first place, the AMA convinced the FCC to issue a modified proposal in June 1970. That was good.

The modification proposed reserving three frequencies exclusively for aircraft, plus two for anything but aircraft, plus two more to be shared by all types. That was sorta bad also.

A further modification by the FCC under AMA urging, has now been accepted by the AMA, and will become official on November 15, 1971.

Four frequencies are reserved exclusively for model aircraft: 72.08, 72.24, 72.40, 75.64.

Three frequencies are to be shared by all types: 72.16, 72.32, 72.96.

In effect, there are now seven frequencies in the 72-76 band for aircraft model use. In areas where car and boat activity is strong, the two new frequencies, 72.16 and 73.32, and the existing frequency 72.96, would have to be used with a certain degree of caution. However, in areas of negligible car and boat activity, all seven could be used in relative safety. When you consider the fact that modelers on the 27 and 50-54 MHZ bands have been sharing all along, it doesn't seem too bad. . .and that's good.

It should go without saying that the 27 and 50-54 MHZ bands remain unchanged under the new regulation.

\* \* \*

The second North-South Challenge Meet for R/C sailplanes has been set for January 22 and 23, 1972 at Famoso

Airfield, about 17 miles north of Bakersfield, Cal. This meet is co-sponsored by five west coast clubs, North Bay and South Bay Soaring Societies of the San Francisco area, the San Fernando Valley Silent Flyers, Harbor Soaring Society and the Torrey Pines Gulls. The clubs will each select and run the event of their choice, each based on AMA proposed flying tasks. Contest Director is Bob Hahn, 1866 Chateau, Anaheim, Cal. 92804. The Ramada Inn on Pierce Road, Bakersfield, will be the gathering spot.

Two other events on our own calendar are both taking place at Sepulveda Basin; the 5th Annual Northrop Flying Wing contest on November 21, and the 3rd Annual "Jumbo Rubber Scale" meet for 48 inch minimum span rubber powered scale models.

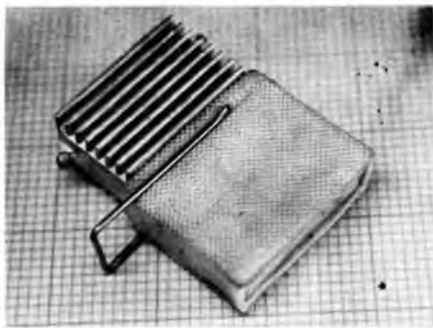
\* \* \*



Dieter Schluter demonstrated his fabulous helicopter during the World Champs. See "Over the Counter" for more details.



Latest product (probably not, by now) to come from John Tatone is this exhaust manifold for .45 to .80 engines. Great for scale.



Latest modification to the Murphy muffler is removable rubber sleeve for easy replacement.

### BOO-BOO DEPARTMENT

Bob Francis turns out some nice fiberglass bodied aircraft kits, but the plane that Gary Korpi and Luke Roy are holding on page 12 in our first issue was not built from one of them. The plane is a K & K Ballerina, which is also a nice fiberglass bodied aircraft kit. Our apologies to both of the Ken Griggs', father and son, and you too, Gary and Luke.

\* \* \*

### OVER THE COUNTER

We mention in this month's World R/C Champs report that Mr. Kavan is not involved in the manufacture or distribution of those great Schluter R/C helicopters. As far as U.S., Great Britain, New Zealand, and Australian modelers are concerned, the guy you contact is Dale Willoughby, 14695 Candeda Place, Tustin, Cal. 92680, phone 714-838-9738. Dale is exclusive rep for Dieter Schluter in the countries listed, and in addition to stocking the beautifully machined drive kits (transmission, shafts, rotor assemblies, etc.) made only by Schluter, he is also producing parts for kits and spares. This includes fiberglass fuselages, rotor blade kits, landing gears, etc. Write to him for prices on kits, parts, plans, instructions, etc. Incidentally, a complete kit is \$500, the drive kit \$375. The price may seem high, but the quality is excellent, and once you see, and hear one of these choppers in action, it'll be hard to get out of your mind. See his ad elsewhere in this issue.

By the way, after ten years in the promotion, importing and distributing of R/C gliders, Dale is cleaning the slate entirely to make way for the helicopter business. As of the 15th of October, Willoughby Enterprises became Windspiel Models, 3704 Montgomery Drive, Santa Rosa, Cal. 95404. The name behind the business in Santa Rosa is Pete Bechtel. Pete plans to expand this line as well as to add some accessory items.

\* \* \*

The "International 1971 Air Racing Annual"; published by the United States Air Racing Association, Rt. 5, Box 287,



New cylinder and crankcase packs for small scale models; rubber, CO<sub>2</sub>, or gas, from Williams Bros. Comes in 5, 7, 9 cylinder for 3/8, 1/2, 3/4 inch scale. Molded of tough, light styrene.

Arnold, Maryland 21012, is available at \$4.00 per copy. The annual, written by John Tegler, includes over 400 photographs, complete coverage of all the races, current records, point standings, and a complete photographic and written directory of all pilots and planes that were active during the season.

It should be noted that the annual covers the racing season of the complete previous year. In other words, the 1971 Annual is all about the 1970 season. Annuals for 1970 and 1969 (covering 1969 and 1968) are being offered with purchase of the 1971 edition for \$2.00 and \$1.00 respectively. . . all three books for \$7.00.

\* \* \*

Following the successful showing of H.P. engines at the World Champs (second place Matt, and 7 others out of the first 25) we checked with Jerry Nelson of Nelson Model Products, who imports them for sale in this country. A large shipment of engines has just arrived, and will list as follows: Front rotary 61 with muffler, \$84.95; racing .40, \$59.95 (now legal in AMA pylon racing); pattern .40

\$56.95; and the powerful revised rear rotary 61, with new throttle \$92.95. The latter should be especially great for heavy FAI scale ships, where the limit is still 10 (.61 cu. in.) displacement.

\* \* \*

While we're on engines, here's still another item from the undisputed champion of the "Product-a-month" club, John Tatone. This month it's an exhaust manifold for .45 to .80 displacement engines, Catalog No. EM-S, price \$5.95.

This manifold was designed primarily for scale models where the usual tight cowling calls for something special to collect and dispense exhaust cases and residue. It fits particularly well in Sig's new Ryan-STA.

As might be expected, the manifold is cast in aluminum, and has two exhaust tubes to which special rubber tubing (two 8-1/2 inch lengths included) may be attached for carrying all the "schlock" out of the cowling. A mounting strap, hardened stainless steel bolts, and a primer fitting are also included in the package. For special cases, where installa-

*Continued on page 34*



Sig's Glen Sigafoose and VK's Vern Krehbiel talk it over in Sig's booth at the World Champs. Both companies are strong on scale designs that fly well. Others are turning in the same direction.



## BACKFIRE !!

### CONGRATULATIONS

"Dear Bill and Anita:"

Congratulations on an outstanding first issue!! We knew you would put out a literate model magazine, but were delighted to see what a beautiful production job you've done. Best picture quality we've seen! Keep it up!"

John & Laurie Converse, Vortex  
Santa Barbara, Calif.

"Bill and Anita"

Congratulations, the first issue looks great!

Bill Hannon  
Escondido, Calif.

"Dear Bill:

Thank you very much for the first edition copy of *The MODEL BUILDER*, and mucho congratulations. It's a beautiful job from concept to execution"

Paul Runge, Ace Radio Control  
Higginsville, Mo.

"Dear Bill,

Noticed a new magazine yesterday on the magazine rack of one of Tulsa's hobby shops. What a good surprise to see you the editor and publisher of same. Congratulations on the beginning and best for all subsequent issues.

I'm very pleased to see you back in print after all the many months of absence. It was a dismal day when the announcement was made in M.A.N. that you were departing. Your philosophies concerning and attitudes toward this hobby (business to you, now) of ours so coincided with mine that it was with a sense of loss I read your intent to leave the writing game.

I'm sure you will make a grand success of this magazine.

William Salnikov, AMA 308  
Coweta, Oklahoma

*Thanks Bill. Obviously you're a man of excellent taste.*

"Best wishes for a successful magazine."

Lt. Col. Nick Stanislo  
East Point, Ga.

*Thanks to subscriber Number One!*

\* \* \*

### CONFIRMATION

"Dear Bill,

You're nuts!!!"

Ed Shipe, Vortex  
Santa Barbara, Calif.

*It takes one . . . .*

\* \* \*

### PEANUTS — SI!

"A point of interest: I subscribed because of the Peanut Scale plans, because the interest in Peanut Scale is growing. Perhaps a point of interest can be viewed as good advice. Keep it up!"

Leonard Goss  
Mechanicsburg, Penna.  
*Point noted . . . affirmative.*

\* \* \*



"Hey, Cliff!...Are you SURE you wound that rudder escapement?"

PHOTO BY EDITOR



# PROLINE WINS 1ST PLACE IN F.A.I. PYLON MEET

**in Both Nationals and Internationals**



Here's the system the winners use!



Here's the winning team!  
Team of Telford & Violet

PROLINES COST MORE. THEY SHOULD. IT'S A SIMPLE MATTER OF QUALITY, PERFORMANCE AND RELIABILITY.

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## SCALE - SI!

"I like your idea of emphasizing scale. I would like to see you bring out some of the ideas that were in the Sig magazine edited by Larry Conover - fun ideas in modeling, such as unorthodox models and unorthodox ideas (such as combat using profile scale fighters). Best wishes from your NFFS score sheet runner—"

Martin Schindler  
Vienna, Va.

"Dear Bill:

It's good to see you back in the writing end of the hobby again. I've missed your commentary.

Your first issue of The MODEL BUILDER looks like a winner. I hope you will continue the emphasis on Scale. I am primarily R/C oriented myself, but I really enjoy reading about free flight and rubber scale as well. I even plan to build a couple of indoor rubber jobs this winter.

As you said, feedback will determine which way the magazine will go. It's a tough business climate today, but per-

haps my [subscription order] will indicate faith in your future. Good Luck."

Jerry Cole  
Vestal, N.Y.

*Thanks for your wishes and subscription, Jerry. To me, a real modeler can derive as much pleasure from a .60 powered R/C ship as he can from a A/2 Nordic or an indoor paper stick job. Even if he doesn't actively indulge in all phases of modeling, he at least wants to know and understand them, and holds equal respect for each type.*

"Good luck. Hope you put out a great magazine. Lots of scale. . .please."

Bert Ayers  
Carson, Calif.

\* \* \*

## GLIDERS - SI!

"Enjoyed your first issue! My son and I are particularly interested in R/C

gliders. We hope you can manage to maintain a page or two each month for us gliders guys..."

Art Hemler

\* \* \*

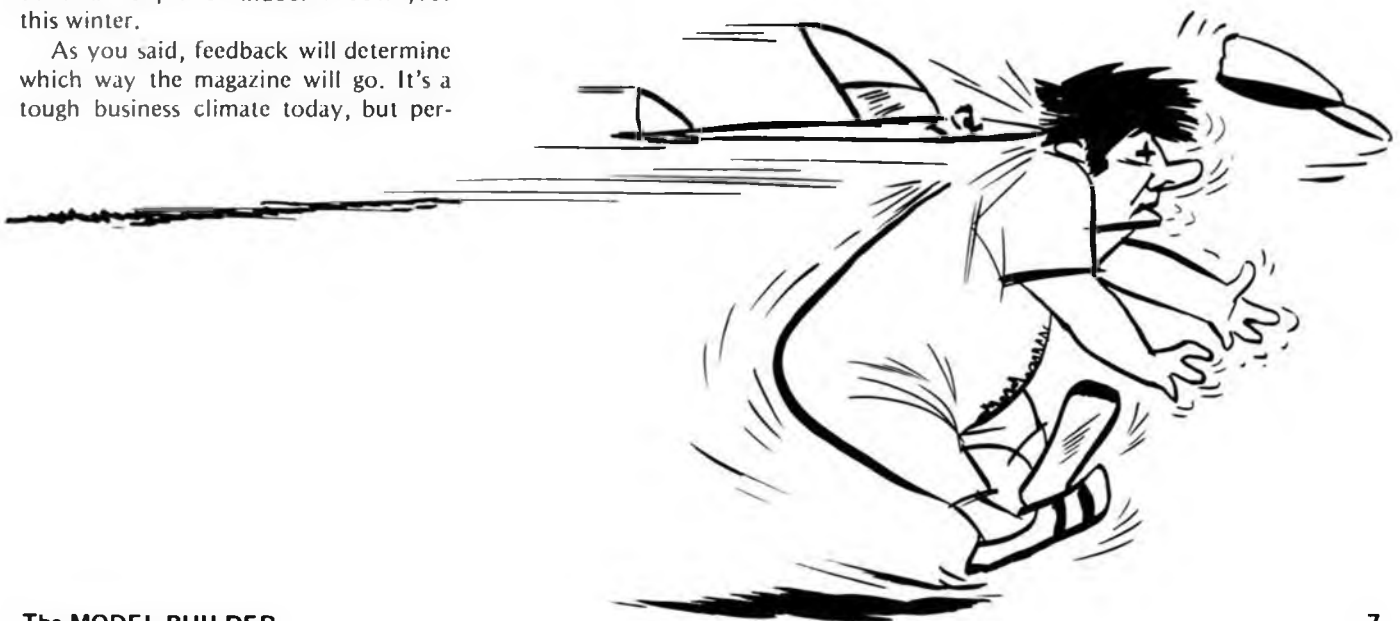
## EVERYTHING SI!

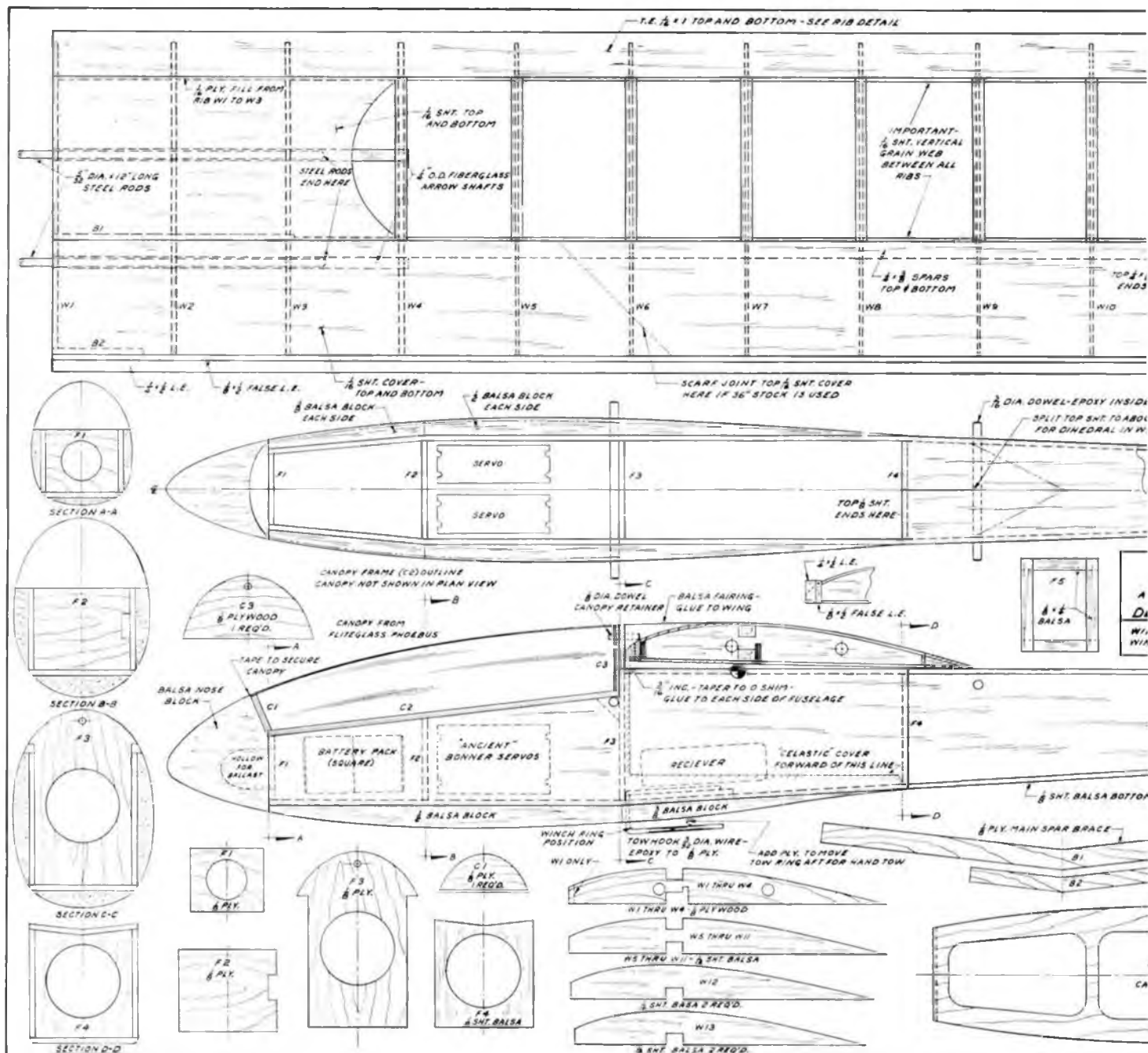
"Am interested in Standoff Scale, R/C Soaring, electronic articles.

Have never seen anything on R/C STOL, might be interesting. Also, how about a car trailer to carry R/C to field."

Don Swinehart  
Elyria, Ohio

*When back east, I built a trailer on a small chassis purchased from Sears, on sale for under \$70.00. It worked great with my Austin Healey 3000. Everyone called it "Northrop's White Coffin." If I had to do it over again, I'd hinge the sides so they would swing up rather than lifting the top...*





## DANCE WITH NANCY

This scale-like R/C soarer was designed to be quick and easy to build, yet maintain pleasing lines. The objectives were accomplished. . .with a bonus thrown in. . .its flying capabilities are above average. BY JACK ELEM

PHOTOS BY EDITOR

● Nancy is a bird "hatched" out of sheer necessity. As any of my friends in The Harbor Soaring Society (of which I'm a proud member) will tell you, my lack of skill and confidence could set the flying of R/C sailplanes back twenty years.

My first attempt was my pal Bob Hahn's design, "Lil-T", and it flew great until I stalled it out coming back toward

myself—reversed controls and augured it in smack dab on the white divider line on the highway below the cliff. Most people would have been smart enough to tackle a Nordic type trainer next, but not old Hot Thumb. We had to try a fiberglass Phoebus. Beautiful and fast, but any lack of talent on the stick and you had a problem.

