MODEL BUILDER

NOVEMBER 1977

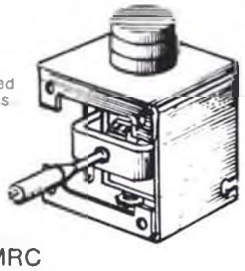
volume 7, number 71

$1.50

We think quality right from the start

And thinking quality is where you should start when you're ready to buy a radio. At MRC it means we go further to get the best parts; check and test more thoroughly to assure maximum reliability; design features that give you extra performance on the field.

Series 775 . . . 5 channels, 4 servos, all metal open gimbal sticks, nickel cadmium batteries for transmitter and receiver, charger and carrying case.

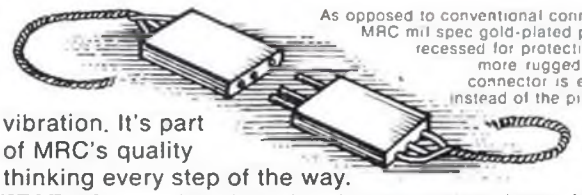


775 features precision machined all metal open gimbal sticks.

There are a number of good radios on the market, but there are none with our dedicated combination of design, component and quality control features. At MRC we know better sets are made right at the start.

IN DESIGN . . . Our 775 has been engineered with all metal open gimbal sticks that are virtually free of play at neutral with no zig-zag due to uneven tension. Unlike other open gimbal sticks, these are precision machined all metal, not metal and plastic. The stick motion is smooth at all times. And because they're metal, they'll remain smooth. We also support each sealed conductive plastic potentionmeter with metal bearings to eliminate even the slightest friction. You'll find this quality is carried into all our systems. Our 772 for instance, is a two channel with open gimbal sticks. A design usually reserved only for more expensive radios.

IN COMPONENTS . . . Here we take great pains in selecting quality you can appreciate on the field. Our 772, 765 and 775 systems all feature "Centi-Loc*" connectors using mil spec gold plated contacts from ITT Cannon Electric. They may be more expensive than conventional connectors, but we don't compromise our systems anywhere along the line. First, gold is not only durable but an excellent electrical conductor. Secondly, the design is unique. Our connectors have flexible, spring action "Twist pin**" contacts that mate and hold even under severe misalignment, providing excellent electrical continuity through even punishing landings and rugged vibration. It's part of MRC's quality thinking every step of the way.

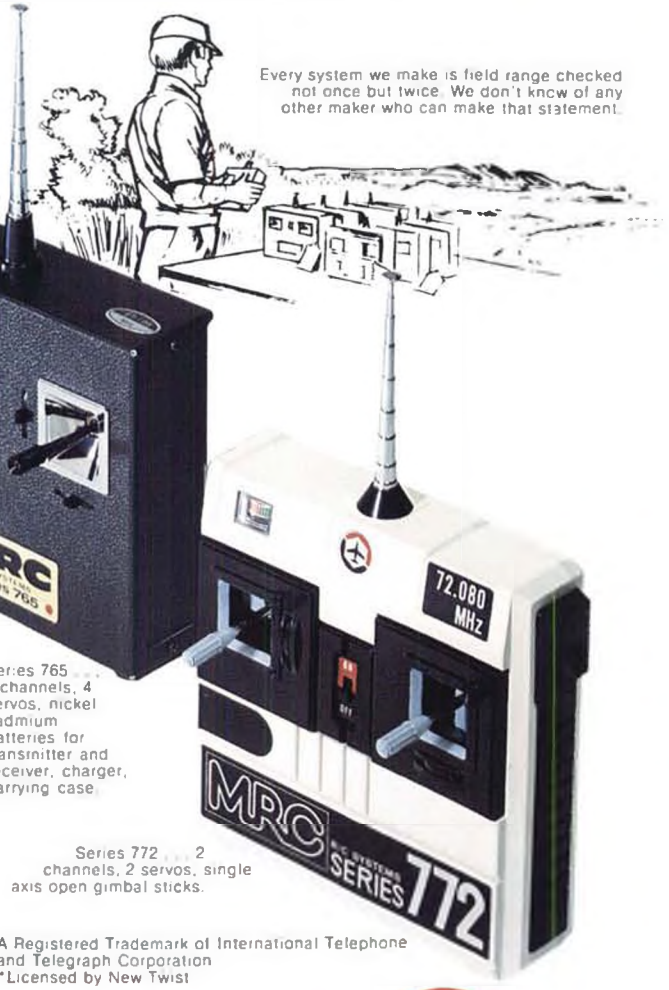


As opposed to conventional connectors, MRC mil spec gold-plated pins are recessed for protection. The more rugged female connector is exposed instead of the pin itself.

TESTING . . . And last, but by no means least in our quality story, is our quality control story. As far as we know, we're the only manufacturer to field range check every system we sell not only on the bench, but in the field. And this field range check we do not once, but twice. This isn't a spot check either, we check every single system we sell. Twice.

First we test all channels to make sure they're functioning without troublesome interaction. We test transmitter and receiver under worst case signal conditions. Range is painstakingly checked to measure performance at critical distances. And we take your set to the field to do all this, not once, but twice.

What does it all add up to? Straight and simple, it means when you select an MRC radio you're buying an electronic system that has quality you can depend on right from the start.



Every system we make is field range checked not once but twice. We don't know of any other maker who can make that statement.

Series 765 . . . 5 channels, 4 servos, nickel cadmium batteries for transmitter and receiver, charger, carrying case.

Series 772 . . . 2 channels, 2 servos, single axis open gimbal sticks.

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and put it together in the end.

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Those who did not start radio control during its early stages cannot appreciate its progress. Today our control systems approach perfection in control accuracy and response, and with capable pilots, our aircraft last for years. These compact, lightweight, and versatile systems permit projects of a scope limited only by our imaginations.

The first commercial radio control equipment produced in the early 1950's was by today's standards unbelievably crude. One, or sometimes two, tubes were employed to give a modest current change to a heavy relay. The relay switched a clock type escapement driven by tightly wound rubber bands which provided a sequential type of control. One blip gave right rudder, two blips left. If the last command position was forgotten, one had to guess at what control came next.

A pound or more of batteries were required and since they were not rechargeable, flying was expensive. The simple receivers were relatively non-selective and, therefore, subject to a variety of interference. A great flying session was one where we succeeded in making a few turns in some way similar to our commands and returned with a repairable aircraft.

In the late 1950's resonant reed equipment had been developed to a fairly high degree of reliability in the hands of a skilled mechanic. Four control functions were available and although control was not proportional, a skilled pilot could "blip-blip" his way around the sky through surprisingly good maneuvers. Equipment was still very heavy and required extensive maintenance.

The Kraft KP-4 system in 1964.