After looking long and hard at kits

and plans I decided to attempt to design and build my own, with these criteria; easy and straight forward to build, pleasing lines that would hopefully resemble a full size sailplane, clean and fast for good penetration when needed, able to be flown slow for light lift, and most importantly, forgiving of some of the impossible positions that only I could put it into without radical stalls





Have you ever seen a more natural portrait of "THE CONTENTED MODELER" than this? Photo by (Mrs.) Tynee Vidal shows Nancy's designer (and father), Jack Elem, working on "El Tabasco," a rubber speed job. Flightmasters are reviving this interesting category with several contests.

Hopefully the plans are more or less self explanatory, however a few suggestions. The airfoil, wing and tail areas, nose and tail moments were designed with helpful counsel from Bob Hahn and John Donelson, both famous as designers, builders, and winning flyers, so stick to these. If you want to change wing tip shape or use your own particular shape

for the nose blocks, go ahead. You may not want to make the soldered brass rudder and elevator horns. Use conventional nylon but make certain you have plenty of throw. Retain the angle of incidence shown for the wing, and zero for the stab. Minimum dihedral was used without loss of agility in turns; too much detracts from a sailplane's appearance.



As indicated on the plans, here is the installation of the "Ancient Bonner Servos" in the luggage compartment. The "Band-Aid" holds the front end of the canopy in place, a dowel at the aft end.



The glider flying expert who discovered Nancy's competition ability, John Donelson.

The original Nancy was built with a one-piece wing, in which case dihedral braces B-1 and 2 are used. If your transportation size is limited, build the wing in two pieces, using 5/32" music wire bent to the same angle as B-1, and brass or fiberglass tubing.

Regarding the canopy, it can make or break the beauty of your ship. The plans show how a Fliteglas Phoebe canopy which we happened to have (remember glider number two?) however, Francis Products has one for their Cirrus which is beautiful. Large Sig or Du-Bro canopies will work fine also, take your pick, but get the canopy before you start carving the nose area, then you can blend the shapes of both more accurately to your taste. Try and use care and keep the beautiful compound curve in mind when trimming the canopy. Leave at least 1/2" to 3/4" oversize for ease of holding down for epoxying to the canopy frame.

Build the frame in place, using Saran Wrap between the frame and cockpit area, and use the epoxy sparingly. Be sure and wash the canopy with soap and water, then clean it with rubbing alcohol and carefully scratch with a small blade the fine line where the canopy meets the frame. Masking tape will hold it in place while the epoxy sets.

The whole bird is covered with Super



MonoKote. After covering the wing, twist the outer portion of each panel to get 3/8" washout, and while holding in this position, iron out the wrinkles. This locks the twist in place. Another tip, and you'll be glad when you're really up there, use dark blue or black on all under surfaces of the wing and tail. Sounds bad, but you don't notice it when the plane's on the ground, however in the air it's really visual. Use Celastic or fiberglass to reinforce the nose and front of fuselage as shown.

The receiver should be installed as indicated for safety. This also allows you to use the weight of the servos and batteries up front, saving on extra ballast.

Use Goldberg Snap-Links with 3/16" dowels or 3/8" hard, straight balsa per detail. The latter is more apt to save servos in bad "dorks."

My 18 year old (for whom the glider is named) and I will be flattered in case you decide to "dance with Nancy" and happy to answer your questions. The address is 601 Lemon Hill Terrace, Fullerton, California 92632



John heaves Nancy off the cliffs at Torrey Pines. A very popular spot for slope soaring of both R/C and full size gliders, this day was almost dead calm. For the results, see photo below.



We're not really sure the air was THAT dead. There just happened to be some "100 percent" sun bathers on the beach far below, and Nancy just happened to lose all lift. John had lots of help making the recovery, including expert R/C soarer, Kelly Pike.





Ryan PT 22, designed and built by Bob Karlsson, is 2-1/2 inch scale and flies slow and steady with a .60 engine. Bob says original plane is in Santa Cruz, California, and the paint job is civilian. Builder is a member of the Delaware R/C Club, where scale is picking up.

# "PHOTOGRAVIEWER"

A play on the old word "rotogravure" and it's to be just that. . pictures of model airplanes. . all types.



Here's the Ryan doing its thing. This photo could easily pass for one of a full size aircraft. There's nothing to give it away.



Another scale job from Delaware, this one the Curtiss Wright Pusher, span 75", O.S. 30! Three are flying in club. Lands at 12 mph.



This photo dates back a couple of years. Taken by Dick Tichner, it's Mike Tanny's PT 13D, built from modified Sterling Kit.



Still another scale effort by Bob Karlsson. This 1-1/2 inch scale Corsair, O.S. 80, has homemade rotating retracts. Look out, Platt!



Hanno Prettner, 4th placer in the World Champs, doing a little ski flying in northern Italy at 14° F. Pass the hot cocoa!!!



Another view of our cover model, Sopwith Tabloid, as built by Fernando Ramos. Aircraft was Schnieder Trophy winner in 1914.



Beautiful Etrich Taube, built and realistically flown by Mel Ford at Scalemaster's Annual. Rudder, warp elevator, and Max 30 power.



# THE BIG DO AT

PHOTOS BY HAROLD BRINK, BILL FUORI, BILL NORTHROP

The rain hesitated. . .a low, misty ceiling filtered the sun. . .the wind sighed to a halt. . .and contestants from 22 nations took advantage of

● R/C's greatest show on earth, the World Aerobatic Championships, has concluded its seventh bi-annual competition, held in the United States for the first time, and here we are with the world's biggest dilemma...how to tell you about it!

As a magazine editor, we should have been there with reams of note paper, carefully observing and recording each and every detail, so that we could come back and lay the whole thing on you, from soup to nuts. Well, it just ain't going to happen that way.

First of all, an affair such as this is like a three...no, more like a five or six ring circus, and each ring is a story in itself. There is a story at each flight line, a story in the tabulating tent, in AMA Headquarters, in the processing hangar, in the manufacturer's exposition area. To do the job right you'd have to be everywhere at once.

Secondly, this writer was again privileged, as was the case in Bremen, Germany two years ago, to participate in the World Championships as one of the ten judges. We use the word "privileged," because although we worked hard all day, each day of the contest, our job put us right where the action was, with the best view possible. We rubbed elbows with all of the 60 competitors, representing the cream of R/C aerobatic fliers from 22 countries. Others worked as hard, or harder, worked longer hours, saw very little of the flying, and received very little recognition.

As we thought about how to relate the World Championship story, it dawned

Just in case any of our foreign visitors became lost on the back roads of Pennsylvania.





# DOYLESTOWN

the pause to fly in the Seventh Radio Control Aerobatic World Championships. Here's the story as we saw it from a front row seat.

BY BILL NORTHROP

on us how much repetition there could be in all the reports you will read. After all, every magazine reporter who was in attendance will have acquired the same statistics, the same list of winners, the same list of equipment, the same round by round scores, and so forth. Well, they couldn't be different, could they?

Suddenly comes the dawn. Why not take advantage of our "front row seat," leave the harder job of reporting the overall picture to the other publications, and tell the story from the view point of a bleary-eyed judge? So it shall be. But just in case you don't read any other modeling magazine, we will include the final results at the end of the article.

Our first official duty as judge was to attend the judges meeting Wednesday afternoon at the Holliday Inn, New Hope. This motel was the hub of all non-flying and social activity during the meet. All AMA officials and workers, contest officials, and most competitors stayed at the Holliday, commuting each day to the airport.

The meeting, conducted by Contest Director Maynard Hill, was attended by the jury: John Patton, Ron Moulton, and Rudy Beck, of the USA, Great Britain, and Hungary, and the judges; (B) Tony Aarts-The Netherlands, (D) Walter Burger-Switzerland, (G) John Hartley-Great Britain, (J) Dave Henshaw-Canada, (C) Acke Johansson-Sweden, (E) Loris Kanneworff-Italy, (A) Bill Northrop-USA, (H) Guy Revel-Mouroz-France, (I) Ritsuri Honda-Japan, and

"The winnah and still Champeen of the World," Bruno Giezendanner, receiving trophy and congratulations from Sandy Pimenoff.

Giezendanner, Wolfgang Matt, and Phil Kraft, Gen. Brooke Allen (NAA), Johnny Clemens (AMA) Rudy Beck (Hungarian Aero Club).







The 1971 World Championship Team, USA. (l to r) Manager Dr. Jim Edwards, Phil Kraft, Jim Whitley, and Ron Chidgey. Three Cheers!



Youngest contestant at 20, who finished 4th, Hanno Prettner from Austria. Plane is Rossi powered version of Matt's Super Star.



The World Champion, Bruno Giezendanner, in a pensive mood while awaiting his turn to fly. Plane is basically same as 1969 winner.



Another Super Star by Eduard Vandermeulen of Belgium. Design is very popular in Europe. All adapted from Bosch's Delphin.



Australia's Brian Green flew an O.S. 60R powered Dragon Fli, designed by Phil Kraft. He's Australia's current R/C champion.



Wolfgang Matt models the popular shoulder harness used by many of the European fliers. Simprop radio slides into molded shell.





Frank Schwartz, "How d'you like that dark brown finish on Birch's plane?" Rudy Black, "Man, that's not brown, it's FLESH colored."



... And don't think for a moment that he didn't need it! Contest Manager Maynard Hill pauses to chat with official Hank Waechter.



Canada's Warren Hitchcox with his 24 hour-per-day coolie, Shirley. Warren placed his Webra-CRC (Orbit)-Firebird 18th.



"TAKEOFF!!" Rhodesian Air Force Pilot, Rich Brand, South Africa, wakes up the judges for his flight. Manager Monte Malherbe helps.

(F) Norbert Trumpfheller-Germany. The letters preceding the names were the alphabetical designations each judge carried throughout the competition for grouping purposes. Group ABCDE was assigned to Flight Line 1 and Group FGHIJ to Line 2 for the first two rounds. For the last two rounds ABHIJ were at Line 1 and FGCD were at Line 2. It is interesting to note, and keep it in mind as you read on, that four of Group ABCDE attended the first FAI Judges school held in Germany in 1968, possibly all five. In Group FGHIJ only one attended the school.

Discussion at the meeting did not concern each maneuver in detail, but rather, was aimed at clarifying rules points particularly those pertaining to awarding of the dreaded "zero". All points discussed were brought up later

at the Team Manager's meeting, so that competitors and officials would be in accord.

We noted that the main departure in agreement was usually a result of the fact that in some European countries the rule book is not used as a guide to personal judgement but rather as the final word. If the "final word" is not there, such as just how long, in time or distance, is the straight flight at the beginning and end of each maneuver, there is room for doubt. It makes you stop and think when you realize that in some countries, the mind is still not entirely free as we understand it here in the U.S.A.

Thursday morning, while the competitors continued practicing at the contest site, the judges took off to the hinterlands for some practice scoring. At a field

sufficiently far away to avoid interference, we watched and scored two flights, one each by Norm Page who had placed first and fourth at the 1971 Nationals qualifying and finals respectively, and by Ed "The New Image" Izzo.

Though neither flier was requested to do so, we're sure they could have put on perfect 10 point maneuver flights (Ahem). However, to train the judges, it was better that they put up average performances. Norm was secretly requested to and performed a beautiful Figure M, but with both stalls in the same direction as seen from the ground. The "Zero" maneuver sneaked past a few judges, but the lesson stuck well, we're sure. Actually, no competitor that we judged pulled this goof throughout the contest, though some flipovers instead of stall turns did result in zeros.



"Hmmm . . . let's see . . . back is up, forward is down . . ." Penrod, Chidgey, and Edwards.



Great Britain's Mike Birch tries to get his mind off modeling while waiting to fly.



Pujo Stephansen, Norway, design winner with Maximum-10. Note unusual xmitter position.



Bob Young, manufacturer of Australia's propo radio, Silvertone, ready to fly his Super Star.



The James Bros., Kirkland and Whitley. Jim K. was contender in 1969 World Champs, Bremen.



Hard luck contestant from South Korea, Tae Sik Kim. . .crashed on this second round flight.



Champion of France for nine consecutive years, and winner of the US Nats in 1968 (!), Pierre Marrot. Not well prepared this year.



Prat holding for Luis Castaneda. Manager Dr. Elizondo at right. All are members of the very popular team from Mexico.

Ed and Norm kept all of their score sheets, each autographed with the name and country of the judges. The practice session was great, but possibly more flights and specific reviews of each score sheet would have helped matters more. As it was, we had to return to the airport for the opening ceremonies and the beginning of competition at 2 PM.

By 7 PM, the first round was completed except for one flier at Line 1 and two fliers at Line 2. And it had already been established that Group ABCDE contained the "easy judges" and Group FGHIJ the "hard judges". We'd like to comment on this.

It seems to be a popular belief that, in general, easy judges are not as accurate as hard judges. In our estimation, this is also a popular misconception. One thing that a judge with experience and confidence in his ability will do is use the full scoring

range of 0 to 10 from the very first flight on. It is one of the points that was emphasized in our school in Germany in 1968. The idea that you should grade low at the beginning so that you leave room for a better maneuver later on is a bunch of hooey. How unfair that is to a contestant who doesn't happen to cooperate with the plan but performs some of his best maneuvers in the first round. If a certain contestant performs a particular maneuver in the first round exactly as he does in the fourth round, should it be worth any more or any less in either instance? A confident judge scores a maneuver as he sees it, whether or not it's the first round, whether or not it's raining, whether or not the wind's blowing, whether or not it's a fellow countryman flying, and whether or not the pilot is a known champion.

As each flier completed his landing

and score sheet clip boards were being exchanged, we jotted down some notes on the score chart included in the excellent official program book. For the first round, fliers 01 through 31 flew at Line 1, and we made the following random observations. We also graded each flier on a 0 to 100 overall basis. Comparison of some of these with the tallied scores proved interesting.

We had not really judged Phil Kraft since the Bremen World Champs. The nearest thing to it was casual observation at the 1970 and 1971 Nationals. At the Nats we had already noticed that in comparison to his performance in Bremen, he had increased his speed and opened up the maneuvers. In this first round his flying indicated a complete change to what you might call the "European Style". The round maneuvers were large and the straight ones covered a lot of



AMA's president, Johnny Clemens, shows a youngster how it's done. Delta Dart building session took place in Exhibition Tent.



Gunter Hoppe of Germany flew this beautiful original design held by Herr Becker. Wing and tail tips like Rich Brand's Panzers.



Pete Peterson keeps a watchful eye on the air waves for any stray signals. Was 100% effective.



The Japanese team (l to r): a supporter, Kazuo Shimo, Yasufumi Sugawara, Masahiro Kato.



Judges (l to r) Hartley, Trumpfheller, Revel-Morouz, Honda, and Henshaw, Site II, Rd. 1 & 2.



Caption for picture to left only. At training session, standing (l to r): Honda, Aarts, Johansson, Hartley, Henshaw, Northrop, Trumpfheller, Burger. Kneeling (l to r) Revel-Morouz, Kanneorff, demo flier Page. Standing center, Louise Izzo, Maynard Hill.



territory. No more smokey rich "put-putting" around with tight little loops and quick rolls. Not only that, Phil stood right near the judges and barked out the maneuver calls in no uncertain terms. The whole performance exuded a feeling of confidence that showed up in the positiveness of the maneuvers. We gave him an 82 on the "Northrop Scale" for this flight that turned out to be the fourth highest score of the meet, 6845. It seems the other judges agreed.

In strange and paradoxical contrast was Bruno Giezendanner's flight style this year. In Bremen, 1969, Bruno's flying was the peak example of the "Euro-

pean Style", which by any name, in our opinion, is the optimum in precision aerobatics...large, open, round maneuvers and long, horizon-to-horizon straight maneuvers. (By "round", we refer to the Inside and Outside Loops, Double Immelman, Horizontal and Cuban Eights. The straights refer to the Slow Roll, Axial Rolls, Four Point Rolls and Inverted Flight. The Top Hat and Figure M are sort of combinations, and the spin, is a spin...)

Giezendanner, in a complete switch-around from 1969, flew slow and smokey rich, putting up rather small and undramatic figures. We graded him at 73 and

yet to our surprise, he recorded the highest mark of the contest, 7075. After the competition was over, Phil Kraft good naturedly but with a certain amount of seriousness said, "What have you got to do to win? I changed to his style this year and he changed to mine, and he still got the highest score!" We could only answer by saying, "Now you know what it's like to fight the 'Champion Image'."

Also rated above Bruno Giezendanner (in our opinion) in the first round group that we judged was young Hanno Prettnner of Austria. We gave him a 75, Hanno, along with Wolfgang Matt of Liechten-





Canadian fliers Ivan Kristensen and Ron Chapman await their turns to fly.



Italian flier Giovanni Bettini tries American hot dog. These weren't the best at all.



Sandy Pimenoff with the Graupner Cumulus that he completed in US, then won first place.



Strategy conference between Jim Edwards, Don Coleman, Jim Whitley, and Lou Penrod.



A portion of the model hangar where fliers stored, repaired, and studied models.



Third place trophy winner Otto Heithecker with his original design Snoopy.



"What makes it fly, Mr. Schluter?" "I'll be d\_\_\_\_\_ if I know, Mr. Martin, it just does!" stein, and Josef Wester of Germany, are all exponents of the fast, large style of flying.

John Dible, one of our cohorts from the 1968 FAI Judges School in Germany and a pilot for Irish Airlines, has a great tongue-in-cheek attitude toward the serious matter of world R/C pattern competition flying. We figure that it took some kind of "cool", plus a dash of mischievousness to stroll out on the runway, crank up his engine, and then hold the plane with one hand while with the other brushing up a little pile of dirt to nestle the nose-wheel up against so his model would stand still, "unassisted", prior to the takeoff maneuver.



Hanno Prettner watches, while Bruno comments to brother Emil Geizendanner.

To Brian Green of Australia went the dubious honor of being the only contestant who completely skipped a maneuver, the Horizontal Eight, in this first round.

Three fliers had engine stops: Kari Lautala - Finland, Tore Paulson - Norway, and Norbert Bertemes of Luxembourg. Bertemes probably blew the plug, since the engine quit as he advanced throttle for takeoff and would not start again. He and Paulsen lost engine in three out of four rounds. Tough luck after traveling so far to compete.

Friday morning, the flight line crews and judges were ready and willing promptly at 8 AM, but the weather was



US Soaring Team member John Nielsen sniffs for thermal. He's importing Phoenix glider.

not. At Line 1, Warren Hitchcox, one of our Canadian friends who has judged at our Nationals, took off into the very gray and soggy air to finish up Round One. With his ever faithful sidekick (also wife) Shirley at his side, Warren pulled up for the Figure M and all but disappeared in the low overcast. The rest of his maneuvers were done as close to the deck as possible, but we still only saw the lower portions of the round figures. Judging by extrapolation is fun. You ought to try it some time.