Early attempts at proportional control in the '50's used rapidly wagging controls and were called "pulse-proportional." Only two proportional control functions were available and operation was very unreliable.

In March 1959, the first Kraft radio was introduced and soon became the most popular unit of its kind.

By the early 1960's, reed type equipment had been developed to a high degree of reliability and relative miniaturization. Some of this equipment is still in use today.

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Continuing our tradition of excellence, we have developed an advanced, high quality but low cost system for 1977, the KP-4A. This Sport Series system is designed to compete directly with low priced foreign and domestic radio control systems.

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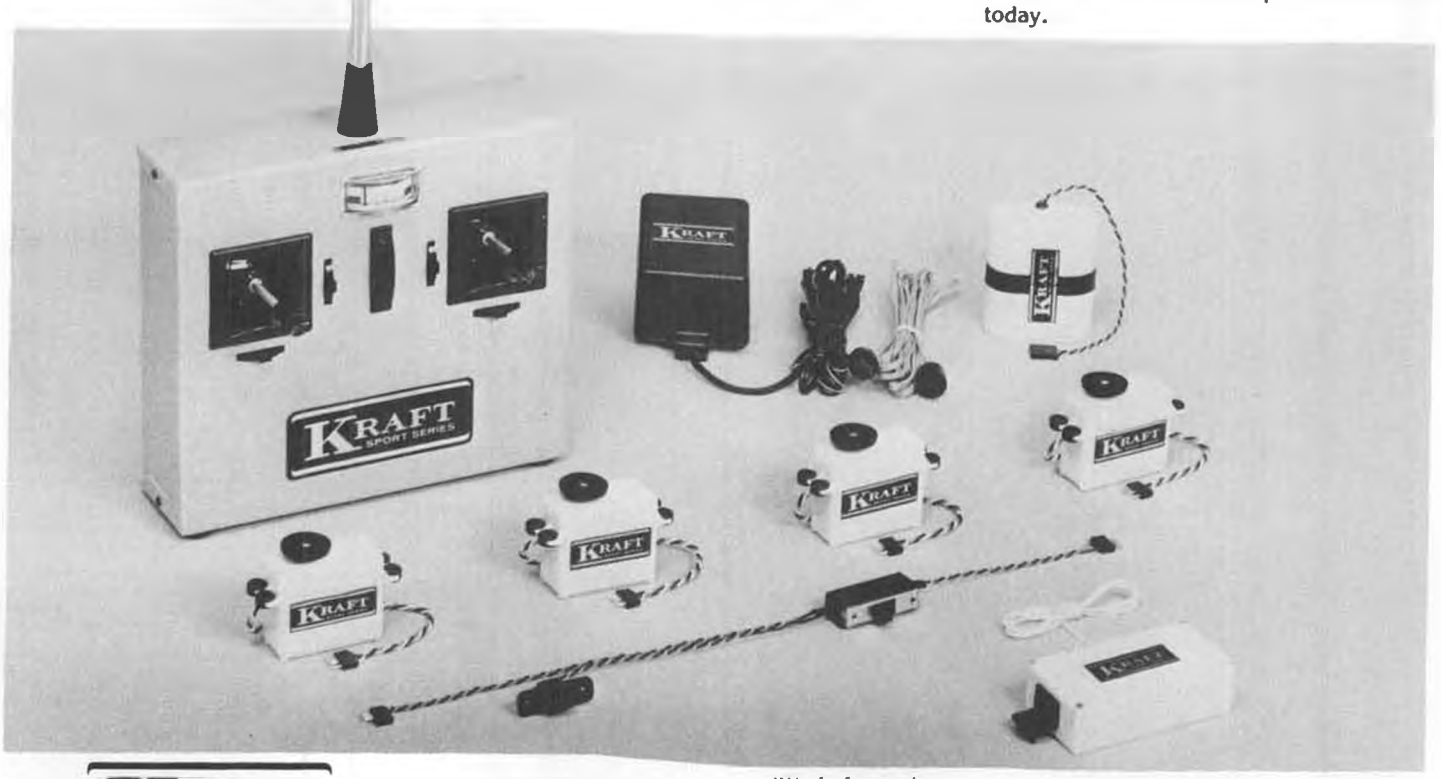
The low price of the KP-4A has not been achieved by reducing quality or performance. Rather it is the result of new design concepts employing the latest in semiconductor devices to produce a simple and easy to manufacture product of outstanding reliability and performance.

From the beginning, the Kraft name has stood for quality, reliability, performance, advanced design, and dedication to customer satisfaction. As a result, the company has grown to become the world's largest manufacturer of radio control equipment. Your purchase of a Kraft product is protected by the sound business judgment, integrity, and financial stability of the company behind it. Radio control manufacturers may come and go, but we will be here tomorrow to service the product we sell today.



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Manufacturer of the World's Finest Proportional R/C Equipment

Skies Of History

F4U-1A CORSAIR

About The Airplane:

The prototype XF4U-1 was first flown on March 29, 1940. The Corsair was to become the most important Naval Attack Fighter of W W II, and remain in production for 13 years, yet its first service trials had ended in failure in its chosen role. It did not reach maturity as a great fighting machine easily. It gave notice that it was to be flown and tested at all times like a true racing stallion, and was an airplane for inexperienced pilots to reckon with. Because it was an advanced design—and had a new and untried high horsepower engine the Corsair required many perplexing and difficult flight tests and service changes before assuming the role of the Navy's first line fighter.

The Chance Vought Corsair had a service life spanning two wars, performing every conceivable mission possible for a military flying machine. The Corsair had a 15 year life span of battle victories unequaled in the annals of aviation history. Vought ceased production of the F4U 1 Model on Feb. 2, 1945 with the delivery of the 4,996th airplane. In air-to-air combat the Corsair had destroyed 2,140 enemy aircraft with the loss of 189.

The Corsair's distinctive whistling war cry, caused by the wing-root inlets for engine air, earned it the nickname "whistling death" among the Japanese.

The Corsair's most unique feature was the bent (gull) wing which was necessitated by the most powerful engine ever installed in a piston engined fighter, coupled with one of the largest props in the world. Thus the inverted gull wing permitted the short, sturdy landing gear required for carrier operations.

The first combat unit to receive the Corsair was VMF-124 and the first 12 machines arrived at Henderson Field on Guadalcanal on Feb. 12, 1943. On Feb. 13, VMF-124 demonstrated their superiority over the Wildcat by escorting PB4Y-1 Liberators all the way to Bougainville. The following day they saw combat for the first time, and the inexperienced Corsair pilots were badly mauled by some 50 Zeros. Two Corsairs, two Liberators, two P-40s and four P-38s were lost in this "Saint Valentine's Day Massacre", but the Corsairs soon gained superiority over the Japanese which was never lost. VMF-124 was subsequently credited with 68 kills against a loss of four aircraft and three pilots. Within six months, all Pacific-based Marine Fighter Squadrons had been re-equipped with the Corsair and the list of aces and the airplanes legend began to grow.

About The Kit:

Designed expressly for 2 channel R/C with plenty of room for just about any R/C up to 4 channel miniature units. Maintaining top quality and simple construction, (even the inverted gull wing), all Balsa and Plywood parts are accurately die cut, Hardware Package including R/C Hardware, full-size step-by-step Plans and a flat finish Decal sheet for Major Gregory "Pappy" Boyington's Lulubelle as it appeared after the Oct. 17, 1943 raid on Kahili Airfield, Solomons. Recommended engine sizes for maximum performance .09 or .10. Minimal performance achieved with stock .049 or .051 Tee Dee. Diesel conversion of Tee Dee Engines is suggested.

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MODEL BUILDER

NOVEMBER

1977

volume 7, number 71

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COVER:Thomas Koster, of Denmark, the newest World Champion in FAI Power, about to launch his "Speed Cream" on one of its winning flights during the competition at Roskilde, Denmark. Featuring a clean, streamlined airframe, a 6% flat bottom wing section, and a Rossi that screamed out RPM's beyond anyone's imagination, Koster's model consistently climbed well above all of the competition. Bill Hartill took this 35mm transparency, along with many other photos, to go with his report beginning on page 66.

"...THREE if by AIR"

(Letters to the Editor)

An interesting by-product of Bob Stalick's "Mystery Model of the Month" is the number of letters that go on to relate the correspondents' experiences with the model which they have identified. The late Paul Gilliam's "Civy Boy," which was the not-so-mysterious model for September, brought to our attention an exceptional number of anecdotes . . . and one particularly interesting fact . . . there are still a heck-of-a-lot of Civy Boys in existence. To wit:

Back in the mid-fifties, I was a member of an AMA club in Manitowoc, Wisconsin, called the Air Pirates. I was in high school at the time . . . a beginning modeler . . . and was much impressed by the older fellows who knew more than I did and flew big airplanes (50, 60, and 70 inchers).

One of these older guys, Bob Smaglik, built the Civy Boy that I have preserved. My earliest memory of this model was spotting it stored in the rafters of the basement at Bob's house. The size, color (red and yellow), and the round fuselage, caught my eye. I tried to get Bob to give it to me at that time, but because of the history of the model, he wasn't prepared to give it up.

Using a Fox .29, Bob had flown the model a few times from the site on the north side of the county airport. The model required very little trimming (I found only one small metal trim tab on the rudder) and one day, towards the end of the season, Bob pulled out all the stops, sending the Civy Boy heaven-bound with the timer out all the way and with no dethermalizer. The model picked up a thermal at about 250 feet and was last seen heading east out toward Lake Michigan. After giving up all hope of ever seeing it again, about a week later, Bob received a phone call from the Ann Arbor Carferry down at the lake front, to come down and pick up his model. It seems that the prevailing westerly winds had carried the Civy Boy some 30 miles out into the lake, where it had come down and was floating right on the carferry's course. The sailors managed to get a light line around the engine and they pulled the model aboard. The model was a little wet, but the well-doped name tag yielded the owners name and address.

This particular Civy Boy has since then never been flown. I talked Bob out of it about 10 years ago and I have stored it until I can get the time to recover it and then it will fly again.

Al Jones
Manitowoc, Wisconsin

The Mystery Model for Sept. 1977 is a design by Paul Gilliam known as the Civy Boy 61.

I have one still in flying condition.

Bill O. McDow
Portland, Oregon

The Mystery Model for Sept. is the late Paul Gilliam's Civy Boy 61. I built one.

I also built the original, the Civy Boy 74, from plans in M.A.N. It was great!

I forgot who kitted the 61. Berkeley, I think. (Nope, Kenhi. wcn)

Don Hambly
Mt. Hope, Ontario, Canada

The September Mystery Model is a Civy Boy. Flew several sizes when it came out.

Chet Orrill
Meriden, Connecticut

I've gotta try to win the Mystery Model contest. It's the first one I've thought I knew since the Amazon.

The September Mystery Model is Gilliam's Civy Boy. When I saw the picture, I tried to figure out why it was so familiar looking. Then I remembered. Jim McNeil flys them, or modified ones with the same surfaces. He probably built them when it was a new model, too. Still competitive.

Terry Rimert
Baldwin, Florida

September's Mystery Model is the late Paul Gilliam's Civy Boy. I built one from the kit in the mid -50's, put an old K & B 29R on it, and flew it around Florida. The engine was too much for it and I wiped it out. The only thing I have left is the rudder on an original A Gas FF.

Stan Smith
Knoxville, Tennessee

Just thought I'd drop a line to guess at Sept. '77 Mystery Model. Looks like a Civy Boy. Anyway, our local hobby shop still has one on the shelves . . . priced the same as some of the new B-C kits up there with it.

Del Adam
Visalia, California

. . .I have the kit to it.

Jack Miller
Springfield, Missouri

. . .Probably the prettiest F/F ever designed.

Jim Thomerson
Collinsville, Illinois

The September Mystery Model is Paul Gilliam's Civy Boy 61. I have one which I built in 1957, and is now being repaired to fly again.

Gerald Knoblauch
Simsbury, Connecticut

The Mystery Model sketch in the Sept. issue of Model Builder sure looks like Paul Gilliam's first Civy Boy. If it is the "Civy Boy", you are correct about it inciting good memories among the "remember when" group. This model reminds me not only of good high performance flying, but also of good friends.

Those of us who built the model and knew the designer will always have pleasant thoughts and respect for both (Paul passed away earlier this year in No. Calif.).

I built and flew the Civy Boy in several versions, including the 1/2A with Bob Holland's Hornet in the nose, and I can still remember the breathtaking sight of the big Anderson Spitfire C.B.'s which Lucky Moody and others put together. As I recall, one of the few real challengers for the days was the Hogan series conceived by Denny Davis (in those days from the San Diego area). By the way, Civy Boy makes a superior .010 or .020 when taken as scaled for the old 1/2A version.

Jose Tellez
Laguna Beach, California

The Sept. Mystery Model is Gilliam's Civy Boy, and although I'll be too late for a "giftie", I would like to share with you my own personal recollection of the Civy Boy series.

In 1949 (or was it 50), the Nats was held at the NAS between Dallas and Fort Worth, and I was there to fly in B speed and A F/F. Not being too busy competing, I was able to watch Gilliam and his friends spend an afternoon trimming. I have NEVER seen such destruction. They flew all sizes of Civy Boys, and at afternoon's end, only a few remained intact for competition. I can still see those beautiful yellow ships going into the concrete runways, one after another. Even the ones that survived and were pronounced trimmed, to me to be still on the ragged edge. Now I realize the Civy Boys earned a reputation (good) on the West Coast. I've even built a few myself that lasted. But on that day at the Nats, the reason for a good reputation was not evident.