At Line 2, conditions were even worse, Guy Hardy of France literally disappeared into the overcast on the Figure M and the

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Standing (the "non-voters" l to r): Mauntz, Christian, Walters, Horten, Rempalski. Kneeling (the "old men", l to r): Baxter, Donelson, Steiner, Thacker, Brehm....And completely sat, but not that much older, Tournament Director Bob Andris. Sponsor's signs in background.

## THE L.S.F. SOAR-LYMPICS

BY LE GRAY.....The League of Silent Flight's 1971 annual Soaring Tournament became a test of how well modelers could fly in a stiff breeze. The League's Press and Public Information man presents a detailed and colorful word picture of the affair.

● Livermore, California, 1 September 1971 — "Ya shudda been here yestddy" ...the surfer's lament...was a most heard phrase at the League of Silent Flight 1971 RC Soaring Tournament. On Friday, 27 August, the early morning coastal fog and low clouds over "Hummingbird Haven" gliderport cleared to a blue sky, warming by mid-day for good thermal development. A gentle breeze puffed and collapsed towline drogue 'chutes, and provided the necessary bite for long graceful wings to attain good launch altitude. Ideal conditions for America's greatest R/C soaring competition...one day early.

Late Friday evening, a high pressure system stabilized off the central California coast. White marshmallow cloud puffs built above mountain ridges. A steady airflow from coastal "high" to inland "low" pressure centers was evident. Saturday morning dawned clear, bright and windy...and so it was the next two days for some 120 registered contestants...crystal clear, beautifully bright and wantonly windy.

From Walla Walla, Washington...from Honolulu, Hawaii...from Amarillo, Texas

...from Chicago, Illinois...from up and down the western coast...from desert valleys and mountain hamlets...the disciples of R/C soaring made their pilgrimage to Ted and Alice Nelson's "Hummingbird Haven", Livermore, California.

Two days, 28 and 29 August, had been planned by Bob Andris Tournament Director, and Curtis Christen, Tournament Manager, to provide the most challenging competition for R/C soaring pilots of any meet ever staged... anywhere. And so they did provide... though not quite as planned. High winds added to the challenge as well as to the problems. Towlines drifted...overlapped and snarled. Whip-lash fouled winches and turn-around rings.

The winch line organization and techniques that, in 1970, had launched one sailplane every two minutes throughout nine-hour days, and that in the first hour on Saturday this year provided tows for some fifty pilots, sometimes bogged to a complete stop. The patience, and aplomb of Gerry Wolfram, Winchmaster, and his crew of operators and retrievers was a remarkable feat of reserved dignity.

The first task on Saturday was Precision. For a perfect 1,000 point score, this event required a precise flight time of 2 minutes from tow release to touchdown, with the model coming to rest within a center 16 by 33 foot area of a scale runway.

Destruction landings, forfeiting aircraft for points, were prohibited. Any model which shed parts or came to rest in an inverted position earned zero landing score. Many excellent landings were disrupted by an unfortunate wind just at a critical time in touchdown. The cheers of encouragement from hundreds of spectators were often turned to a collective "aaah" of disappointment when fate cheated a pilot. But in spite of wind and despite gusts, precision performance by skillful pilots earned several perfect 1,000 point scores. Numerous flyers scored in the 995 to 990 point bracket, indicating a one or two second variance from the time target but a perfect landing. Pilots with flight times more than five seconds off, plus or minus, or those with perfect times but less than on-target landings... were in the "also ran" category.





Dr. Bob Chase, SSA Director, and son, Bill, with one of their original 12' - 4" designs. Structure follows full scale practices.



Marshall Watson, who is LSF Secretary, with his fiberglass fuselage, scale Diamant. Note takeoff carpet, and winch foot switch.



Paul Christian is almost completely hidden by the beautiful J & R Kestrel.

By the end of Task I on Saturday, two major problems were well defined. The use of drogue parachutes on winch lines in the often fierce winds only added to the problem of line drift and tangle, and, secondly, heavy congestion on one or two frequencies demanded a "single file" flight order for nearly twenty percent of the contestants.

The first problem...tow line drift and tangle...was eased before the start of round two. Wollfram's crew replaced all 'chutes with simple "drag flags" that dropped quicker and straighter after tow release and had less tendency to twirl and snarl while being retracted over rough terrain.

The frequency problem was less susceptible to on-field correction. Where possible, equipment was changed to ease congestion, but few pilots had this flexibility. The frequency pile-up made the actual flight roster of 103 contestants equivalent to more like 140 insofar as flight line operations were concerned. It was obvious to officials and contestants alike that major R/C sailplane contests in the future must consider frequency distribution...perhaps to the point of limited entry on each available spot.

Task II on Saturday was Distance. Task Director Joe Corr, of the North



Dan Pruss (Su-Pr-Line) and son hold Kurwi 33. Dick Lemme, Dale Willoughby, Rolf McPherson. Bay Soaring Society, set the course gates at 150 meters, consistent with the rules proposal currently under review by the AMA. Each pilot was allowed a flight time of five minutes to make a maximum number of laps. The course, layed cross-wind, required all legs to be flown downwind of the course markers.

Pilots earning high scores planned their flights based on two major considerations: first, look for lift because altitude equates to distance; and second, do not disipate altitude by fighting drift to track a specific line. George Steiner calculated best.

Gaining near out-of-sight altitude immediately after tow release, Steiner's Graupner "Cirrus" started through the gates at a fantastic height, and with each lap drifted further downwind. Some altitude/distance was given up to stay in sight, but at the end of five minutes, George had completed some 30 quarter laps. A stellar performance, but hardly a runaway. Other pilots were pressing the Steiner lead. At the end of the day, standings in the Distance Task were posted. First place, George Steiner, 1,000 points. Flying to a close second was John Baxter and his Cirrus, 957 points. Young Paul Christian piloted his Cirrus to a solid third with 914 points. Jay



Dr. Bill Lawrence with much modified, long-wing "Bjorn." Nelson hangars in back.

Brehm broke out on top of a three-way tie for fourth with 869 points. Jay was also guiding a Graupner "Cirrus".

The wind, the dust devils, the snarled winch lines and the frequency blockages had taken their toll in time and in human endurance. By mid-afternoon, Task II was completed, but at the experienced rate of progress, the scheduled Task III, Duration, would have lasted well into evening. With the concurrence of contestants, Tournament Officials cancelled Task III. The field was soon cleared, and all hands hurried off to nearby motels for the relaxation of a shower, the recreation of a swim, the refreshment of a long, cool liquid, and a bit of rest from a quick nap.

The first day of competition in the LSF 1971 RC Soaring Tournament was now history, but that special kind of history that becomes memories. Within hours, the agonies of field problems...of logistic snarls...of flying errors...of broken models and panic repairs, were forgotten and the good things...the humorous...the excitement...and fun came to fore.

People and planes. That is what it was all about. Hours spent exchanging ideas...or lies...with a guy who until that morning had only been heard or read

*Continued on page 34*



# *pylon*

Starting a new column on the sport of racing aircraft. This month it's all contest reports, but in future issues, there will be more on the hows and whys of constructing and flying pylon ships of all types.

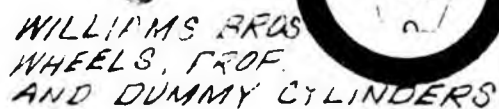
● The National Midget Pylon Racing Association has decided to once again publish its own membership newsletter. This publication was discontinued when Ed Shipe, former editor, and long time shot gun for R/C Pylon racing in the U.S., retired from the job.

Following a single release which was issued a few weeks ago, informing the membership of the new situation, the newsletter will be issued on a monthly basis starting in January 1972. Editor for the NMPRA Release is Bob Stockwell, 4000 Hayvenhurst Avenue, Encino, Calif. 91316. To quote Bob in this October issue; "At a meeting of the F.A.S.T. Club, which speaks authoritatively for Southern California Pylon Racing, several members put up the money out of pocket to produce this one issue of our reborn Newsletter for 1971. Johnny Brodbeck of K & B volunteered to take care of the distribution. Bror Faber, the So. Cal. V.P., arranged for the masthead and for reproduction. This is the format that will be continued for 1972, when membership money, hopefully, will be available to continue it."

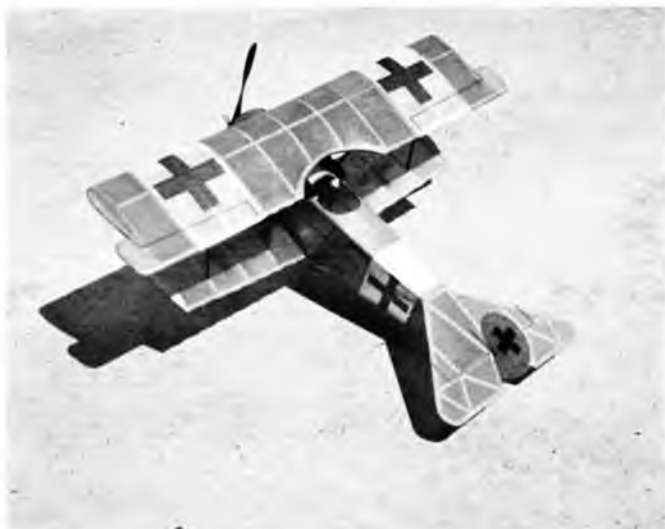
Since NMPRA election time is near, the newsletter includes campaign letters by various candidates for offices of President and District Vice Presidents. Also included is an account of the first International Pylon Championships, which took place during the aerobatic competition in Doylestown. The report,



Winners of the First International R/C Pylon Championships, the team of Bob Violett and Cliff Telford, receive the Sir Thomas Sopwith trophy from Henry J. Nichols. Second and third place winners, Alan Mann and Tony Dowdeswell, both from Great Britain, look on.







This month's subject is a rare one. It could really be called a Fokker Tri-Plane Minus One. Note the Dr 1 empennage.



Of course, a Peanut Scale ship doesn't have to be very high for it to look far away, but just try to catch one in the camera!!!

## FOKKER D-VI...IN A NUTSHELL

BY WALT MOONEY. . . Another tiny gem from the "Peanut Vendor" This time, a little known fighter from WW I that, like many others since, just missed becoming famous. . . One sheet of 1/16 by 3 by 36 will do it!!

● This is a model of one of the less well known WW I Fokker fighters. The D VI was built in rather small numbers and was used only a little in front line fighter units, and only a little more in fighter pilot training units. The success of the D VII over shadowed the D VI although the D VI was actually the faster of the two and a very maneuverable airplane also.

I picked the D VI as a Peanut Scale subject because I have never seen it modeled before and it makes an airplane that is obviously a Fokker. It's not so common that modelers will ignore it because they have seen so many before.

Information, a photograph, and a good three-view of the D VI are to be found on pages 102, 103, and 104, of "German Aircraft of the First World War" by Peter Gray and Owen Thetford. Published by Putnam and Company Limited 1962. The only fault I can find

with the information is the fact that the text says the tail was braced with a steel strut and the three-view doesn't show one. However the fuselage and tail of the D VI were similar to those of the Dr I triplane and it's tail brace is shown in the previous section in the book.

The only intentional deviation from true scale is in the wing dihedral. I added dihedral to the lower wing as shown in the plans. The upper wing has scale dihedral, i.e., there is none on the upper surface of the wing. Worthy of note is the fact that both wings taper in thickness so that the bottom surface of the top wing has a slight amount of dihedral as on the full size aircraft.

Indoors my model flew right off the board with a motor consisting of a single loop of 3/32 flat rubber. It would ROG and fly in left hand circles about 2/3 the width of a basketball court. Outdoors with 1/8 flat rubber it would stall and

then spin (A beautiful perfect 1-1/2 turn tailspin) and pull out quite low. This sooner or later results in a spin in, clear to the ground, so a little down-thrust was used to cure the stall. This is shown built in on the plans and does not seem to affect the indoor flying characteristics.

The construction used on this model is very much the old standard system. The basic structure is all balsa. If a builder felt it worth the effort to strip his own sticks from sheet balsa, a single sheet of 3" by 36" by 1/16" thick balsa would be enough structural material. This would require the modeler to laminate the thick nose block, etc. and to sand down the wood for the rudder and top decking, but it could be done. The model shown in the pictures used block balsa for the nose, 1/32" sheet for the rudder and the fuselage top covering.

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William Bros. molded crankcase and cylinders, wheels, and propeller go just great with the Fokker D VI. Anyone for radio?



"Hey Schultz! Who ist ben hiren ziss stupider "Green Giant" vot iss cranken der putt-putt und giffs us der grosser flugen-gestartern?"



Jack Stafford's Midget Mustang proves half a stab is better than none. Result of mid-air.



Winners at Los Alamitos. Standing (l to r): Frey, Korpi, Brodbeck, Roy, Prather, Cdr Fred West (Los AIE Exec.), McCan, McCan, Stockwell

in front of Bertken. Kneeling (l to r): Owens Breitling, and Upton. Photographer reflected on screen of TV also won by Prather.

which is more detailed than our brief summary in the World Champs story, was written by Chuck Smith, who was there with his brother Bob, a competitor in the event. It goes as follows:

"Sixteen fliers from seven nations competed on Saturday, September 19, in the first international competition for pylon racing. There were 2-1/2 hours of racing originally scheduled but fortunately the contest manager allowed over an hour extra time so that four rounds of flying could be completed. As the results show, there was a sizeable difference in speed and flying ability among the pilots which, unfortunately, produced some uninteresting races for the many spectators who had gathered. There was still much enthusiasm, however, among the foreign fliers who had come to see just how fast the Americans 'really' are.

The team of Bob Violet and Cliff Telford, our current National Champ-

ions, became FAI Pylon Racing's **WORLD CHAMPION** as they continued to be unbeatable. They flew to win and could easily have had a faster time than their best of 1:57.5. The other two USA team members had bad luck, as Bob Smith blew a plug in the first round and Terry Prather nosed over on take-off in the third round. Terry, however, turned the fastest official time ever recorded in FAI with a 1:53.6 and Bob had the second fastest time of the meet with 1:56.8. The foreign teams learned a lesson from the Americans when they discovered that the USA team was the only one with all its members on the same frequency.

It was obvious from the beginning that England was going to be America's main competitor. Allen Mann, who was the man behind the success of Ford's GT-40 racing cars, was very fast and ended up second. His plane looked fast-

er than his 2:05.2 would indicate. Tony Dowdeswell was one of the few who finished all his races, which was good for third place. Peter Pilsworth, the third member of the English team, crashed in the third round.

As far as trends go, P-51 type designs still dominate and retracts definitely make a winning difference. Eleven pilots used the K & B .40 and five the Super-tigre .40, which was surprising since prototypes are allowed under FAI rules.

The English provided a pleasant surprise when they announced that they tentatively plan to hold another world championship for pylon racing in 1972 in conjunction with the Scale World Championships to be held in England. This will be before next year's Nats, so the N.M.P.R.A. and A.M.A. must begin thinking now of the team selection program which will be necessary.



Joe Stream looks a little pained as he steers around the pylons with Tad Sato's assistance.



A father-and-son team that gets to every race possible; Bill and Chuck Hebestreit, BIRDS.



A study in relaxation under two strong outside influences. Bob Smith wins another one.





Paul White's ST .15 powered K & K Ballerina QM pylon racer. Ship weighs 3 lbs., has 306 sq. in. wing area, and flies in mid 90's.



Another Paul White QM pylon ship. Francis Products P-51. Kit has foam wing and glass fuselage. Wing area 304, ST .15, three pounds.

#### INTERNATIONAL FAI PYLON RESULTS

Place	CONTESTANT	Country	Points	Best Time
1.	Telfor-Violett	USA	16	1:57.5
2.	Allen Mann	England	16	2:05.2
3.	Tony Dowdeswell	England	13	2:28.2
4.	Terry Prather	USA	12	1:53.6
5.	Bob Smith	USA	10	1:56.8
6.	G. Shaw	Canada	10	2:17.7
7.	B. Castaneda	Mexico	9	2:48.9
8.	R. Svenningsson	Sweden	7	2:05.0
9.	J. Sederholm	Finland	7	2:58.2
10.	Y. Murakami	Japan	4	2:28.8
11.	Peter Pilsworth	England	4	2:37.5
12.	B. Ball	Canada	3	2:26.5
13.	H. Bando	Japan	2	2:25.7
14.	M. Sierra	Mexico	0	
14.	L. Castaneda	Mexico	0	
14.	T. Isobe	Japan	0	

Gary Korpi reports on the Western States Pylon Championships in Tracy, Cal., September 25 and 26. The real headline here would be the fact that Bob Smith established a new Formula I national record by turning 1:30 even! This means an average speed of 100 mph around the 1/4 mile course. Bob was flying his Lee Custom K & B .40 powered Miss DARA. Unfortunately Bob could not tie this fantastic heat on to an overall win because in landing the ship, Bob again found proof that two transmitters on the same frequency (one in the pits) don't improve flying characteristics.

The team of Gary Korpi and Luke Roy was the only one of 46 entrants in Formula I to have a perfect score, earning them the huge K & B trophy for first place. In FAI, the Korpi/Roy team, flying a Francis Prod. Mustang with K & B .40, had the fastest heat, a new NMPRA record 1:53.6, which equalled the time made by Terry Prather at the International Championships. However, the team tied with the B/S Racing Association team, and in the fly-off, Jeff

Bertken nosed Gary out for first place. Both were using McAllister mufflers. Incidentally, this was the peak in Jeff's first year in racing as a pilot!

The B.I.R.D.S. Club of Long Beach held its annual races at Los Alamitos Naval Air Station on Sept. 11-12. According to information furnished by his Dad, Al, this had to be called Terry Prather's contest: First in Formula I, first in FAI, and fastest time in Formula I. And to add insult to injury, Terry also won the raffle, a portable T.V. set! How greedy can you get!

Just before going to press, we received the final 1971 standings in Formula I for Southern California. In order of placing, the top ten are: Terry Prather 327, Howard Nupen/Bror Faber 319, George Killeen 315, Lee Frey 314, Roger Owens 300, Dan McCan 294, Jack Hertenstein 287, Jack Stafford 284, Mike Bridges 277, and Whit Stockwell 259.

\* \* \*

Quarter midget racing continues to gain in popularity. We strongly urge all interested groups around the country to organize into a national association.



To give you an idea of the handy size of QM racers, here's Paul with two ships above.



Jack Stafford's P-51 FAI ship with Goldberg retracts and Murphy muffler on K & B engine.