In my opinion, the Civy Boy has the ultimate classic look. Far more than even the Zipper or Sailplane! And if someone had utilized a more forward C.G. and VIT system, they would be competitive today. Paul will never by forgotten because of this design. If you would like Stalick to whip some exotic variations of the Civy Boy on his readers, suggest the CIVY BEAU or CIVY HEARSE.

Bill Lovins
Denver, Colorado

Your September "Mystery Ship" is no doubt a CIVY BOY!

Thought you might enjoy seeing my 9 foot span MANKILLER. Built it when I was 15 or 16, scaling the plans from MAN wrong. . .

Powered by a Hornet 60 with ignition, it took off VTO before it was called that! 18 inch chord and 7 foot fuselage, it weighed less than 7 lbs. (FF rule at the time as I recall).

Model met its demise soon after the shot was taken, in the haste of the contest, my mechanic failed to fill the tank. The engine quit less than 100 feet AGL, and the resulting tail slide out of a stall broke the fuselage at a point where this inexperienced model builder made all the longeron splices!

Had a 1/2A Civy Boy that wiped out every East Coast contest I entered. . .

Gene Thomas
Melville, New York

* * *

Dear Bill,

PLEASE don't do that again. I was having a fine, relaxed evening reading the July issue when I turned to page 39. There, staring at me full face, was that picture at the top. It's a good thing I am in good health. A surprise like that could give a person a heart attack. You could at least have had a statement on page 37 . . . "WARNING: DIRTY DAN'S PICTURE ON NEXT PAGE. Unannounced viewing may be dangerous to your health." It's bad enough to have to read all that garbage he writes, let alone look at him.

All seriousness aside, I enjoy MODEL BUILDER very much. I am following closely the discussions on mammoth scale and the organization of a national scale organization.

Now, please give me some information. I would like to know more about the adjustable curve from Hoyle Engineering that was mentioned in Dr. Fogel's Soaring column in the June issue. At least a complete address so I could write. Thanks.

Keep up the good work, and please keep Dirty Dan in line.

Dick H. McLean
Oklawaha, Florida

The truth can be known now. Dirty Dan not only hides behind his beard, he also hides behind other people's beards. The visage which almost gave you a coronary actually belongs to the infamous Rich "von" Lopez. Dan cooked up this who-is-who bit to avoid physical injury while attending the 1977 Nats. We understand that Rich is doing quite well now, and will soon be up and around.

Hoyle Engineering's address is Fillmore, California 93015.

* * *

Dear Bill:

I read your comment in John Pond's old-timer column about the trend in the Texaco event. I must say I agree with you although the temptation has bitten me to go after the exotic ignitions and the 4-cycle engine. I have tried them all in my Lanzo Record Breaker and have now gotten the model back to its winning ways . . . by going to my original Anderson Spitfire with a simple ignition system and as little weight as possible.

Now I am concentrating (successfully) on my first love: thermal hunting and flying.

Thank you for bringing us back to the original intent of Texaco ... to stay up as long as possible regardless of the amount of fuel . . . and get your model back.

Don Bekins
San Francisco, California

Loren Schmidt, of Elk Grove, CA, also wrote in to say he agreed 200% with our argument that the Texaco and/or fuel allotment competition in R/C Assist is fast becoming an engine duration contest. If we want it to remain a test for a well-trimmed model, and a flier skilled in finding lift to keep it up there, let's set the engine run at a reasonable time limit of, say, 5 minutes, and get back to FLYING competition.

• • •

Dear Bill:

It has been my custom to go by one of the local model shops to buy the latest Model Builder magazine when it comes out. I dropped by two of my favorite shops yesterday and learned that both had sold their entire supply as soon as they were delivered (by the postman). Later, I called some of the other shops and learned that they too had sold out immediately to one man.

This morning a custom delivery agent asked me to sign for a package. Upon opening the package I found a Model Builder magazine autographed in bold longhand by Bert Striegler. Worse still, every place that Striegler's name appeared in the magazine was underlined in gold leaf. Apparently, the same thing happened to several other local modelers, and I expect modelers all over the country will be subjected to the same embarrassment. I spoke to Beverly, Bert's wife, who said that Bert had bought up all the magazines in Houston and surrounding cities.

I haven't gotten into the article yet, but I was a little surprised that Bert was so fortunate. As I remember, the original used a stabilizer and elevator from a Lil T, two arrows from a bow and arrow set Bert was given by his psychiatrist, and I don't know where the wing and pod came from As I recall the original was named Uranium, not Boomer.

Here is my check for a subscription. From now on, I want to be sure I can get your fine magazine without all this grafitti.

Dan W. Lakenmacher
Houston, Texas

With subscriptions pouring in from all over the Houston area, it is apparent that Bert has given us a great new idea for increasing circulation. Perhaps we can get Austin Leftwich to buy up all the November MB's in Richmond, Virginia.

Now lessee . . . who do we know in New York City. . .?

• • •

Dear Mr. Northrop:

Looking for anyone interested in Peanut scale in the southeast part of Wisconsin (Racine-Kenosha area). I am a physical education teacher and can get a large high school gym 2 to 3 times a month in the evenings.

Thank you,
Doug Hinkel
Rt. 3, Box 20
Salem, Wisconsin 53168

• • •

Dear Bill,

I have been with you since your start of publication, and must offer congratulations on a job well done by you, and your magazine's staff. It must give you a deep sense of satisfaction to have something good "stay on" in this ever changing world.

I can identify with that feeling, as the club I belong to, The Nor'Westers Free Flight Model Airplane Club, Portland Oregon, recently celebrated its 10th anniversary. In this day of R/C (that's not a knock, just a statement), that's quite an accomplishment. I'm a charter member, and had the honor of giving the club its name. It has to do with our part of the country, and also was a nickname given to our prevailing wind by sailing ship captains, who visited this beautiful part of the world. We are extremely lucky to have an 800 acre flying site just 20 minutes west of Portland, and it's the scene of several fun, and highly competitive contests per year. Membership has always been good, and currently includes some of the best free-flighters you'll find anywhere (i.e., John Lenderman, past national champ, two time member of the U.S. Wakefield team, and holder of several national records at one time or another; Dan Sobala, one of the best A.M.A. power fliers of the past twenty-five years; and Wayne Drake, current Wakefield winner at the U.S. Free Flight Championships at Taft). The members encompass all walks of life, and professions such as; dentist, cab driver, disc jockey, sign painter/artist, etc. We meet once a month at a local hobby shop, which is a great setting for meetings, and what the group lacks in enormous size, it makes up for in tremendous enthusiasm.