Looking at the situation from the AMA Contest Board's point of view, there are, at this time, many variations on the originally suggested rules. Each active group has different ideas, but they all seem to agree on one thing: KEEP IT SIMPLE AND FOR THE MAJORITY. As a national event, and one which AMA will no doubt eventually include in its event roster, rules will have to be written by the Board. The most satisfactory set of rules for those concerned would come

*Continued on page 42*

# the Model Builder's Classroom



This column will cover everything from first grade through post-graduate, but not necessarily in that order... and the subjects will bridge all categories with one theme. . .model building. This month's class is conducted by BOB UPTON.

## INSTALLING CANOPIES

● Since most self-respecting modelers insist on attaching canopies to their latest flying machines, the following discussion will probably be of interest.

I have seen many a fine looking model detracted by poorly fitted sloppily attached canopies. This is a shame, since most people are attracted first by the cockpit before examining the rest of the model.

There are a few tricks, and mostly a lot of work to fitting a canopy properly.

After detailing the cockpit to your liking, start by cutting out the canopy to roughly the contours of the top of the fuselage. Next, choose a full 10" by 12" sheet of medium weight sandpaper. Roll the sandpaper over the edge of your bench in both directions; this allows you to wrap the paper over the top of the fuselage without resultant sharp cracks or creases. Place the paper with the corners aligned with the axis of the fuselage (see sketch) approximately where you want the canopy.

Now, hold the sandpaper tight against the fuselage and work the canopy back and forth until the periphery makes total contact with the top of the fuselage. You now have a perfect fit. Next and very important, drill a small hole towards the back of the canopy to equalize the pressure. If you don't, the canopy will buckle in the heat. Next, cross a pair of rubber bands or use masking tape over the top of the canopy completely around the fuselage to hold it in place while you epoxy it on (see sketch). I use blocks between the tape and the fuselage to keep the tape away from the edge of

the canopy at its base so there is room to work under the tape. A small diameter length of wire makes a handy epoxy applicator. Apply epoxy around the canopy base sparingly and carefully to avoid any unwanted runs.

You can either stop here with a clean looking job or, if you are a purist, you can take it a few steps further.

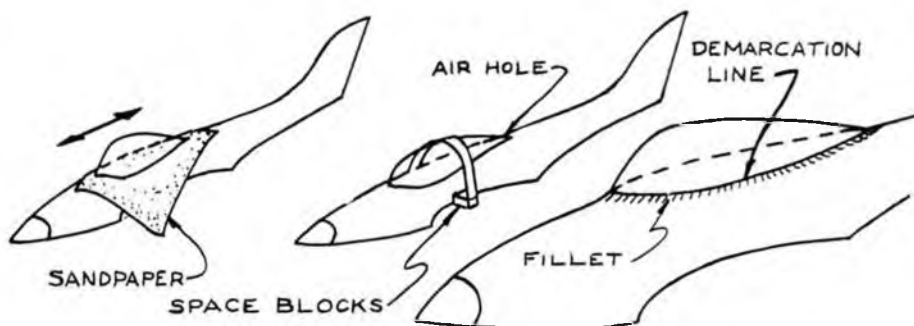
Applying a fillet to blend in the fuselage to the canopy is a very nice touch indeed. After the epoxy dries, remove the tape or rubber bands and mask off the canopy as follows: From 3/16 to 1/4 of an inch above the base of the canopy, run a line with 1/4" width masking tape around the canopy. This is your demarcation line. Next, cover the canopy completely with masking tape to protect it. Try not to overlap the base line (1/4" tape) too much. The reason will become apparent later.

Now use a piece of 320 sandpaper and rough up the canopy between the base and the demarcation line so that the filler material will adhere. You will now need some Cabisil (white, fluffy epoxy filler), or Sig Epoxilite. If you use

Cabisil, mix up a batch of epoxy (Sig. 2 part works fine) and add Cabisil to it until the batch will "stand" on its own much like soft butter, or mix Epoxilite per instructions. You are going to have to work fairly fast now (10 to 20 minutes depending upon the room temperature). The next important "tool" you will need before starting is a finger bowl full of either alcohol or acetone to smooth the fillet.

Apply the fillet with your finger, alternately using the alcohol to shape and smooth fillet as you go until you are completely around the canopy. The alcohol retards the filler material slightly, which is a plus factor, since this gives you more time to work. Run the epoxy up over the demarcation line (tape) but keep it as thin as you can. The reason you don't want layers of tape on or near the demarcation line is that you don't want a thick ledge between the fillet and the canopy when you are finished. Use the filler material sparingly and don't put it where you don't want it, because it is very difficult to remove once it

*Continued on page 46*





# FREE FLIGHT

Beginning a new section on an old subject. . .in fact, this is where it all started. . .no strings, no wire, no radio. . .just turn it loose and hope it remembers everything it was supposed to do. . .

● We will start this column with a little International flavor. The following report was written and sent to us by good friend Yoshiro Sato, who took our "workbench" editorial photo.

## FREE FLIGHT CONTEST IN JAPAN

The Annual All-Japan Free Flight Model Airplane Contest was held on Oct. 3rd, sponsored by the J.M.A. (Japan Model-airplane Association) which has a position like the A.M.A. The contest field was TAKIGAHARA, which is located beside Mt. Fuji; usually the place is used by the Japan Self Defense Forces as a practice area. Unfortunately, the skies were dull, but good enough for running the contest. In fact, I had not seen a F/F contest for several years. I started making and flying models when I was 10 years old. When I became 20 years old, I joined in some contests and

won some trophies. Fifteen years ago, I turned away from F/F to R/C. Recently, I have been interested in flying R/C slope soaring gliders and thermal gliders.

I do not intend to talk about my background, but there is a relationship between F/F and R/C gliders. R/C thermal gliders are very similar to F/F gliders, so I went there and met many of my old friends. They had all got old, I had got old too, but I was one of the youngest 20 years ago, so their average age must now be 45 years or so, I guess. Few younger men joined, but even they must be in their thirties. We can not deny the declining interest in F/F, but those who are still active are real model flying enthusiasts.

This F/F contest consisted of 3 parts-- FIA (glider), FIB (rubber), and FIC (power). All of them flew 7 rounds, with

a 3-minute maximum, so a perfect round was 180 points and a perfect total was 1260 points. There were very weak thermals there from 9 AM to 1 PM, but contestants made the best of it.

Mr. Kobori (rubber) marked 1259 points. Mr. Suzuki (rubber), 65 years old but still active, placed 6th. When I saw him, I realized that I will be able to continue competing in model flying for another quarter of a century.

I was most interested in seeing the FIC (power) section. Mr. Kibiki (who placed 2nd) has been to Europe and bought two MVVS (made in Czech) diesel engines. He shared one of them with Mr. Iwamura. Mr. Iwamura and Mr. Kibiki used about the same system and engines. Both the MVVS engines were powerful and just fit their propellers. The timer system was very complicated.



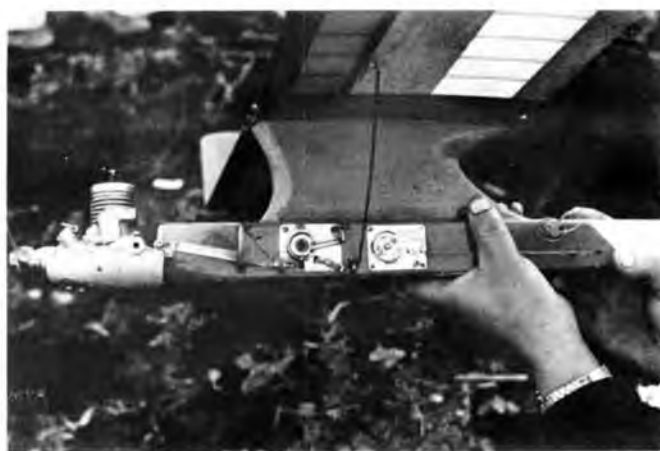
Winners of J.M.A. free flight contest. Guy on the left you should know. He's Mr. S. Enya, who makes a pretty good engine.



So you think you have flying site problems! This was one of seven starting pits; 3 for power, 2 for rubber, 2 for gliders.



Friend of author Sato, Mr. Kayaba, cranks in the turns, His nickname is Kayaba Noten, which more or less means "Nutty Kayaba."



First step in automated operation is a slight bit of rudder for glide turn and pull-out at about 8 to 9 seconds.



About a half second after the rudder is activated, the stab is allowed a small amount of negative incidence for glide set-up.



The last step occurs three minutes after the plane is released, when the stabilizer pops up to 45 degrees for dethermalizing.



Mr. Komazaki is sort of the C.O. Wright of Japan, but he has a few years to go at a mere 58 years of age. Still placed 8th.



Mr. Iwamura launches his power winner. Details of his European style system shown in next three pictures.

After an 8 to 9 sec. engine-run, the first step, the timer works the rudder slightly. After another 0.5 sec., the engine is shut off; after another 0.5 sec., the stabilizer pops up slightly (about 1/16"); 3 minutes after take-off, another timer works on the stabilizer to pop it up again 45 degrees to serve as a dethermalizer. (Who says radio is complicated? ED). The system is European style, also. Mr. Iwamura and Mr. Kibiki placed 1st and

2nd respectively (Both live in Kyoto).

Some other fliers used about the same system, but 2 or 3 of them got into trouble with the timer. As a result, their machines did a high-speed dive after their engines stopped. I think I do not agree with such a complicated system. If I competed, I would have my machine take off on a right circular flight and then glide to the left. My old intimate friend Mr. Komazaki flew his machine

this way; I must admit that he placed 8th. At any rate, the rudder and stabilizer control system are quite temperamental, so people have to develop a better method.

Super Tiger engines were the most popular. Fliers ran the engines at 20,000 to 22,000 R.P.M., and they usually used a 3-1/2" pitch propeller, I guess. I think the prop's pitch was too high; they would do better to use a lower-pitched





Jack McCracken's beautiful green and yellow Gipsy Moth on the shore of Lake Elsinore. Ship flew realistically in R.O.W. meet.



This little rubber powered Tiger Moth, built by Fernando Ramos, takes off after a run of about 1 1/2 inches. Cute as a bug!!!

propeller. This is only my opinion. In power F/F, we have to improve many points.

The results were as follows:

#### FIC (POWER)

18 fliers competed, highest total points was 1131 (Mr. Iwamura); the average number of points of all the fliers was 774 points (the last-placing flier flew only 13 sec.).

#### FIB (RUBBER)

I am not quite sure about rubber models, so I will jot down only the results. 13 fliers competed. Highest total points was 1259 (Mr. Kobori), only 1 sec. short of perfect. He got The Best Time Trophy. The average number of points of all the fliers was 872.

#### FIA (GLIDER)

I could not believe their towing. I had never seen an FIA contest before; this was my first chance to see one. They ran a few meters and then sometimes came back and ran again. I saw a very nice glider made by Mr. Saito (Kyoto), and he placed 2nd with it. I loved his glider, especially his workmanship. Mr. Ishii (near Tokyo) placed 1st, his 7-round total was 947. I think he is a younger man. The average number of points was 847.

The contest finished at 3 PM. During lunch time, Mr. K. Isobe, Mr. Y. Takahashi, Mr. Nakamura, Mr. Nonaka, and I demonstrated R/C thermal gliders. The gliders were towed by an electric winch I had made myself. We put the winch upwind and ran 300 meters of wire back to the foot switch. We could adjust the towing speed with the foot switch, like a car accelerator. It attracted much attention. Mr. Nonaka used a heavier glider. His glider had small wings and a very small stabilizer; of course, the center of gravity was located on the front edge

of the wings. Mr. Isobe towed it at a high speed, and the glider reached a high altitude in a very short time. I guess the altitude must have been 200 meters.

Our trial flights were invitations for F/F people to R/C thermal gliders. The first All-Japan R/C Thermal Glider Contest was originally scheduled to be held this fall, but we could not prepare for it, so we have re-scheduled it for next year, and will send you a report.

See you again, Japanese F/F people!! In the meantime, join us in flying R/C thermal gliders. We will get good companions in R/C, and the cause of good sportsmanship will be helped.

\* \* \*

We've had the opportunity to join the North American Flightmasters during a couple of their contests this summer. This club, in case you don't know, is totally dedicated to scale model airplanes,



Bill Hannan releases his...er...Train monoplane Brown CO2 powered, at Elsinore. It does fly.

mostly in the free-flight category. This is truly modeling in the great tradition, and we're gathering material for future articles.

First there was an R.O.W. meet at Lake Elsinore and then came the big annual contest on the first weekend in October. Unfortunately, we had so much fun meeting the Flightmasters and re-acquainting ourselves with F/F scale, that we sort of goofed on pictures and information. Most of the shots were strictly snapshot variety for personal pleasure, and our information was mostly "How did you do that?" instead of "Name and place, please."

Sorry. . .we'll do better next time.

#### THE JUNIOR JUNIOR

By Bill Hannan

● Nearly everyone remembers the Brown Junior spark ignition engine, and in fact, they are still very popular among "Old Timer" model builders. The Junior holds a special place in my memory, since it was my first engine, and was given to me when I was about 12 years old.

Now, the Brown Junior name is once again on the scene, in the form of a new CO<sub>2</sub> engine. CO<sub>2</sub> engines are actually quite an old idea, and in fact engines of this form were advertised prior to World War One. However, the majority of them were bulky and suffered from various inconveniences. The Campus series of engines, which were also designed by Bill Brown, were probably the first really efficient, lightweight examples of the breed. Unfortunately, they were introduced during a time when control line models were at the height of popularity. Thus, they never seemed to receive the



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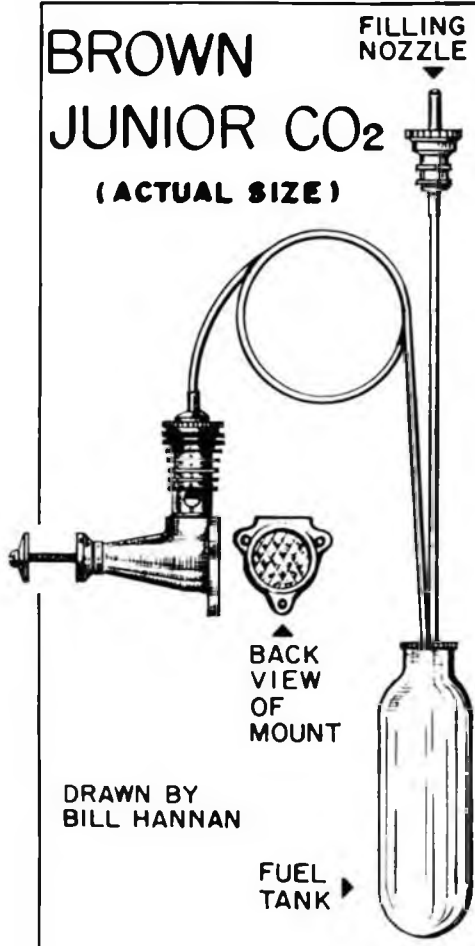
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### BROWN JUNIOR CO<sub>2</sub> (ACTUAL SIZE)



recognition that they deserved, in spite of the fact that many excellent model designs for the Campus engines were published and/or kitted.

Today, however, things are different. Flying space is at a premium, and the noise factor usually associated with powered model aircraft has become a sensitive issue. Thus, the new Brown Junior CO<sub>2</sub> is being enthusiastically received by model builders all over the country. Consider some of the advantages:

1. They are CLEAN, and eliminate the need for bothersome fuel proofing.
2. They are very small, and easy to mount and cowl in.
3. They are very light in weight (approx. 5/16 oz.).
4. They are QUIET.
5. They start in one flip and require no batteries.

Another distinct benefit, especially to scale modelers, is the fact that these engines will turn virtually any size propeller from 3" diameter up to about 6" diameter. Then too, rpm is easily adjustable, which means the engines may be throttled down for those critical first test flights.

Average duration may run anywhere from 20 seconds to over a minute, depending upon the choice of props and

rpm setting. Even longer runs can be achieved, if desired, by adding additional "fuel" tanks. The fuel is, of course, provided by easily available soda fizz cartridges. Currently, several small R/C models are powered with this type of power plant, including at least one which is being flown INDOORS in a gymnasium!

Multi-engine models are a cinch with this form of power, since each engine may be hooked to a common supply, which assures that they will all stop at the same moment.

At about \$30.00, the initial cost may seem a bit steep, but consider the following: These units are being virtually handcrafted, which requires a special type of tender loving care (and you can hardly get that anymore!). The engine, once purchased, is economical to operate, since it may average from 5 to 8 runs per cartridge. Locally, discount houses sell the cartridges for only \$1.09 per box of 10. Considering the cost of glo fuel, this begins to seem quite reasonable.

Recognition of the potential of these engines was underlined by the AMA ruling allowing CO<sub>2</sub> engines to compete in the free flight gas event of the Nationals. Who will be the first to take advantage of this challenge? ●

## WORKBENCH • • •

*Continued from page 5*

tion demands, the exhaust tubes will be installed to the customer's specifications, as a special service, for 50 cents per tube.

\* \* \*

Received a sample of Midwest Products newest kit, the "E-Z Juan," a nine foot sailplane designed by Le Gray, our LSF reporter in this issue. The kit is very complete and includes all fittings for control linkage and the plug-in wing panels. Ship is a relatively easy one (E-Z Juan, get it? The "J" is pronounced like in José Jimenez) to build and features multi-spar wing construction which sort of gives you built in turbulators.

\* \* \*

Among others who have noted the increased activity in free flight rubber and CO<sub>2</sub> scale are the Williams Brothers, 181 B Street, San Marcos, California, 92069. Fortunately, for those interested, the company is producing several modeling accessories that will make this phase of the hobby even more inviting.

Smooth and vintage wheels are already available in 3/4, 1, 1-1/4, and 1-1/2 inch diameters, as are radial and in-line nose bearings in 5/8, 1/2, and 3/4 inch scale, and dummy radial cylinders (5 to a pack) in the same scales. A sturdy, but lightweight nylon prop of 5-1/2 inch diameter is also available in two hub configurations; one for rubber power and one for CO<sub>2</sub>.

The newest product is basic engine kits, which include the previously mentioned cylinders in groups of 5, 7, or 9, plus a molded crankcase to suit. The crankcases include molded-in prop shaft bearings and square mounting plugs. Modelers may add rocker boxes, push rods, etc., to suit their own particular requirements. Complete instructions are provided. The combinations of manifolds and cylinders in 3 scales, nine selections all together, range in price from \$1.05 to \$2.49. ●

### PEANUT • • • • *Continued from page 23*

It also has all its struts cut from 1/64" plywood (Available from Sig.) with the landing gear struts doubled for strength. The wheels, propeller, and engine cylinders are plastic, manufactured by Williams Brothers, and should be available at your local model shop. A few inches of 1/16th diameter aluminum tubing and a short length of 1/32nd wire are the other major material items for the basic structure. Japanese tissue is used to cover the model.

The wings, tail, and the landing gear spreader are built directly over the plans.

Just cut the ribs and the tips and the center cutout from 1/16" sheet and assemble the parts. Leave the wing spars off until the structures have been removed from the board so the proper dihedral angle can be built into the bottom wing. The top wing spar is flat.

Build the fuselage sides over the plans. The lower wing saddle is made from sheet balsa to eliminate the problems of bending a stick to match the curve of the front bottom of the fuselage. Remove the sides from the plans and note the curve of the back end of the fuselage in the top view. To obtain this curve the two sides must be cemented together at the tailpost first and a triangular gusset cemented in place top and bottom. This should be allowed to dry thoroughly before going on to add the cross pieces that complete the fuselage box. Five top formers are required to support the top decking. They are not shown individually, but see the front view for their shape.

Sheet side stringers are required at the nose of the body, these extend from the two side nose formers to the upright just aft of the cockpit.

Round the surface leading edges and taper the trailing edges and generally sand the structure smooth with fine sandpaper before covering. The model shown is red, white, and black. Probably no real D VI was covered or colored in such fashion but this model was built for fun. The white tissue was put in place first in just the areas that were later to have the black crosses. Then the rest of the model was covered with the red tissue. Water shrink the tissue and dope the surfaces with a single coat of thin dope and the fuselage with two coats. A black felt pen was used to color all the struts and a red felt pen was used to color the cowl.

The true shape of the landing gear struts is indicated by the phantom lines in the side view and the wing "N" struts are shown correctly in the side view also. Note the points at the ends which are inserted into the wing ribs as indicated. The positions of the strut ends are indicated on the plans by little "X" marks. Before assembling any of the surfaces onto the fuselage, locate these points, and in the case of the wings, insert the point of a knife to provide a hole location for the strut ends. Note that these are on the bottom of the top wing and the top of the bottom wing.

Now cement the bottom wing and the horizontal tail in place on the fuselage. Then cement the "N" struts in place on the lower wing. Make sure they are vertical in the front view. When they are

dry, set the upper wing in place on top of them. Check to see that it is properly aligned and then cement it to the "N" struts. When this assembly is dry you can cut and fit the center sections struts and the tail struts.

The top covering of the spreader is slit and the landing gear struts are cemented to the bottom of the tip ribs and the cross axle tubing. Make sure the top ends are located correctly. Now cement this assembly onto the bottom of the fuselage.

Put a short length of aluminum tube in each of the Williams wheels as a bushing. Cut an axle to length from 1/32nd wire. Slip it through the cross tube and slip a wheel on each end. Secure the wheel to the wire with cement or epoxy, making sure not to get any in the cross tube. By doing this, both wheels are part of a single unit and are forced to rotate at the same rate, thus reducing the natural tendency of the model to ground loop.

Add the tailskid and the propeller installation. The propeller on the model shown was cut down slightly and the edges straightened somewhat to make it look more like a scale propeller, but more duration would be available with the larger propeller area.

Add details as you desire, such as handles, steps, machine guns, windshields, and instruments. The crosses are cut from black tissue and lightly doped in place.

I doubt if the Red Baron did much flying in the D VI but this model will take care of any Peanut Scale Snoopy that shows up on the model field. ●

### L.S.F. • • • *Continued from page 22*

about. How similar the ideas...plans and aspirations...of far distant but now good friends. Old buddies laughing over things of years ago...or yesterday. The silent admiration evident in examination of a sleek new 'glass fuselage...the master-craftsmanship of a long, slender wing...the clever design of a new mechanism. The feeling of pride shared with an unknown contestant who had done well ...or a newcomer who completed a particularly rough flight "all in one piece." The not-to-be expressed sympathy over a "wipe-out." People and planes

Sometimes tension is broken...frustration is eased by an inadvertent act or lucky accident. In the heat of competition on Saturday, after six hours of maddening wind and dust, nerves, if not tempers were frayed. One particularly demanding task at any major

*Continued on page 36*

● From time to time, if our readers express enough interest in the idea, we would like to present construction projects which are, in a certain sense, incomplete. An example of what we have in mind is this month's presentation, the Bi-Prentice.

The usual construction article is of a proven design, such as Jack Elam's glider in this issue. The article includes, in addition to the plans, several photographs of the model, and a text which gives some background and/or accomplishments of the model, along with instructions for building. This type of presentation is pretty much standard throughout model publications.

There is, however, a large untapped source of designs that never reach the modeling public. These are the ones created by designers who do not always have the time or opportunity to build, test fly, and photograph every model they put on drawing paper. There are also many tested designs that don't get published; sometimes it's lack of photographs, sometimes the designers don't have the desire to put together a text.

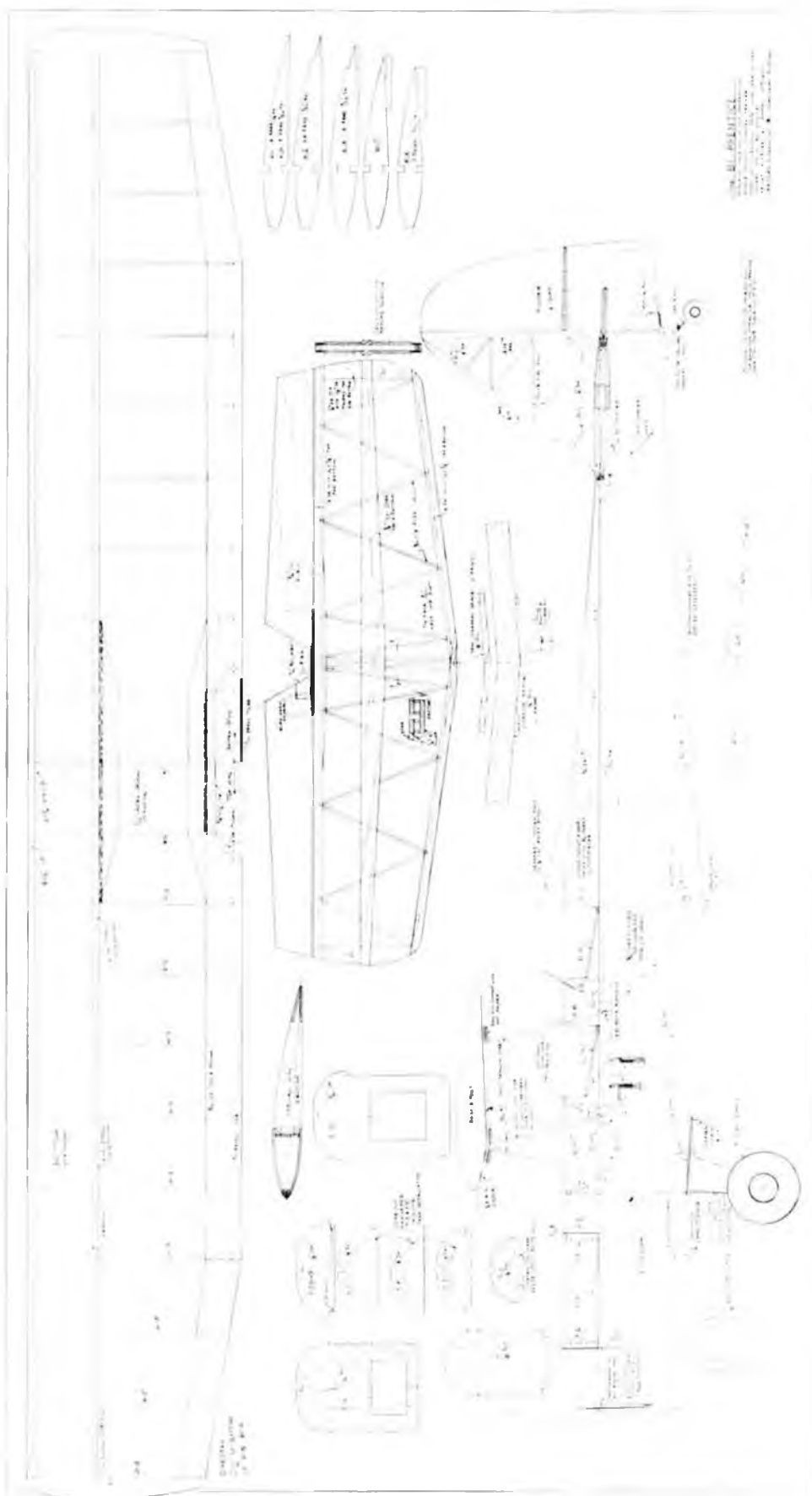
It is not our intention to present wild, far out (unless they've been tried) figments of the imagination that some kook may have dreamed up while on a "trip", but rather, good modeling projects that if not published incomplete, might never get published at all. If you have something that fits the description, drop us a note about it. We'd also like to know your opinion on the idea.

The Bi-Prentice was a follow-up design to our Apprentice, which was published in the May 1968 issue of *MODEL AIRPLANE NEWS*. By making only minor changes in the flying surfaces, and designing a new fuselage, we came up with a biplane version. One Bi-Prentice was built and flown by Rudy Black, a modeling buddy from Delaware. The only problem he had was cured when he moved the balance point forward to the location indicated!

As with the Apprentice, this airplane is designed for rudder, elevator, and engine speed control. Ailerons are unnecessary. Engine size needed will depend on your building habits. A good .29 would fly a 4 pounder in a calm fashion. For 5 to 5 1/2 pounds a .45 or or .50 would be just right. A .60 should only be necessary if you're inclined toward lead-sleds.

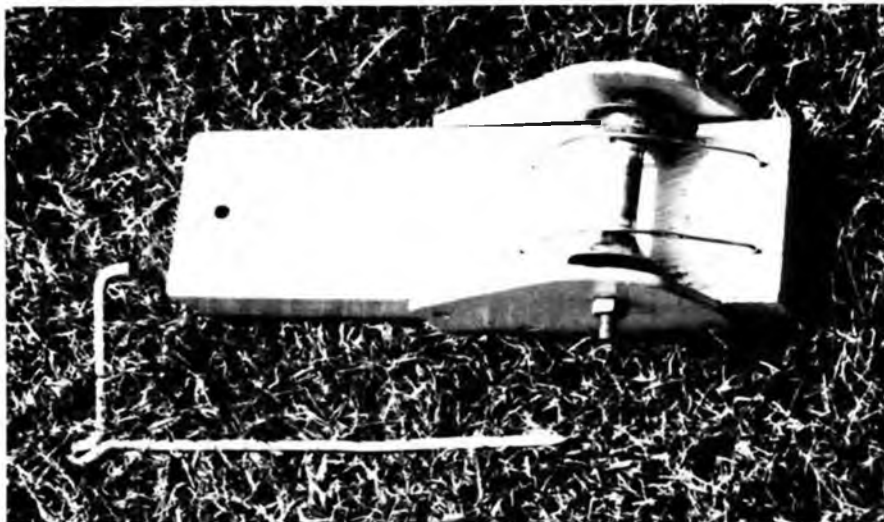
Don't be afraid of the coat-hanger cabane struts. They're plenty tough when used as shown, and are much easier to work with than music wire. ●

## The BI-PRENTICE a two-wing trainer



FULL SIZE PLANS AVAILABLE — SEE PAGE 48





## TURN-AROUND PULLEY

By Rod Smith

● This turn-around pulley is based on similar designs that have been in use in Northern California for the past couple of years. The big improvement is the elimination of the eye bolt that was used to guide the line over the pulley. The eye bolt and line were subject to excessive wear and the line could tangle around

the bolt.

Since a turn-around pulley operates at a distance of about 900 ft. from the winch and launch point, a trouble free device is essential. With this design the line will be at one side or the other but the contact loads between the line and the piano wire guides are very low and

the wire is very hard, resulting in negligible line wear.

With an open design such as this, there are no narrow cracks for the line to catch in. Weeds, knots and other debris can pass through without causing any problems. After a flying session you can reel in the line without fear of the tow ring or flag catching in the pulley.

When the plane releases, the bike hub runs free with the line laying on it. The friction is so small that the line does not get wrapped around the hub. Because of its' low inertia, the hub will follow the pulsing of the winch as the pilot controls the launch speed with his foot switch.

This design is so simple that one can be built, using simple shop tools, in about one half hour. The total cost is a function of your ability to "scrounge". Our local bike dealer sold us an old hub, that he could not give away, for one dollar.

The base is a piece of 2x4 and side pieces are 1/4 or 3/8 plywood. A drawing is not necessary. The photo serves to illustrate the construction. ●

**L.S.F. . . . Continued from page 34**

contest is P. A. duty. Again this year, boom-voiced Hank Heard (A remarkably appropriate name. Ed) drew the assignment. Crowds of spectators invaded "restricted" areas and milling contestants gathered around the flight line. Repeatedly, Hank called the offenders back and regained control of the field only to lose again by human osmosis. By mid-afternoon, Heard was as hot, tired, dirty and hoarse as anyone on the field...and the people were once again on the runways, surrounding the impound areas, and in the launch zone. In utter frustration, Hank, at maximum P. A. volume, warned that any contestant who had not been called to fly that was in the launch area would be subject to immediate disqualification and then added "...and that goes for spectators, too." There is no record that any spectator was disqualified, but the pressures of the day seemed lighter for awhile.

Early evening hours at off-field "headquarters" found the more resilient contestants and their ladies gathered in the hospitality room. Another hour of socializing...of recounting the day's highs and lows...and 125 guests progressed to the banquet room for 7:30 dinner. Noticably absent were many of the younger pilots who, with the practicality of youthful directness, had cleaned up, grabbed fresh jeans, and had an early dinner at a nearby hamburger emporium.

The banquet fare completed and

tables cleared, the evening's program was people-to-people oriented and gave recognition to special guests: Phil Kraft, a Tournament Sponsor two years running and this year a participant in his first-ever sailplane contest; Dan Pruss, 1970 R/C Soaring Nationals Director; Rodman Smith, 1971 National Standard Class R/C Soaring Champion; Bill Holliman, Deputy District Attorney of Los Angeles, representing another sponsor, RC Modeler; Ray Lorber covering for brother Carl's East Coast Soaring Society's Newsletter; Dave Linquist, traveling from Lafayette, Indiana just to spectate. And, the very special Tournament Banquet Guests, Ted and Alice Nelson.

In the far-flung-flyers category, Currie Lee of Honolulu, Harley Michaelis of Walla Walla, Washington and Val Hutchinson of Amarillo, Texas competed with Plainfield, Illinois' Dan Pruss for distance to home field. Another round of introductions identified six tournament competitors who have held one or more international R/C soaring records. The after-dinner comments were capped with a tribute to the LSF, the 1971 Tournament and its participants received from AMA President, John Clemens.

The balance of the program consisted of movies. Keith Brewster and his fantastic R/C sailplane, air-to-ground footage; the AMA 1970 R/C Sailplane Nationals coverage; and SSA release on the recent Hang Glider Contest near San Juan Capistrano; and the beautiful reels

of the 1970 World's Soaring Championship held at Marfa, Texas as recorded by the cinema-excellence of Judy and Roger Grigsby.

It was 11:30 and C. D. Bob Andris had scheduled Sunday's pre-flight briefing at 0800 hours. Lights out at the Holiday Inn and other nearby motels.

Ted and Alice Nelson's "Hummingbird Haven" gliderport is just east of Livermore, California about 35 miles southeast of San Francisco-Oakland. The field is an operating, private airport identified as home base for the Northern California Soaring Society. During August of each year, NCSS members trailer their sleek birds to the Truckee-Tahoe airport for wave soaring in the Sierra. Thus the field is closed to normal operations, but available to the LSF Tournament.

The main runway at Hummingbird is east-west into the prevailing Pacific winds. A shorter, secondary strip runs to the southwest. Two long, metal T-hangars house a full compliment of exotic soaring equipment, and the north edge of the field is usually packed tight with trailer-hangared sailplanes. Behind the trailers, the typical California fence-row of towering Eucalyptus trees whisper back to the breeze. Yellow-brown hills roll into a cup lip on all but the west side of the field. These gentle slopes are broad enough to support thermal development and long enough to give ridge life on stronger days. The Nelson residence is

nestled in a grove of green shade, and, with its adjacent swimming pool, barbeque pits, and picnic tables, enjoys a park-like atmosphere.

"Hummingbird Haven"...named for Harry Pearl and Ted Nelson's famous powered sailplanes...is available to the LSF Tournament courtesy of Gerry Nelson of Midwest Model Supply Co., Chicago, Illinois.

The League of Silent Flight RC Tournament is co-sponsored each year by selected commercial leaders who are heavily oriented to R/C soaring. This year the two-day soar-lympics was underwritten by Du-Bro Products, Kraft Systems, Midwest Products, Model Airplane News, Orbit Electronics, RC Modeler and Top Flite Models.

In 1971, the Tournament was co-hosted by the North Bay Soaring Society, Richard Lemme, President, and the South Bay Soaring Society, Curtis Christen, President. Members of the two groups provided all services and handled all tasks associated with the affair.

A Scale Class competition was introduced this year. It was conducted in accordance with the sailplane rules proposal now under review by the AMA. The numerous flying works-of-art on hand included a full count of modern designs such as Cirrus, Phoebus, ASW-15, Kestral, Fokker FW-3, Schweizer 2-32, Diamant, Sagitta as well as a pair of Franklin Primaries. The display represented the largest collection of scale sailplanes models ever assembled in this country. Static judging was conducted Saturday morning. The panel of judges included B. S. Smith, former President of the Soaring Society of America, and Floyd Carter, one of the leading scale builder-experts in the Western United States. By Tournament rules, only the ten scale sailplanes earning highest static points progressed to flight competition. The scale ships flew Sunday's flight tasks, grouped at the end of each round. Launch was ROG by electric winch and points were earned in actual competition...not just by demonstration flights.

The overall performance of the scale sailplanes drew the admiration of all hands, and provided adequate testimony that realistic appearance need not diminish flight capability. Several competitors elected to fly scale models in Open rather than Scale Class, and scored well up in overall final standings.

The top scale award went to genial John Donelson, President of the Harbor Soaring Society, Costa Mesa, California. Donelson, a strong supporter of the scale soaring concept, flew his immaculate Phoebus "C" to top honors with a

casual confidence seldom associated with airborne jewels. The Phoebus featured an all flying T-tail, operating wheel brake, and appropriate cockpit detailing.

Number two honors in scale went to Col. Robert Thacker of San Clemente, California. Thacker's offering was a Wik Kestral with full cockpit details and coupled ailerons and rudder. Bob Andris carried away third place with his colorful one-sixth scale Slingsby T-53B.

With the number of contestants registered and flying, an estimated 250 sailplanes were on the field during the two-day event. The array and variety was mind-boggling. All sizes and shapes.. all colors and trims...numerous structural and covering materials...and applied aerodynamic theories representing all schools of design.