Well thanks for listening to my burst of pride, and let's hope that good things like Model Builder, and the Nor'Westers are still going strong ten years from now.

Ted Rogers
Nor'Westers M.A.C.
Portland, Oregon

Amen!

• • •

Hello Bill:

I have the March 1977 issue, Volume 7, No. 63, which contains a photograph of an uncovered WACO 10 built by one Joe Hankes of Beaver Dam, Wisconsin. It is beautifully done, and I am wondering if it is possible to get the gentlemen's home address or phone number, in order that I may get in touch with him about the aircraft.

I intend to do an R/C version of same in 2 inch scale, and this gathering of information on the subject seems to be very rare. What I need is a three-view in scale, 1/4 or 1/2, showing some kind of internal construction, dimensions, span, length, etc., color scheme of some kind, since I imagine color shots of these birds are rare, and whatever other information he would be kind enough to let me have. The Golden Age has arrived in modeling, and I have been to Rheinbeck in June and to Endicott in July, and they were both loaded with entries.

Perhaps in your archives there would be some helpful data that I could use, since your Travelair 2000 was such a big hit. Perhaps I should do that one and stop knocking myself out!! Might be an idea Anyway Bill, any or all information you can get to me will be greatly appreciated Two wingers forever!!!

Jack Perrilla
Hartsdale, New York

Sorry, Jack, we no longer have Joe Hankes address in Beaver Dam, Wisconsin. Why not try phone information? If you're lucky, he may be the only Joe Hankes in town!

American Modeler had 3-views, with structure of the WACO 10 in its June, 1961 issue. We're also pretty sure there was a 3-view in an early M.A.N. Maybe someone out there can help you on this.

Not to put down Willis Nye's excellent drawings, I think Pete Westborg's T.A. 2000 drawings are based on more accurate information. See his ad in this issue and/or check our July 1975 issue in which we featured the 2000. ●

Gene Thomas had some proportional divider trouble when he scaled up his "Civy Boy" from MAN plans, in the 1950's. He does better now, with his excellent Plan Kits, "Classic Models".

Getting desperate to resume modeling, MB's Editor has set up shop in a back room at the office. A few minutes here, and a few minutes there, but it's great to cut balsa and peel glue again.

from Bill Northrop's workbench . . .

INSIDE DOPE

Jim Richmond, North Carolina, set a new record of 42 minutes, 6 seconds in the process of putting himself on the 1978 U.S. Indoor Team during finals in Akron, Ohio, on August 20 and 21. A previous flight of 40 minutes, 23 seconds gave him the only two flights over 40 minutes at the finals. His third best flight was 37:48. Other modelers to make the team were Bill Hulbert, Ohio, and Dan Domina, New Jersey. Ray Harlan, Massachusetts, (Blue Boomer, Sept. '77 **MB**), placed fourth, and became team manager.

Rains came in the 5th round, knocking 3 planes out of the air and barring further flights (no, dummy, the roof leaked!).

Out of 23 fliers who qualified, 20 flew at the finals, and competition was tough, with 51 officials flights recording over 30 minutes each! Report from Contest Director Ed Whitten.

SAVE THAT BLADE!

The following was written by Carter Watts, President of the Utah State Aeromodelers, and published in the club's fine newsletter, "Dope Bucket." It may prove useful to you.

Have you ever noticed that no matter how careful you are to save a new modeling knife blade for cutting soft balsa only, it seems to get a little scratchy and dull after a short time of usage? Have you ever noticed that no matter how carefully you sharpen the blade on the smoothest stone available (an Arkansas stone), the blade still does not cut through the end grain of balsa as smoothly as a new blade? The reason the blade does not cut as smoothly after a few minutes use, or after resharpening, is that the balsa has very small impurities in it (small mineral deposits), and the impurities put microscopic nicks in the edge of the blade which are too small to see with the naked eye, but not too small for the balsa to feel, which makes the blade feel "draggy" as it cuts through the balsa, especially the end grain. Of course, honing on a stone puts fine scratches on the sides of the blade which are as aggravating to the balsa as the microscopic nicks. Want to know how to put the edge back on the blade as sharp as or sharper than a new blade?

Simple Get a leather strop like grandfather used to use to put the final edge on his razor. Better yet, get an old leather belt (the one you grew out of, dad) and cut off about a 10 inch length. The width doesn't matter, but about 1-1/2 inches is ideal. Glue the length of leather to a strip of wood with white glue, gluing the smooth side of the leather to the wood. Now get a stick of metal polishing compound, such as White Rouge, Green Rouge, or Jewelers Rouge, and rub it all over the side of the leather until the leather has a uniform coating of the compound on it. Now we have a tool that will put a super edge back on the blade of our Uber-Sciver or whatever blade. The procedure now is to drag the blade back and forth across the leather, with the blade held almost flat against the surface of the leather. Raise up the leading edge" of the blade just enough so that the edge of the blade is rubbing real well. About 15 to 20 strokes will put a polished edge back on the blade that will be equal or superior to the edge of the blade when it was new.

This stropping technique is used to put a super edge for cutting balsa on an already sharp edge. To try to put an edge on a blade that has been used to cut plywood, hardwood, or scrape off hard glue, would be an exercise in futility. If the edge has nicks or a dullness that is visible to the unaided eye, it must be honed on a Washita or Arkansas stone before it is stropped on the leather. A super-sharp knife edge is sure nice for cutting the ends of ribs for exact fitting between leading and trailing edges without crushing the rib ends.

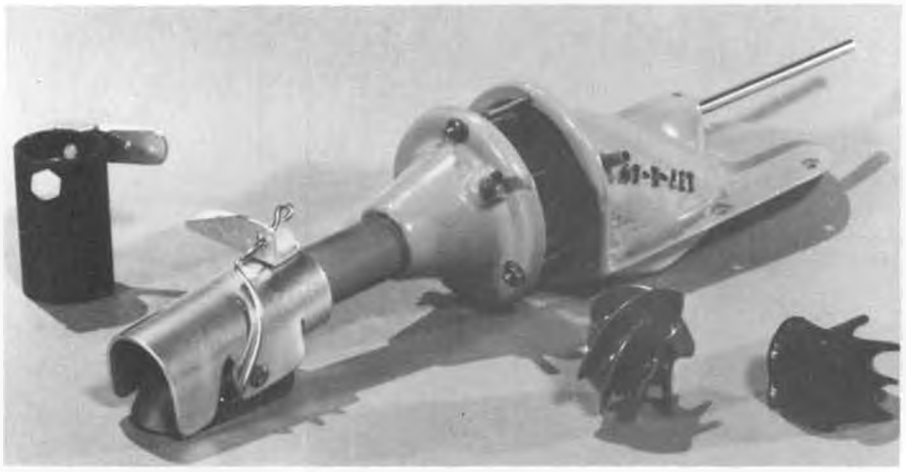
SPECIAL **MB** AWARD

Model Builder's extra-special "Yeuch" Award goes to Engineering News-Record, Sept. 8, 1977. On page 16 of this publication there is an article describing the use of a radio-controlled model airplane to carry 220-KV transmission cable pilot lines to 6 towers as far as 2,300 feet apart along a 12-mile section of densely forrested ravines. The job was done for the Shinto Electric Works Co., putting up cable for the Chugoku Electric Power Co. in the Okayama prefecture of western Japan, and at a tremendous savings over the cost of using helicopters.