One of the more popular kit designs was the Graupner "Cirrus"...but Herr Graupner might be hard pressed to identify some of the many modifications. Keith Brewster, LSF/002 and proprietor of Sunnyvale, California's Silent Flight Center, flew a stretched wing version spanning 12 feet. Taking a direct approach as the easiest route to his desired goal, Brewster merely increased rib spacing by a half inch. No new ribs required. Dr. John Camp, from San Marino, California, had incorporated very effective spoilers. Others were seen with ailerons, coupled ailerons and rudder, increased rudder areas, wing tip extensions, increased dihedral, and fiberglass fuselages. Most, however, were stock...right out of the box.

The famous "Kurwi" was well represented in a range from Dan Pruss' three year old "33" to Dale Willoughby's brand new "68." The unique, low wing "Jalapeno" kitted by JAC-MAC was there.

Harley Michaelis' beautiful "Miskeet" was always surrounded by an admiring group. Offered as a "short" kit...fiberglass fuselage and plans...by Fliteglas Models, this high aspect ratio bird seemed to most observers to look as a sailplane should look. Harley's smaller but equally beautiful "Hi-Pro" served him well in competition.

Several examples of the new Francis Products' Fokker FW-3 were on hand. One of the more impressive was Hugh Stock's 12 foot span version. With a white fuselage and colorfully trimmed, transparent yellow Monokote flying surfaces, Stock's FW-3 was a magnificent sight in flight or at rest.

The ubiquitous Fliteglas "Phoebus" was evident in many variations and colors including one very striking, all orange version.

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Numerous originals and magazine designs were present: Dave Saks, up from the San Fernando Valley Silent Flyers, with an all white, Neil Liptak designed "Sabre Soar"; Floyd Carter of the famous Sunnyvale, California Pioneers R/C Club with a new V-tailed beauty; Kenny Hamlyn and his all-balsa, Jedelsky-winged "Hawk Eye" decorated with red, white and blue tissue paper; John Donelson flying the Jack Elem designed "Nancy"...small and simple but potent, as evidenced by final standings; Currie Lee's Hawaiian V-tailed "Shaka". Chris Jones flew a Keith Brewster "T-Trainer."

Some of the more sophisticated originals included Frank Colver's famous "Santana"...with lines much like a Standard Austria...featuring differential tip spoilers for directional control, mid-span spoilers for altitude control, and a V-tail. Mark Smith flew his "Happy Hour"...an HP-14-ish original spanning some 12 feet. Mark utilizes a radio-controlled tow line release to good advantage, making near vertical climb-outs on launch...one time this year applying enough force to break the 160 pound test nylon launch line. But he never worries about premature tow release.

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were the Boucher brothers' Astro Flight "Monterey" and Mark's Models' "Windward." The manufacturers were flying their own products and supporting others from their kits that were on the field. Big Bill Watson scored well with his super-light "Monterey." Lloyd Weaver brought joy to the Mark's Models' hangar with his Windwards performance.

Bob and Roland Boucher impressed all with a flying demonstration of their electric powered Fournier RF-4.

The mighty J & R "Kestral" was out in large numbers. Bob Seigelkoff strummed the heart strings of all who were in sight of his unfortunate finale. Radio failure...or at least loss of control response...put his 10 pound giant through a series of increasingly violent stalls and and sometimes loops. The last maneuver...a perfect figure "9"...terminated in a huge cloud of dust a mile north of the field. A beautiful and impressive machine but not even all-fiberglass construction can withstand an impact of such magnitude. At least one J & R...originally Nelson...Ka-6E was seen.

Eddie Rempalski of the Harbor Soaring Society made a respectable mark with a new Graupner "Cumulus." Young Ed's swept-wing bird was a brilliant all-red finish, and being a brand new pilot-

plane combo...having just met at the winch early Saturday morning...placed a well deserved third in the hard fought Duration Task. Reportedly, Eddie's "Cumulus" is the first flying version in this country, and certainly the first seen in competition on the West Coast.

Val Hutchinson...out from Amarillo, Texas...and his covey of Canyon Plastics' all styro-foam "Schweizer 1-26" semi-scales proved themselves again. Val teamed with Phil Kraft...oft-times national and international R/C pattern champion...to provide the well known hobby industrialist with his first tastes, impressions, and surprises in R/C soaring competition.

The diminutive "Sagitta" as modelled by Sacramento's Stan Powell from a Francis Products' kit earned much admiration.

Young Bill Lawrence, Jr. entered an extended wing, Bob Hahn designed Midwest "Lil' T" while the elder Lawrence competed with his beautiful, but much modified and long spanned, T-tailed "Bjorn."

Many prototypes of new designs were fielded. Kelly Pike, President of the San Diego Torrey Pine Gulls, flew a soon-to-be-kitted, one-sixth scale, ASW-15. This very efficient configuration

shows an excellent L/D, and captured the recent Western Soaring Championships at Perris Valley in Southern California. Bob and Roland Boucher also displayed a fiberglass fuselage ASW-15 under consideration for the Astro Flight products line. Bob Andris and Marshall Watson showed twin "Diamonds." The highly professional glass work in the Andris design attracted many favorable comments. The versions flown were each fitted with original, 11 foot panels, but reportedly the fuselage can also be used with Graupner "Cirrus" wings.

Le Gray and Bill and son Daryl Whitney were flying Le's Windancer designs. Le had his faithful "Gypsy Gull" with a new wing configuration with turbulator spars. Bill was flying the low aspect ratio "Yankee Gull" that packs seven feet of area in 100 inches of span, Daryl, LSF/100, sported a newly constructed "Hangar Queen" mated to "E-Z Juan" wings from the soon-to-be-released Midwest kit. A new Windancer design, "Soarcercer," was displayed but not flown. The Soarcercer is quite short coupled, features a swept forward wing, and promises to be a mean competitor once developed. The first prototype was strained through hi-lines just three days before contest time.

Ken Willard arrived with a new, functional design obviously slanted to the interests of his Sunday Flying Fans around the world. In typical Willard fashion, every line was calculated simplicity, contributing to an all-business appearance and good all around performance.

Bob Chase...SSA Director and designer/builder/pilot of the beautiful, high performance, full scale C-100-S sailplane...made a return visit to the world of model soaring. In 1956 Bob set the international endurance record for model R/C gliders...some 8 hours 34 minutes...with single channel, rudder-only on escapement. Bob and son Bill flew identical originals that will prove to be potent competition in coming months. Too new and unfamiliar to be a threat in the Tournament (first flights had been late Friday evening) Bob's just completed designs nevertheless drew considerable attention and admiring comment. The white and blue soarers used a polyhedral wing of 12 foot 4 inch span, and an unusually long tail moment terminating in a T-tail. Fuselages were extremely lightweight fiberglass and undoubtedly incorporated much advanced materials knowledge Bob has developed in design and construction of his full scale ships.

Most kits from throughout the world were represented by at least one entry. The always popular "Amigo II" was seen in several trims. One of the new Ka-7 imports performed well in an attractive blue with white stripe color scheme. A "Dandy" or two were on the field. The "Foka"...both import and domestic... was on hand, as were several attractive "Windspiels".

One of the better designs was the original creation of 17 year old Richard Walters of Saratoga, California. Rick's concept of aerodynamic truth is obviously based on simplicity improved by development. The basic configuration, nicknamed "White Trash" by Rick's elder and envious flying companions, was layed down about three years ago. Since that time, Rick has flown, improved, changed, developed, re-built and modified his creation almost continuously. Younger brother Jeff, who took the Duration Task top honors in Sportsman Class at the 1970 Tournament, and constant buddy Chris Mauntz have also contributed to advancement of the design. But Rick has led the way. The fuselage is a simple box structure with a rather long tail moment and simulated cockpit canopy. A non-lifting stabilizer, mounted forward of the vertical fin, incorporates a split elevator. The top-mounted wing is of a simple, flat-bottomed section with a constant taper plan form, with plug-in panels tip for ease of transportation. Span is 10 feet and the wing features rather severe polyhedral. Total all up weight is under three pounds.

This year, Rick, Jeff, Chris and at least one other member of this teenage elite guard of R/C soaring entered their "White Trash" models. The design, in these capable young hands, has collected more hardware in twice-monthly contests over the past two years than any other single design on the West Coast. To LSF 1971 RC Soaring Tournament competitors, the "White Trash" corps was potentially bad news.

The tales of performance par excellence by Rick Walters and his soaring machine are numerous and varied, but most revolve around spectacular feats of control. Rick and "White Trash" never quit while air is still moving over the wings. Many times a "bump" has been noted during a landing approach at altitudes under 20 feet, and subsequently worked for additional minutes and sometimes hundreds of feet of altitude. More than once, "White Trash" has thermalled within the confines of a softball diamond infield, and many can

recall Rick working a micro-miniature thermal over a hot sidewalk, circling around a street lamp post.

To check a trim change, Rick takes a step or two into the wind, makes a mighty heave, circles 360 degrees and catches the model as he flies it back to his hand. Any landing over three feet from the intended spot is unacceptable. And "White Trash" is launched with a winching technique that "kites" up to maximum release altitude...usually several hundred feet above competitors.

Rick Walters' "White Trash" is no longer clean or trim or hardly even attractive, but it is a classic example of "beauty is as beauty does." The original and the originator are good friends. They work together in a most complimentary fashion to do their "thing"... fly and win...beautifully. Meanwhile... back at the tournament.

The hopes of improved weather conditions for Sunday were dashed with the first pre-dawn peek out of motel windows. Bushes rustled and tree tops swayed much too much for such an early hour. As on Saturday, Pilot Briefing at 0800, first launch 0830. Results of an overnight conference between C.D. Bob Andris and Tournament Manager "Chris" Christen were announced: only two events would be flown... Precision and Duration. The Speed Task was cancelled.

This program revision maintained the multi-task concept, but permitted each contestant only one shot at Distance points and one at Duration. Two Precision rounds ruled out all possibility of a lucky flight taking the hardware.

And the wind blew and the dust flew and the sun shined hard down on exposed noses. By noon and the start of the Duration Task, Dust Devils came down the runway with precision regularity. A "Dust Devil" is a meteorological phenomenon peculiar to the Western States which requires (a) open space,

(b) exposed ground, and (c) brisk wind for development. A Dust Devil is a miniature tornado...a highly visible thermal...with adequate strength to tumble and destroy both model and man-carrying sailplanes, depending upon its stage of development. The familiar cry of warning, "Dust Devil coming," stops all field activity as everyone grabs papers, tents and model sailplanes... whichever is closest. Best protection for models seems to be to kneel at the models' nose, back to the wind, bend over with outstretched arms, palms down flat on top of wings. When Dust Devil arrives, hold breath and hold down as the world blackens with swirling, choking, blinding dust. And then its gone.

But Dust Devils indicate that there is lift...big lift...starting at ground level and reaching who knows how high.

The first flight round on Sunday was a repeat of Saturday's Precision Task. Again the wind and gusts took their toll of both sailplanes and points scored but skill, consistent skill, stood out and paid off. With the two Precision Tasks offering a combined total of 2,000 possible points, Rick Walters and "White Trash" racked up 1,980 to take first. Chris Mauntz, with his version of "White Trash" came in at 1,835. Stu Horton with a Cirrus was third with an even 1,700 points. John Donelson, the highest scorer in Precision who could also vote in national elections, flew his "Nancy" to a 1,675 point fourth place.

The Duration Task called for a five-minute max with a Scale Runway landing for bonus points. Three minutes were allowed after max to touchdown without loss of earned flight points. A max was worth 900 points and a well placed landing up to 100 bonus points...1,000 points for a perfect flight.

As the Duration round progressed, a new hazard developed...difficulty in releasing the tow line. Each launch in the heavy wind called for dexterous



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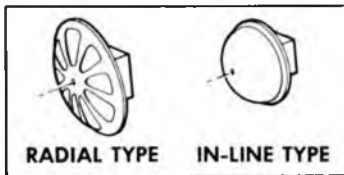


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pulsing of the winch motor to minimize climb speed and thus air loads on slender wings. This technique provided very good launch altitudes, but when winch power was stopped, the tow line unreeled. What was happening was that the sailplanes were gaining altitude so fast in thermal lift while still on the tow line that the line was being pulled with them as they climbed. This kept tension on the towline so that a high speed dive was required to overfly the line and get slack enough to release.

Maximum flight times were flown by many contestants, and more than one sailplane gained near out-of-sight altitude within two minutes after tow release. Jim Balch, from Canoga Park, California challenged his Timer's reading ability. Jim could not believe a sailplane could get so high in so short a time. At two minutes...by the Timer...Jim started his Cirrus down. He still maxed.

Many pilots cranked in full down trim at the three minute mark having more altitude than could be safely dissipated in the remaining two minutes to max. Several sailplanes lost altitude by a series of loops, but some gained with each maneuver. Rod Smith circled his blue and yellow "Windward" overhead for several minutes in an inverted attitude. But lift on Sunday afternoon at Hummingbird Haven was of the "Killer Thermal" variety, and only very determined nose-down flights angle could overcome the rising currents. Many a wing flutter was seen and heard during this flight task.

Frank Colver of the Harbor Soaring

Society made an inadvertant but dramatic product evaluation test. His "Santana", a fairly heavy and very efficient penetrator, has served him well during its several years of competition development. Recently, to reduce overall weight and improve "light conditions" performance, Frank replaced the original nylon and dope wing covering with new, heat-shrinkable synthetic materials...Brand X on one wing and Brand Y on the other. Both panels were a beautiful, gleaming white and identical in appearance. Upon reaching maximum duration time, Frank eased the Santana's nose over in a long, sweeping high-speed run back to the field. This maneuver was a standard in the Colver repertoire. In the past, Frank often concluded his flights with a spectacular high-speed, low altitude pass...an act the Santana seemed to enjoy. During these runs, a distinct whistling created by the speeding sailplane was evident. But on this day, as speed built so did wing flutter...violent, visible, audible and potentially destructive wing flutter...on one panel. The other wing held steady. Frank immediately reduced speed and the flexing panel stabilized. Later he was heard to offer several rolls of Brand Y covering material at prices considerably less than retail. *(Please note editor's comment at conclusion of this article.)*

By the end of the Duration Task, five of the 103 contestants had coupled maximum flight times with perfect landings: John Donelson, Bob Hahn, Eddie Rempalski and Mark Smith of Southern California's Harbor Soaring Society, and

Rick Walters of the Santa Clara Valley's South Bay Soaring Society. Many brilliant performances were marred by a quirk of luck...wind under a wing tip turning a model just out of pay dirt...an infinitesimal misjudgement in approach speed in the gusty winds ending in a missed landing. Myles Moran, President of the San Fernando Valley Silent Flyers, lost points in a real cliff-hanger. After just touching down in the maximum point runway area, but while still light on the wind, a gust lifted his Cirrus and moved it backwards about four inches to come to rest in a lesser point zone.

A five-way flyoff was started for the top Duration Task pointers. First off was Donelson's "Nancy" for a second perfect flight and precision landing. In rapid order, Hahn's "Cirrus", Rempalski's "Cumulus", and the 12 foot "Happy Hour" of Mark's Models' Mark Smith all maxed in the diminishing lift conditions, but each fell short of top points in landing. Walters' "White Trash" maxed and then came in on the spot to set up a two-way flyoff with Donelson.

Eddie Rempalski's performance had locked up third place in the Duration Task. Hahn and Smith pulled fourth and fifth. But top honors would be settled with a final, sudden-death round.

The winds continued to sandblast "Hummingbird Haven" as the sun drove straight into the eyes of the pilots launching the last two flights of the LSF 1971 RC Soaring Tournament. More than 100 pilots were now spectators, and they joined the throngs of visitors pressing the crowd control ropes near the launch area.

A simultaneous launch was specified by Tournament Director Andris to give the two pilots identical flight conditions. Winchmaster Gerry Wolfram assigned Donelson to the Number Four Winch and Walters to Number One. The Timers assigned to each man had their thumbs poised lightly on stop watch buttons. Donelson and Walters signaled "ready". Wolfram called "Launch away", and the two sailplanes leaped forward grabbing for flight with eager wings.

Donelson carefully pulsed the motor on Number Four Winch to ease the load on "Nancy" while reaching for maximum altitude. But there was an air of tired reluctance in Nancy's behavior...a listlessness foreign to her character. In spite of the strong head winds...of the careful winch technique...Donelson was not getting altitude...Nancy was not climbing.

Walters, with brother Jeff and buddy Chris at his elbows, tapped a rhythm on the winch motor switch that kited "White Trash" near vertically to maxi-

mum height. Upon release, the Timer's watch clicked, and Rick held his model into the wind as it climbed to become a speck in the electric blue of the California sky.

But Donelson was in trouble. Nancy was off the line and low...too low for this critical flight. The problem was radio. She had refused to accept "up-elevator" command, and had released from the line at less than 200 feet altitude. A few bumps as John turned back to the landing area indicated some weak lift, and Nancy circled the lazy circle of a dying bird in a feeble reach for the lift of life. It was not to be. The sensitive thoroughbred spirit that had carried Nancy through two days of grueling competition had waned.

"White Trash" was in its element...high and free in a familiar sky...listening carefully and responding accurately to the transmitted thoughts of her ground-based conscience. With the confidence of true champions, Rick and "White Trash" had a five minute flight secured...no problems. A precision landing was of little concern...a routine performance. They could not be beaten this round...only tied for yet another flyoff.

"Nancy" was on her way in. A brilliant attempt by John Donelson could not overcome the laws of physics nor the rampages of the Transistor God and "Nancy" was maneuvered into the landing pattern. In less than two minutes from tow release, she was near the runway bouncing in the surface gusts. Donelson fought her into the wind and let her settle gently onto the center runway zone...perfect...but too soon. "Nancy" was second..."White Trash" was still up.

At just over four minutes, Rick started down. Nothing fancy or flamboyant, just a series of steep spirals losing altitude with every turn. A final sweeping bank, slowing into the wind, and "White Trash" dropped on the mark. Three perfect flights...championship performance in any league. "White Trash" rested on her tow hook with one wing down on the turf. A light gust of wind caught her tail and her higher wing tip and spun her around on the tow hook pivot in a near human pirouette. A saucy finale for the admiring crowd.

The world famous trademarks of Du-Bro Products, Kraft Systems, Midwest Products, Model Airplane News, Orbit Electronics, RC Modeler and Top Flite Models were each displayed on king size banners on the silver hanger doors. Grouped around the distinctive LSF logo, the co-sponsor emblems were a backdrop to the awards table.