According to the article, the model was launched from a catapult located in a small clearing near the initial receiving tower. A 2mm diameter nylon pilot string was pulled from a drum by the plane. When the plane reached the next tower, a brake was applied to the drum, causing the string leader to pull loose

Continued on page 111

OVER THE COUNTER



Jet drive for model power boats, by Hilbig Industries.

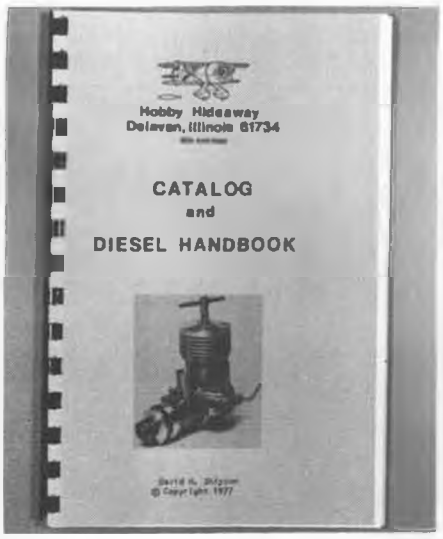
Power pod for Half-A engines, produced by D&R Products.

• Scale modelers, and airplane fans in general, I'd like you to meet some of my friends. First, a friend of long standing, "Old Shakey", Douglas C-124C "Globemaster" S/N 21004, like myself, late of the U.S. Air Force. This airplane and many of her sisters and I shared many flying hours enroute to such wonderful and exotic places as Rio, Christchurch, Brussels, Hong Kong, and Calcutta; and to keep things in balance, some of the "nice to visit but I wouldn't want to live here" places, like Thule, Greenland, the Aleutians, and Canton Island, the latter so small that the wings hung out over the water on both sides.

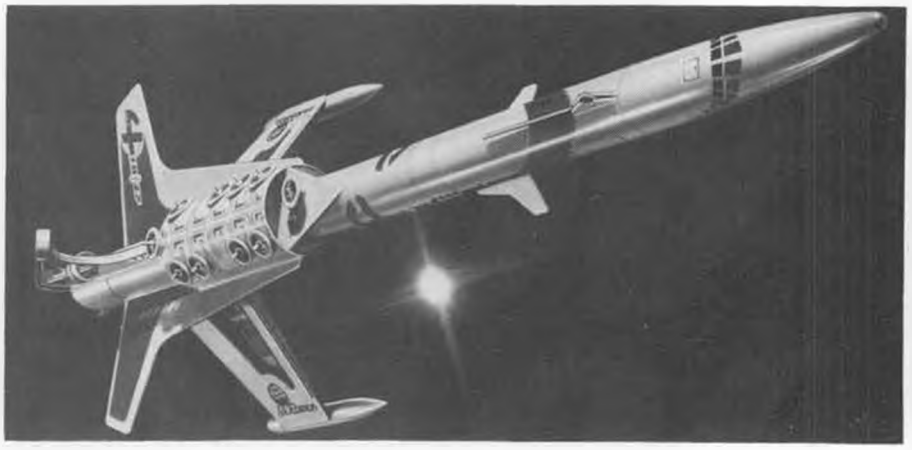
One Zero Zero Four, as we called her, is also retired, and lives with some of my new friends, the folks who operate the Pima Air Museum, Wilmot Road Exit, Interstate 10, Tucson, Arizona. They now claim the third largest collection of factory-built aircraft in the country, and is surely destined to be the most important air museum west of Wright Patterson's USAF Museum.

At Pima, you'll see such greats as General Eisenhower's "Columbine" C-121, and the "Pima Paisano", a B-24 that last flew with the Indian Air Force, which was later donated by the government of that country, and flown back by a volunteer crew. You'll see an F6F Hellcat that spent 26 years in the bay off San Diego, and almost 100 airplanes, mostly military, from a Lockheed L-10, the oldest on display, to modern missiles and rockets. Quite possibly, your future scale project also lives there, in 12 inches to the foot scale. A complete list is available from them. Bear in mind that most museums exist on donations, so at least send a SASE with your request.

And like all museums, this one welcomes contributions of items for display: books, equipment, photos, almost anything having to do with



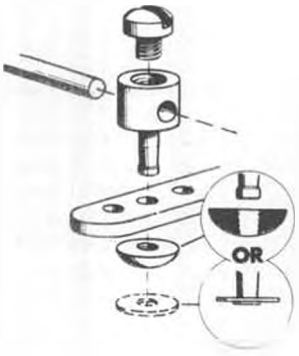
Catalog and Diesel Handbook, by Hobby Hideaway.



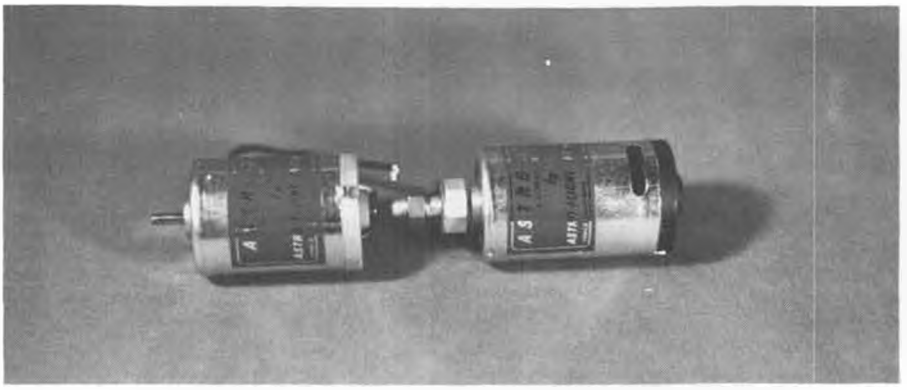
Centuri's latest addition to its Super Kit line, S.S.V. (Satellite Service Vehicle) Scorpion.

Newest Jensen tool catalog.

Heathkit's Fall catalog is out. Mention MB when you order free copy.



Du-Bro has improved its E-Z Connector.

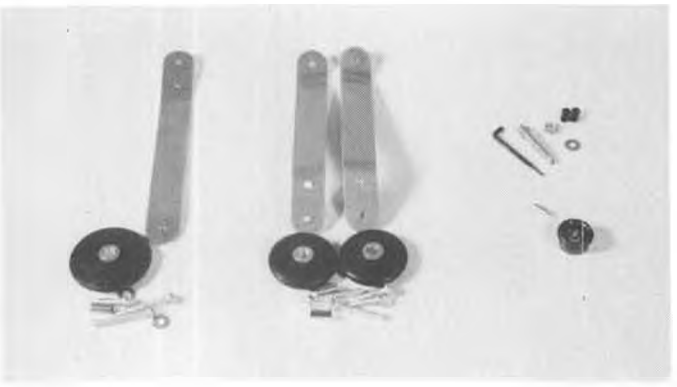


Replacement motor for Jerobee-style cars and 075 aircraft motor are latest electric power units from Astro Flight.

airplanes. And quite possibly they will make room for that scale airplane that you have retired from active competition and would like to share with the rest of the world. Address your inquiries to Robert E. Fawver, Director, Pima Air Museum, P.O. Box 17298, Tucson, AZ 85731. Maybe the two of you can get together and your airplane friend can have a home with my friends in Arizona.

In the meantime, if you go to the Winter Nats, or to Tucson for any other reason, bring your camera and tape-measure and spend a day at the Pima Air Museum. Say "Hi" to One Zero Zero Four for me, give her a pat, but be careful where. Her day might be some where in the past, but she is still every inch, a LADY!

Latest Half-A engine is the new Testors 8000.



New products from Kustom Kraftsmanship; Slow Rat or Combat and Goodyear landing gears, pressurized backplate, and ball check valve.

Watertight Output Bushing for model boats, and seaplanes, by Robart.

* * *

An already good thing made better . . . Du-Bro E-Z Connectors, now with reusable Nylon Snap-ons. The E-Z Connectors, used to connect linkages to servo arms, have been around for some time, and are popular because of the ease of installation and the infinite amount of push-rod adjustments that can be made simply by loosening a screw.

In use, the brass pin of the connector is inserted in the servo arm hole, a washer is added, and then the pin is peened over the washer. The improvement now is that in place of the washer, a nylon snap-on retainer is being furnished, that can be removed and reused as many times as necessary. The washer is still furnished, however, and can be used for those permanent installations.

Still only 98¢ a pair, Catalog No. 121, from your friendly hobby dealer, or write direct to Du-Bro Products, Inc., 480 Bonner Dr., Wauconda, IL 60084.

* * *

Quite probably, nobody knows some of the things that I consider interesting, and would like to learn more about. For example, in the 47 years that Testors has been making hobby products, just how many small engines have they produced?

However many it is, they must have learned a thing or two along the way. All of this expertise has just been put to work, and the results are the new Testors 8000 .049 cu. in. (.819cc) displacement reed valve engine. The weight barely exceeds 2-1/4 ounces (including prop furnished), yet it is claimed to develop .089 BHP at 16,000 RPM, using 15% nitro fuel. Up to 40% nitro can be used, for increased power operation.

The engine is designed for firewall mounting, and features an integral stunt tank for sustained inverted or combat operation. It comes with a recoil starter that does not require manual engagement, merely turning the prop clockwise will engage it. A muffler and needle valve extension are included.

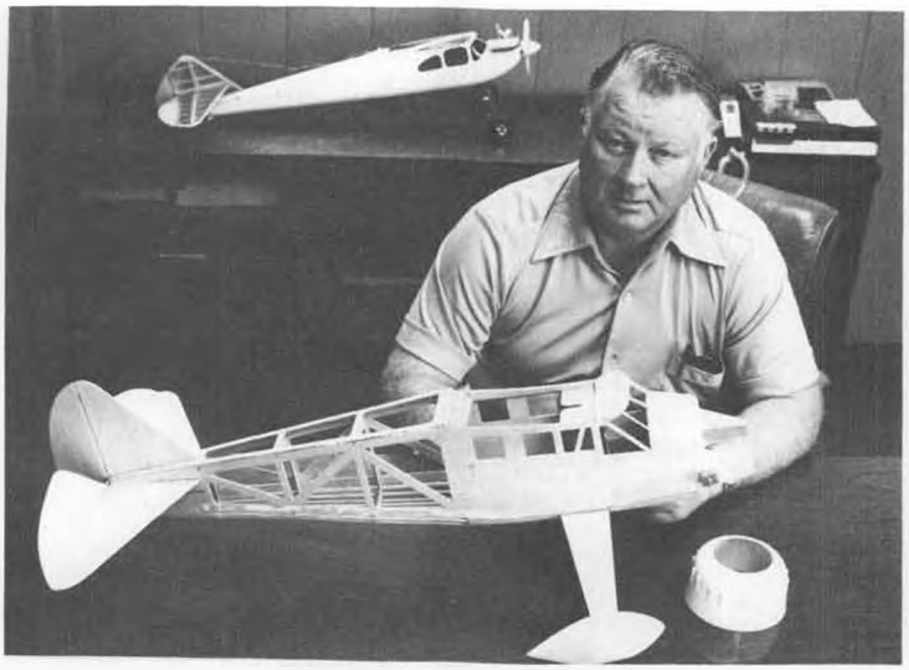
It uses a matched twin bypass cylinder and piston that is available separately, including the ball joint connecting rod, common with small engines. The glow head is very reasonably priced at 75¢, the 5-1/2 inch diameter, 3-1/2 inch pitch prop is 50¢. In fact, all the replacement parts, listed on the instruction sheet number and description, are properly priced for this class of engine and its intended use.

At $11, the 8000 engine represents good value for the beginner as well as the experienced builder and flyer. Look for them wherever you do your model shopping, or inquire from The Testor Corp., 11500 Tennessee Ave., Los Angeles, CA 90064.