The LSF 1971 RC Soaring Tournament commissioned Mr. Bob Booth, sculptor, in association with Don Conard Mobiles of Ghirardelli Square in San Francisco, to create a series of trophies especially for the Tournament. Mr. Booth's imaginative talents turned to the media of wire sculpture. He fashioned small, silver wire replicas...each resembling a three-dimensional line drawing...of the famous "Cirrus" sailplane. Each sculpture was mounted by a single wire to a polished mahogany base. This frail mounting let the wire sailplane move in the slightest breeze to give an aliveness that augmented the static beauty.

When the competition points were totaled, Richard Walters and his "White Trash" was Overall Tournament Champion with an astounding 3,590 of 4,000 possible points. Jay Brehm, flying a Graupner "Cirrus" was Second Overall with 3,439. John Donelson and "Nancy" totaled up to a strong Third Overall with 3,415 points, and young Chris Mauntz brought his "White Trash" in with 3,388. Paul Christian, another teenager flew his "Cirrus" to a 3,054 point fifth place.

Trophies were also awarded in each flight task category as well as in scale:

#### PRECISION CATEGORY:

1. Richard Walters	White Trash	1980
2. Chris Mauntz	White Trash	1835
3. Stu Horten	Cirrus	1700
4. John Donelson	Nancy	1675

#### DISTANCE CATEGORY:

1. George Steiner	Cirrus	1000
2. John Baxter	Cirrus	957
3. Paul Christian	Cirrus	914
4. Jay Brehm	Cirrus	869

#### DURATION CATEGORY:

1. Richard Walters	White Trash	1000
2. John Donelson	Nancy	1000
3. Ed Rempalski	Cumulus	1000
4. Bob Hahn	Cirrus	1000

#### SCALE CATEGORY:

1. John Donelson	Phoebus "C"	1973
2. Robert Thacker	Kestrel	1723
3. Robert Andris	T-53 B	1678
4. Marshall Watson	2-32	1617

Fourth place in each flight category was awarded a year's subscription to "Soaring" courtesy of the Soaring Society of America. Each registered contestant was presented with a commemorative transmitter plaque inscribed "LSF 1971 RC Soaring Tournament."

In case you're not aware, the League of Silent Flight is a world-wide organization of R/C soaring enthusiasts. Membership in the League is open to any serious sportsman. Information about

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the LSF may be obtained by addressing queries...with 16 cents return postage included...to The League of Silent Flight, P. O. Box 2606 Mission Station, Santa Clara, California, 95051.

*\*We checked with Le Gray and Frank Colver regarding this incident, and would like to clarify it. Frank had covered one wing panel with Super Monokote and the other with Solarfilm. This was done for a very logical reason; he ran out of one brand half way through the job and simply finished with the other. The test was not premeditated.*

*The Solarfilm covered panel was the one which fluttered. The explanation is fairly simple. Plastic film covering material does not have the "skin strength" of fabric or even paper covering materials. When you heat-shrink the films, they pull up tight enough to eliminate the wrinkles and then they stop shrinking, no matter how much more heat you apply. Anyone who has used Super Monokote or Solarfilm knows that the materials are tough but flexible. Solarfilm is more flexible than Monokote, however. For this reason, as claimed, it will pull around smaller radius compound curves. But also for this reason, it has less skin strength than Monokote.*

*We have seen Frank's Santana flying*

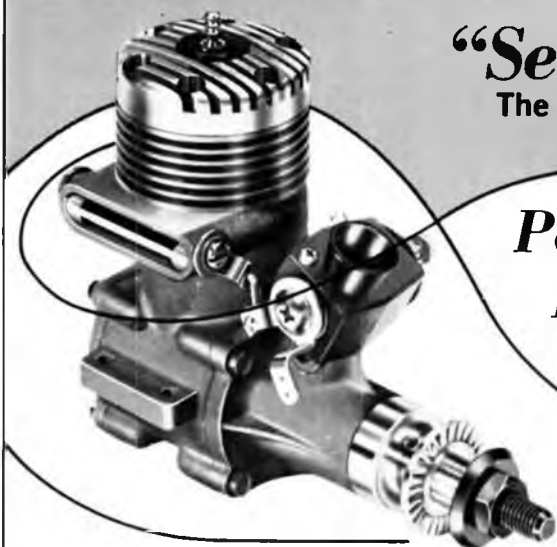
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on many occasions and the wings characteristically flex to a certain degree. They even flexed somewhat when covered with silk. When going through bumpy air it is fascinating to watch the Santana's dihedral change up and down as the fuselage continues in a straight line.

We are sold on the use of the mylar films for covering models, just as many other modelers are, but the skin strength factor should be kept in mind when building glider wings, particularly ones which are lightly built with a great deal of open framework. When building our Cirrus wings, and anticipating hi-start launching, 1/16 by 1/8 inch diagonals were installed from the spar to the trailing edge between all ribs. The total weight added was less than an ounce, but by comparison with unbraced Cirrus wings covered with Super Monokote, our wings were considerably stiffer and less susceptible to flutter in high speed conditions. ●

**PYLON . . .** Continued from page 28 from active participants.

The MODEL BUILDER will be glad to act as a clearing house to get this organization started. Not only that, since your editor is also AMA Contest Board Chairman, all rules proposals will end up here anyhow. We would like to hear

from all groups who have held QM races, particularly in regard to their rules suggestions. We will publish these for others to consider and ask for your comments. If enough information comes in, we will establish a separate QM column and assist in getting an association started. What'll it be, QMPRA?

The following simplified rules are being used by the Northrop (no, not me... the aircraft company) Model Airplane Club. We particularly like the idea of stock engines and prop. Do you have any ideas on how to keep it that way?

Engine:	Stock Enya .15 or O.S. Max .15, with throttle (we assume other makes are eligible as long as they are available to all).
Prop:	Stock 7 x 6 nylon.
Wing:	Monoplane; 300 sq. in. minimum area and 7/8 inch min. chord thickness at fuselage side. Biplane; 300 sq. in. minimum area and 5/8 inch min. chord thickness.
Fuel:	Sport, not over 20% nitro.
Appearance:	Semi-scale of racing aircraft.
Fuselage:	2 1/2 inch min. width, 5 inch min. height at pilot.
Weight:	2 1/2 lbs. min., 4 lbs. max.

## WORLD CHAMPS . . .

Continued from page 20

tops of loops. He was permitted to land and await better conditions, and so did all of us. It was 2-1/2 frustrating hours before flying could be resumed. Fortunately for those waiting at Line 1, Mike Birch of Great Britain was about sixth man up. His dissertations on some of the comical aspects of modeling in England, particularly the exploits of show business/modeler Will Haines, almost made us sorry to see the ceiling lift.

In Round Two, our ABCDE judges were exposed to the second half of the fliers, which included Matt, Whitley, Chidgey, Schaden, and Hardaker. We rated Liechtenstein's Matt and Great Britain's Hardaker as the best in this round. Both put up excellent flights with many eights and nines on our score. Matt, for some reason, blew the spin. In spite of this, his flight turned out to be the third highest of the meet at 6925. The spin came back in Round Four to haunt Matt again. At this time, his second highest flight of 7040 would have been higher than Bruno's 7075 and he would have been the World Champion. Consider the fact that 40 points, the difference between Bruno's and Wolfgang's totals of over 20,000, was less than one point on one maneuver on one judge's score sheet in one flight! In retrospect, Matt was truly the better flier, as judged and scored, yet the failure to spin cost him the championship. In both flights that we watched, the ship dropped off into a spiral, meaning zero for the maneuver.

According to Roger Hargreaves, Team Manager for Great Britain, Dave Hardaker, only 24, is the hottest flier to come along in some time, but is not consistent. His 6640 was the second highest in Round Two, and the one flight of the meet for him when he was able to put everything together.

It was particularly interesting to see Roger place himself on the far side of the runway, directly opposite Dave, thus providing a handy reference spot for centering of the maneuvers.

Ron Chidgey and Jim Whitley both put up flights that we rated at about 75, and their resultant scores were constant with this grading. Ron very noticeably lost heading going across the lid of the Top Hat but other than that made an excellent flight.

Talking about the U.S. Team, and Ron in particular, many of the modelers present wondered what the final outcome would have been had there been anything other than the almost dead calm that existed throughout the competition.

It was reputed by several European modelers that Bruno Giezendanner is strictly a "dead air" flier. His latest style of slow, tight maneuvers would support this. Ron Chidgey, on the other hand, is one of the best windy weather fliers we have ever judged. His win at this year's Nationals in the windy city of Chicago is an indication of this ability.

It was Ron, several years ago, who taught us a valuable lesson in accurate judging. Never compensate your score because of weather conditions, particularly gusty wind, which raises havoc with many otherwise top-scoring contestants. When others are getting bumped all over the sky, Ron makes it appear that he is flying in a corridor of dead calm.

The only others to put up over 6,000 point flights on Line 2, Round 2, were Ferdinand Schaden of Austria, and Mike Birch, England. Kazuo Shimo, Japan, who has only been in R/C aeromodeling for two years, was just under, with 5975.

Pierre Marrot, many times French R/C Champ, and fourth finisher in Bremen, showed signs of not enough practice, and was not the sharp, smooth, confident flier of past years. His maneuvers were also placed much too close to the judges.

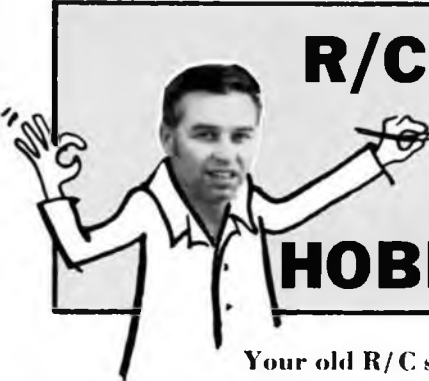
Mike Birch's flight, his best of the meet at 6065, showed extremely smooth and round loops. The low fuselage profile of his Capricorn design might have affected the roll maneuvers, but no one could say the wings weren't dead straight.

Rich Brand of South Africa put up his best flight in this round with the latest model in his "Panzer" series, a very smooth design with large radius rounded wing tips not usually seen on modern R/C aircraft.

Poju Stephansen, a long-time World Champs contender from Norway (the name is pronounced Pie-yoh) was flying his Maximum-10 design, another in a long series. The ship has an unusual fish-like, high fuselage profile; flat along the bottom with an airfoil-like curved top. The canopy, with pilot and navigator enclosed, begins immediately aft of the side-mounted HP61. Poju won a special trophy, presented this year, for the best original design entered in the competition.

Stephansen is also noted for his unusual method of holding the two-stick transmitter (Kraft) while flying. He places the base of the transmitter against his chest, just under his chin, holding the sticks between thumb and forefinger, the remaining fingers being wrapped around the side and back of the base to hold it in position.

In direct contrast to this, and the typical waist-high, elbows out style in



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the U.S., some Europeans, notably Matt Wester and Prettnner, place their transmitters in a plastic or wooden cradle which is slung from two straps around the neck and shoulders. The cradle is positioned so that the sticks are just at comfortable arm's length, at or slightly below the belt. May seem strange, but look where they ended up in the contest.

In spite of the late start, Round Two was completed, and following a short break for officials, Round Three was one-third completed by the 7 PM curfew. During the break, three judges from each line exchanged places. Two judges each including chiefs Bill Northrop and Norbert Trumpfheller, remained at their first-assigned post throughout the contest. The groups were now ABHIJ (Line 1) and FGCDE (Line 2).

Masahiro Kato made his best flight of the contest in this first portion of Round Three. Kato, a team member in 1965, and five times the R/C Champion of Japan since 1963, put in a good all-around performance. His landing was one of very few good ones by any competitor

although it was outside of both circles.

This brings up an interesting yet puzzling matter for consideration. In FAI scoring, the landing, no matter where first contact is made with the ground, is judged and scored for perfection. If that first contact is made inside the 15 meter (about 48 feet) diameter circle, the landing points are multiplied by a factor of 15. If the landing is inside the outer, 30 meter (about 97 feet) diameter circle, the landing score is multiplied by 10. Outside of both circles, the landing is multiplied by a factor of 5.

Strangely enough, competitors don't appear to have thought about this too much...not even some of the best. Many times we saw planes coming in beautifully, slow, tail down, wings straight and then suddenly. . .whump!. . .a landing worth no more than 1 or 2 points, with stopped propellers, several bounces, erratic rollout, and so forth. Why? Because all of a sudden the pilot saw that inner circle flashing past his plane, which was still a foot or more in the air. In desperation the smooth landing was sacrificed



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in order to get that precious 15 multiplier.

But what good is 15 times 1 or 2 points? At best 30, maybe 45 for a 3 pointer. But how about an 8, or even a moderate 5 or 6 in the outer circle? There, a landing score would earn 50 to at least 100. Even an 8 or 9 landing completely outside of all circles would be better than a controlled crash for the 15 multiplier.

To me, the landing is not only a test of skill, but also of pilot cool. To continue on with a decent landing when you suddenly realize you're missing the inner circle, takes a great deal of self-restraint, but in most cases, it's worth it. It was surprising to see so many top fliers give in and go plop!

Anyway, back to Round Three, but still speaking of landing! The fog, haze, and low ceiling had persisted all day, and although we could hear full scale aircraft from time to time, we couldn't see any. However, while judging Australia's Brian Green, our attention couldn't help but be pulled away from his model, as the sound of a throttled back radial started getting closer and closer off to our left. Suddenly, out of the overcast and dead on line for the runway loomed a Cessna 195.

We can imagine the thoughts of that uninformed Cessna pilot, relieved to find the runway in all that soup and then, in the same breath, finding said runway overrun with pedestrians. The pilot's corrective reaction was quick, however, and as he jammed on full throttle, cleaned up, and pulled back into the overcast, Brian brought his ship back over the runway and picked up where he had left off, with extended time, of course. Perhaps this incident relieved some tension, as this was Brian's best flight of the meet.

Emil Giezendanner, Bruno's older brother, and another "graduate" of the 1968 FAI Judges School, put in another

fine flight in this round, which we rated at about 70. Emil's flying was among the most consistent of the meet, his scores varying only a few hundred points from round to round. His best score was a 5995 in Round Four.

Next to last flight of the day for our group was performed by Hanno Prettnner. To the best of our knowledge, Hanno, at 20 years of age, was the youngest contestant this year. His flying is of the same brilliant, positive, and smooth style as Matt and Wester. In fact, Matt and Prettnner compete against each other on many occasions in the European contest circuit, and for the record Hanno is more often the winner.

As with most of the top fliers, Hanno's entire competition flight is one, long continuous maneuver. The turn-arounds and positioning passes are just as smooth, precise, and flowing as the actual maneuvers. The only thing that marred an otherwise near-perfect flight was the spin, which was half spiral. Since Hanno and Wolfgang were using basically the same airplane design we wonder if this is a negative characteristic, or is it the risk they take in trimming to get the rock-steady flight path that was so noticeable throughout the performance, and typical of a forward C. G.

Saturday morning started out pretty much like Friday, except that the ceiling was high enough not to interfere with flying. It was beginning to look favorable for completing four complete rounds. Our line picked up where it left off Friday, about one-third of the way through Round Three.

First up at 8 AM was Japan's highest scoring competitor, Yasufumi Sugawara. This turned out to be his best flight of the meet at 6215. He received a well earned applause from the early morning spectators. There were three 9 point scores on our sheet.

We also gave three 9 pointers to the next flier, Bruno Giezendanner. Not to

take anything from Bruno's flight, which was his third best score, the weather couldn't have been better. It was so calm that a microfilm model could have circled for 10 minutes with hardly any drift. Italy's Benito Bertolani was up next, and after watching about 75 flights, we finally saw a properly executed spin. Most pilots snap rolled into the spin, received zero's for spiralling, or badly missed heading on the pull-out. Ron Chapman very generously gave us a four-turn spin, but such a favor could only be rewarded with a zero!

Koos Tromp of the Netherlands made a maneuver correction that was new to us. Going into the 3rd position of the Four Point Roll, he overshot the stop, going to about 300 degrees. Without batting an eye, he backed up 30 degrees, stopped, and then rolled on to the upright, fourth position! Try that the next time you're flying your favorite aerial badge!

We had another look at Phil Kraft in this set, but the flight, though one of his three best, was marred by two problems. In the Four Point Roll, his first stop was at about 75 to 80 degrees. The other problem was positioning. The roll maneuvers, in particular, were off center as a result of starting too late. These were actually quite minor faults as his score was still 6230. Incidentally, there were only 30 flights scoring 6000 or better out of 240 tries.

Krijn Sliedrecht, Netherlands, had the dubious distinction of being the first competitor to make an official flight in sunshine, near the end of Round Three. Fortunately, by this time of day, the sun was well out of the way of normal flight paths, and only caused problems for those contestants who were not so skilled at placing maneuvers so as to keep their planes away from the sun.

In Round Four at Line 1, we were to see top runners Birch, Marrot, Schaden, Whitley, Chidgey, Matt, and Hardaker. With scores so close, most of these fliers were changing positions constantly.

Birch again showed his supremacy in the round maneuvers, but could only muster 5595, his third best flight.

Marrot was still obviously way off of his past form. Too much aileron control showed up in short, choppy rolls, obvious wing leveling corrections in round maneuvers, and jerky Slow and Four Point rolls. 5640.

Ferdinand Schaden put up a very smooth flight with his stretched-Cherokee styled plane. The 6010 flight was his third best and eventually put him in 8th place.

Jim Whitley, in the opinion of this

writer, put on the best performance of the entire meet up to this point in his last flight. Every maneuver was right on. We rated it a 90 on our own scale, and the applause from fellow competitors, spectators, and flight line officials as "Daddy Rabbit VII" rolled to a stop, verified our feelings. The joy was short lived, however.

Because of a relatively minor problem it became our duty as Chief Judge, to see Jim's score by one of the other judges. It was simply a matter of agreement as to which circle Jim's plane had touched down in. Judges were instructed that all must agree on this matter, although each landing score was still his own opinion.

Because we were holding his score sheet, we couldn't help notice the points he had given Jim on the flight. Most were on the low side in our opinion, but a score of ONE point for a near-perfect spin was too much for this writer. We asked if it was a one or a seven. Many Europeans put a long tail on a figure one, and we knew this, but we were too stunned to let it go by. Sure enough it was one, and the judge's reason was that he did not feel that Jim's plane really was spinning, but rather, had spiraled! Oh well, c'est la guerre! The 6415 score, Jim's highest, put him in 6th place.

Ron Chidgey's flight was close behind Jim's at 6400 and the same score he had in Round Two. In our judgement, off-center positioning was the only thing that hurt Ron in this flight. The score put Ron in 7th place and gave the U.S. team a fairly wide margin for first place in the Team Results.

Later in the same round, Wolfgang Matt pulled out all of the stops and put up the second highest score of the meet at 7040. It was a masterful flight. Many who saw it remarked that the performance was a precise enactment of the written description of each maneuver... except that @\$\*/ spin! We scored it higher than any other flight during the entire championships, though only a small amount better than Whitley's flight of about two hours earlier. Apparently, however, we had closer agreement from the other judges this time!

With most of the top places pretty much settled by now, we imagine it was difficult for Dave Hardaker to "get up" for his last flight, only two from the end of the contest. After blowing the Figure M by falling over backward on a stall turn, he rather methodically finished out the flight for a very respectable, but uninspired 5695, putting him in 10th place, highest of the Britishers and placing them in 4th as a team.

To sum up the flying, there were

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several common faults shared by many fliers, from the top to the bottom of the points list. There were very few good takeoffs. Most all fliers jumped their planes off the ground instead of flying off. Possibly adjusting the landing gear for a positive angle of attack would help, since the jump seems to occur as a result of the necessity to rotate on the main gear to get the nose up, causing a sudden lift-off.

Spin entry caused more downgrading than incorrect pull-out in our opinion. Very few stalled out and fell into a spin. Many were snap-rolled into a spin and some, of course, spiralled in the first turn, and spun on the last two.

Generally speaking, we scored lower on the relatively easy Rectangular Approach than any other maneuver in the schedule. Time after time the pilots would fly too far on the downwind leg, finding themselves on final with only a few feet of altitude yet miles from the landing circles. Invariably, they would have to add some throttle, pull the nose up, and struggle sloppily to maintain altitude until reaching the landing area. Undoubtedly the let-down after the exhausting tension of a pattern flight brings on a certain amount of carelessness, but when you consider that the rectangular approach can be worth just as much as a Double Immelman, a Cuban Eight, Inside Loops, or the Horizontal Eight, why not take advantage of it?

Landing quality vs. point of touchdown was discussed earlier, but competition fliers should think about it some more.

It was interesting to note how many

fliers seemed to specialize on either round maneuvers or straight ones. If a contestant did good outside loops, you could expect good inside loops, Cuban Eight, and Horizontal Eight. If he did a good Slow Roll, then you could expect a good Four Point, Inverted Straight Flight, and Three Rolls. The top fliers could do both round and straight, the poor fliers neither.

Wolfgang Matt's Super Star represents what is currently the most popular aircraft design concept for precision aerobatics. The basic layout was first conceived by Fritz Bosch of Germany, with his Delphin series, starting about 3 or 4 years ago. A variation of the Delphin was kitted by Ernst Topp, in Germany, going by the name of Flipper. There were several Mini-Delphins and Flippers in use this year.

The design features a fuselage profile somewhat like a Clark Y airfoil; flat along the bottom, and curved on top. The canopy is blended in as part of the upper fuselage profile, usually starting immediately behind the engine. Many times it is just part of the fuselage structure and is painted on as part of the decor. The engine is side-mounted.

The wing is a double-taper, 18 percent symmetrical, spanning about 62 inches, with strip ailerons. Elevator is hinged to the stab at the top, in typical inset aileron style...no air gap. The rudder, contrary to the American trend, is not a barn door. The high fuselage profile apparently presents enough flying surface when the plane is on its side in the Four Point and Slow Roll that large

*Continued on page 47*

cures. Ordinary soap and hot water will remove uncured epoxy from "infected" areas. Let the whole mess cure overnight.

Now comes the hard part. Use 250 to 350 wet or dry sandpaper and take the epoxy all the way down into but not through the top layer of the tape at the demarcation line. You can tell when you sand through when the tape starts to "fuzz." If you have done a good job with the initial application of filler, the sanding is that much easier. I usually don't remove the tape until the model is completely painted, including trim.

Now comes the unveiling. The tape comes off very easily when all epoxy is separated from it. It will leave just a slight ridge between the fillet and the canopy, no more than a trim ridge. The finished product is well worth the effort and will

elevate your model a touch above the average.

#### FUEL TANKS AND THEIR INSTALLATION.

A good tank installation leads to trouble-free engine operation. Before installing a tank, the following precaution should be taken:

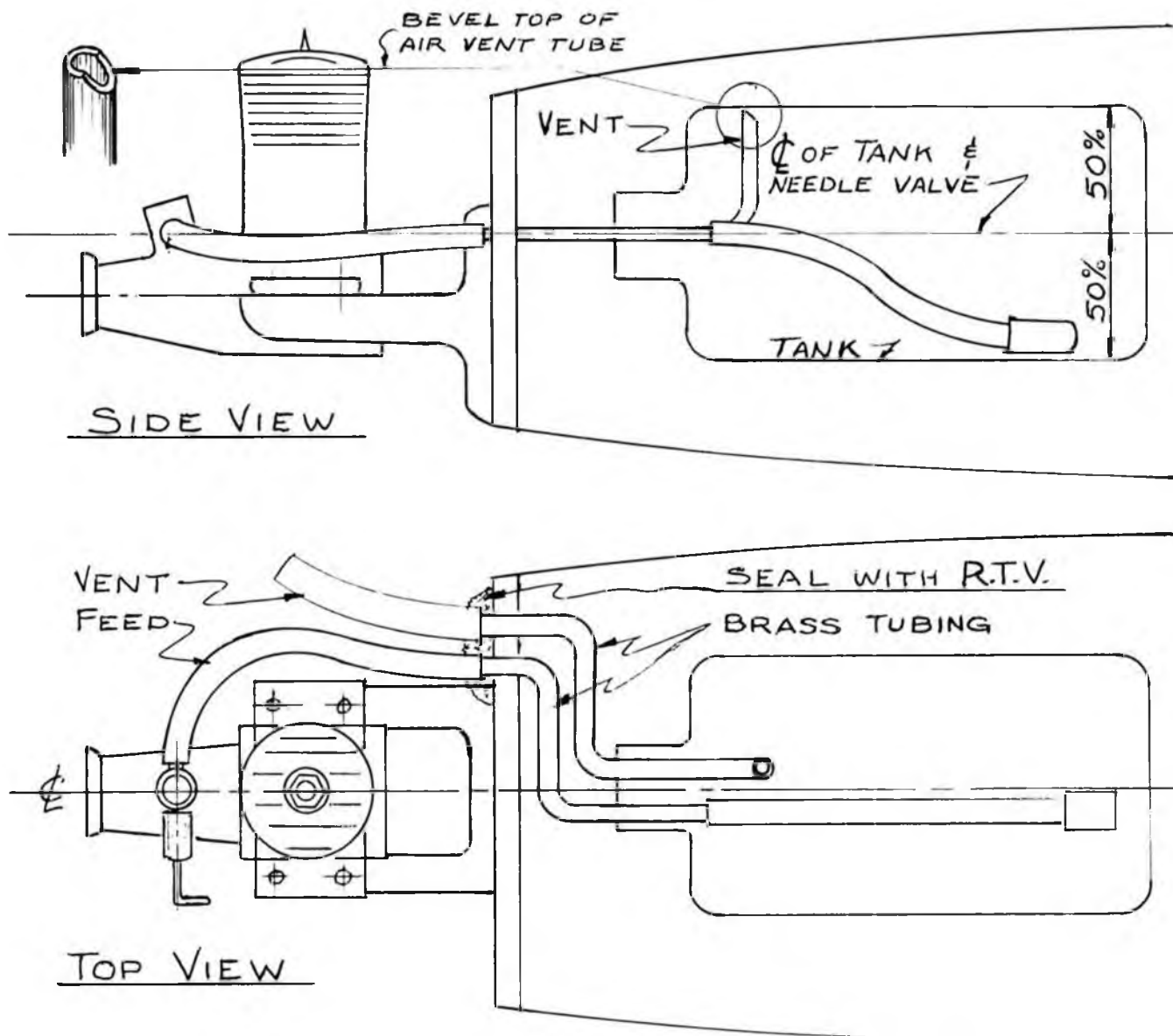
1. Make sure the weighted pick-up tube *doesn't* touch the bottom of the tank when held in a vertical position. When using black tubing as a pick-up tube allow about  $1/2$  inch of clearance because this type of tubing will swell and grow with use. Surgical tubing will deteriorate with extended use so you should visually check the tubing from time to time.
2. Check the air vent tube and be sure that the end of the tube is close to the top, but *does not touch* the top surface of the tank. (Air *must* be able to enter the tank to replace the fuel

being drawn out. Beveling the tube at the top will assure prevention of blockage even if tube does touch top of tank inside. Ed.)

3. Test the tank for leaks prior to installation. The fact that you have a new tank doesn't guarantee that it is leak proof.

#### Installing the Tank:

1. Tank positioning is relatively important. The tank should be 50% above and 50% below the fuel inlet tube of the carburetor as shown below: Any deviation will cause a slight change in engine run in the air. If the tank is high, it will run rich and if it is low, it will tend to lean out.
2. Position the tank as close to the engine as you can get it.
3. Pack foam around the tank so that it will not rotate or vibrate, the latter will cause air bubbles in the pick-up line, causing lean or erratic engine runs.



4. When installing the tank in a model *without* a convenient top hatch, it is much easier to bend hard lines and extend these through a hole in the firewall as illustrated.

If you have ever tried to "fish" a pair of rubber tubes through a firewall from the rear, you know how difficult it is. More importantly, the chance that the rubber tube can get crimped is excellent. The hard tube concept not only eliminates the chance of crimped tubes, it also prevents tank rotation and is simple to install, therefore, the extra work does pay dividends in reliability. The new soft bend brass tubing makes the job easy. Plastic tubing can also be heated and formed to shape to accomplish the same thing. If the soft Pylon brand (Sullivan) brass tubing is not available you can make your own, as follows: Using pliers, hold a piece of brass tube at one end and heat the rest, using a blow-torch or similar hot-flame source, until the tubing is orange-red. Then, simply put it down on an unscorchable surface to cool. Do not dump it in cold water, but allow it to cool slowly. It's then ready to bend.

The important thing when bending tubing is to avoid kinks. The simplest method is to use a K & S tubing bender set, consisting of various diameter sizes of coiled wire. The brass tubing is slipped into the appropriate size coil, and bent. The coil prevents kinking.

For simple bends where beauty is of no concern, merely bend the tubing in your fingers, frequently flattening the inevitable kink as it starts to form with a pair of smooth jawed pliers.

5. Last but not least, filter your fuel *before* you put it in the tank. I've seen filters both in the tank and between the tank and the engine. To me, this doesn't make much sense because filters eventually clog and your engine quits. If your tank never "sees" dirt then you can hardly get into trouble. ●

#### WORLD CHAMPS . . .

*Continued from page 45*  
amounts of top rudder aren't needed. There is an added bonus here in that the plane does not have to be cocked nose high in order to maintain altitude during the knife-edge portions of the rolls, making much smoother maneuvers.

Super Stars, some from Matt's limited

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production kit, and many very thinly disguised original copies, were flown by contestants from about 12 out of the 22 countries represented. Including the whole family of Delphins, Flippers, and Super Stars, we counted about 20 out of the 60 ships entered as being direct or indirect descendants.

Surprisingly enough, Bruno Giezen-danner's Marabu design, which he has now flown in winning two World Championships in a row, has not been copied to any extent. The design was published as a construction article in Flug Modell-Technik, the German model publication, in April of 1970, and is a relatively easy plane to build.

Two other planes that impressed us were Ferdinand Schaden's "Condor 71" and Rich Brand's "Atomicpanzer". Austrian Schaden finished 8th with his plane, which at first glance looks like a slimmed-down and stretched Cherokee. The wings are double-tapered however, and the fin and rudder are not swept. It was the highest placed model without retract gear.

Rich Brand's "Atomicpanzer" has beautiful, yet functional lines. All flying surfaces feature rounded tips. The wing is set up high in the bottom of the fuselage, and the pilot canopy is well forward. It is one of a long series of Panzer designs with which Rich has been very successful.

In the equipment department, Webra and HP dominated the engine choice, with 23 and 16 respectively, followed by 8 Rossi, 5 each O.S. and Supertigre, and one each of Merco Enya, and

Meteor.

Possibly a new record, and a healthy one at that, was established in the variety of radios used. We counted 26 including two homemades. Kraft lead with 8, followed by 7 Simprop, 6 each Proline and Skyleader, 3 each Digi-Fly, Microprop, Multiplex, Futaba, 2 each Robot, Graupner, Controlaire, and one each Heathkit, Royal Classic, Silvertone, EK, Digiplex, Orbit, CRC (Orbit), Rowan, Radio Pilote, Dirigent, Vario-prop, and O.S. There probably would have been more, but the manufacturers ran out of names!

From a judges point of view, some new rules are needed, both in flight line layout and judging procedures. When laying out the flight line, specific locations should be established for the judges and the pilot. Judges should be evenly spread out in relation to the landing circles, but not far enough apart to make communication difficult. The pilot should be required to stand near the judges so there is no question as to the accuracy of his verbal presentation. In some cases we had to watch for movements of the lips to verify that something was being said. A conveniently located pilot's circle would eliminate this problem.

A good point was made by Guy Revel-Morouz, the French judge. To accurately appraise the quality of the landing, a judge must keep his eyes pretty much glued to the plane. This sometimes makes it difficult, particularly on a border-line case, to determine in which circle the plane first touched



down. The spectator line judge, employed for the first time this year, could step forward and determine the point of contact. It would then be the flight judge's responsibility to look for the line judge's indication after the landing is completed. One, two, or three fingers held up would signal, inner circle, outer circle, or outside respectively. Incidentally, although it is not clarified in the rules, we considered a plane in the circle if only one wheel made it. The rules should be clearer on this point.

As a result of considerable confusion in past championships, a clearly defined "spectator line", the one which crossing over with your airplane is a big no-no, was established. As just mentioned, a line judge was posted at each flight site to inform the judges (with a canned air-horn) when ever the line was crossed. Fortunately, we were lucky that the weather cooperated by keeping the sun well covered during official flying. Had it not, with the morning sun being almost dead center across the runway, the fliers would have been forced to swing their maneuvers away from the sun, thus running a strong risk of crossing the "spectator line" during a maneuver and getting zero. The "spectator line" at Doylestown was only about 30 feet back of the flight line. Much to close for the above situation.

The R/C Subcommittee should establish a fixed, required "spectator line" distance that would allow for this possibility. After all, the whole idea of the competition is to test skill in acrobatics, not to test ability to fly in an obstacle course!

Incidentally, we have put the words "spectator line" in quotes because the line, as it relates to real, warm bodied, people-like spectators, is fictitious. Since spectators, per se, are everywhere at a contest of this sort, fence or no fence, it is virtually impossible to fly a model anywhere without being over them. And since this is the case, and we all recognize it, let's put the line a sensible distance from the landing circles...and call it what it is, the "Zero Line".

As we said at the beginning of this report, we would concentrate on the judges view of the World Championships. We'll leave it to the other publications to tell you the rest, and there truly is a lot more: The fabulous demonstrations of total radio control of helicopters by Schulter and Bruno. (The Kavan name on the sides of the models resulted from his sponsorship of their trip to the U.S. Mr. Kavan is not connected with the pro-

duction or marketing of these kits)...The tremendous amount of work performed by local R/Cer's, particularly the Greater Pittsburgh ARCS, which supplied so much of the necessary man-power...The first international competition for R/C soaring and pylon racing. The FAI's CIAM President, Finland's Sandy Pimenoff, took first place in the soaring event with Graupner's latest glider kit, the Cumulus. Sandy started construction on this ARF kit during the overseas flight and completed it during his stay at the motel in Pennsylvania. In pylon, the U.S. fliers all showed the best times by 10 second margins, all under two minutes, with the Telford/Violett team taking first in all four heats plus best time to win the top hardware. Although Bob Smith and Terry Prather both had faster best times than T/V, they also lost heats due to plug and nose-over problems, and so placed 4th and 5th. By placing 2nd and 3rd Alan Mann and Aeromodeler editor Tony Dowdeswell proved that Great Britain knows what it's all about. No doubt, the five remaining countries in competition, and those that watched, took enlightening information back home....The many happy hours spent in breaking language barriers with our great international interpreter, model airplanes...The endless onslaught of yellow-jackets that just about drove all of us nuts; quite a few people were stung by them, some more than once. . .The memorable opening and closing ceremonies, along with trophy awards.

And best of all, the most satisfying feeling of close companionship with people from all walks of life and corners of the world. So it must be when athletes of many nations get together during the Olympics and share experiences, share funny stories, and share knowledge of home life. We all agree on one thing...if only the leaders of our nations would take long vacations and let *us* run the world.....

#### AEROBATIC CHAMPIONSHIPS

##### INDIVIDUAL RESULTS, 10 PLACES

- |                          |       |
|--------------------------|-------|
| 1. Bruno Giezendanner,   | 20315 |
| Switzerland              |       |
| 2. Wolfgang Matt,        | 20275 |
| Liechtenstein            |       |
| 3. Phil Kraft, U.S.A.    | 19455 |
| 4. Hanno Prettnner,      | 19095 |
| Austria                  |       |
| 5. Josef Wester, Germany | 19090 |
| 6. Jim Whitley, U.S.A.   | 18750 |
| 7. Ron Chidgey, U.S.A.   | 18495 |
| 8. Ferdinand Schaden,    | 18225 |
| Austria                  |       |

- |                       |       |
|-----------------------|-------|
| 9. Yasufumi Sugawara, | 18160 |
| Japan                 |       |
| 10. Dave Hardaker,    | 17990 |
| Great Britain         |       |

##### TEAM RESULTS, 10 PLACES

- |                |       |
|----------------|-------|
| 1. U.S.A.      | 56700 |
| 2. Switzerland | 52140 |
| 3. Germany     | 51975 |
| 4. England     | 51810 |
| 5. Austria     | 51710 |
| 6. Japan       | 51075 |
| 7. Italy       | 49515 |
| 8. France      | 47595 |
| 9. Canada      | 46050 |
| 10. Belgium    | 45025 |

##### INTERNATIONAL SOARING

- |                             |      |
|-----------------------------|------|
| 1. Sandy Pimenoff, Finland  | 1082 |
| 2. Dave Dyer, Great Britain | 1070 |
| 3. Otto Heithecker, U.S.A.  | 920  |
| 4. John Nielsen, U.S.A.     | 910  |
| 5. Carter Carlson, U.S.A.   | 845  |

##### INTERNATIONAL PYLON

- |                             |    |
|-----------------------------|----|
| 1. Telford/Violett, U.S.A.  | 16 |
| 2. Alan Mann, Great Britain | 16 |
| 3. Tony Dowdeswell,         | 13 |
| Great Britain               |    |
| 4. Terry Prather, U.S.A.    | 12 |
| 5. Bob Smith, U.S.A.        | 10 |

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