* * *

Does a low-cost electronic stopwatch, accurate to 1/100th of a

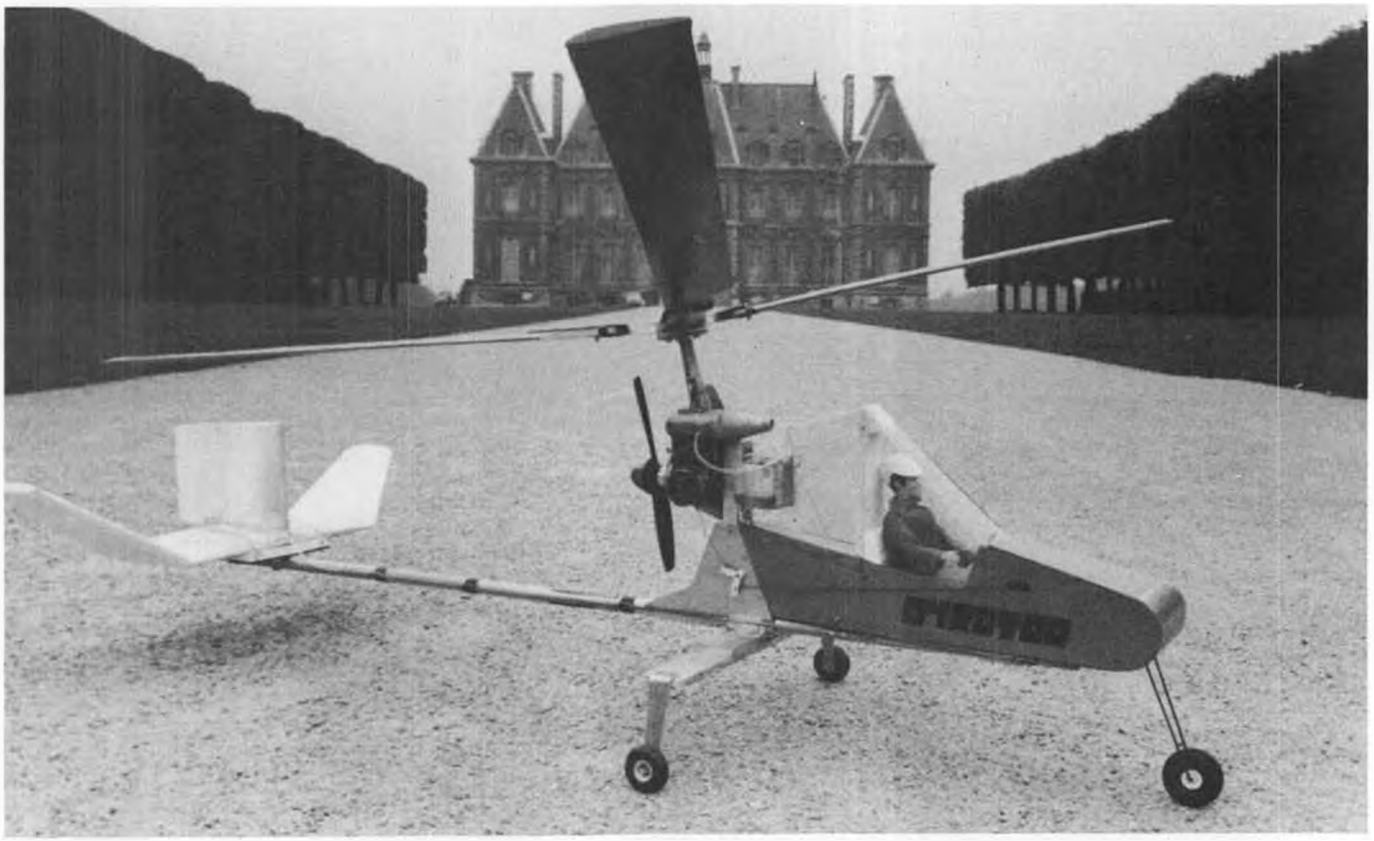
Continued on page 105



No more World Engines products at your local grocery store . . . John Maloney has purchased ownership of his company back from Consolidated Foods.

Rolls Royce dummy engine shell for .40 to .60 powered hydros, by Pinckert Custom Boats.

Douglas C-124C "Globemaster" at Pima Air Museum, Tucson, Arizona.



One of the very few stable and successful, single-rotor, true autogyros to fly under radio control, by Georges Chaulet, Antony, France. Photo taken in front of the Chateau de Sceaux, five miles south of Paris, residence of France's King Louis XV.

'REMOTELY SPEAKING...'

R/C News, by BILL NORTHROP

• Have you ever thought about how unconfusing it might be if we decided to use one set of rules for Pattern competition?

"Watinell you talkin' about," says a voice from the back of the room. "We gotta AMA Rule Book, and we're goin' by the book."

Well, that's just fine, except that, time after time, the AMA book says to follow FAI rules . . . and then in other places it doesn't say to follow FAI rules. Consequently, at any given contest where Masters class competition is stirred in with Novice, Advanced, or Expert class competition, you'll find that the two sets of rules are about as compatible as oil and water, i.e., how much time to start an engine, what's an attempt, how many attempts, how many (if any) free passes in front of the judges, direction of maneuvers, etc.

Take for instance a case that was reported to us recently. After so many rounds of a contest had been flown with the wind from, say, left-to-right, the wind changed and blew right-to-left. The fliers wanted to change takeoff and landing direction, but fly the air maneuvers in the direction they had flown earlier because they were used to it (That bears another comment. The mark of a good flier is his ability to perform manuevers from either direction). The C.D. said, "Nothing doing. If the fliers changed direction after takeoff they would get all zeros." The fliers argued that the sequence of maneuvers was being followed, and if you could switch at the World Champs, why not at this contest?

First, let's look at the AMA rules. Nowhere does it say that a free pass is allowed as an option between takeoff and the next maneuver, or between the last maneuver and the beginning of the approach. On the

Georges Chaulet with his Gyro 76. This model has Enya .35 engine, throttle and rudder only, weighs 3 pounds. Profile cabin of styrene.

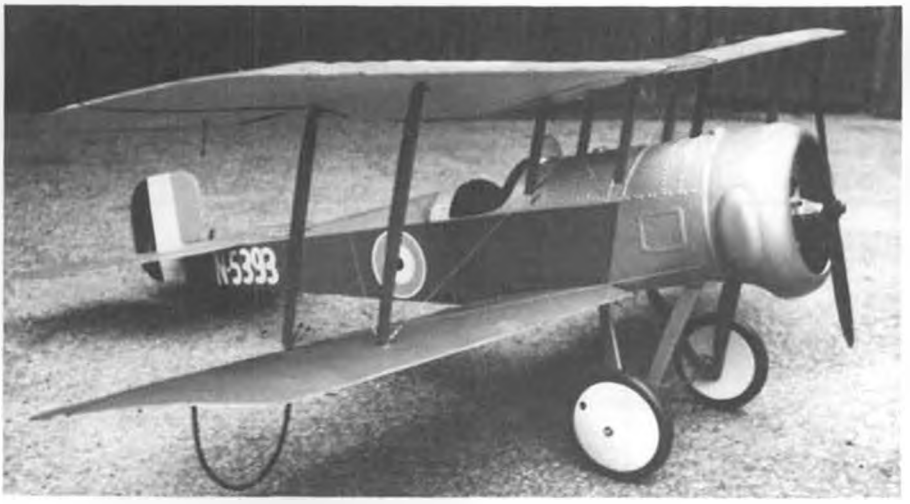
The 1977 Gyrotor from another angle. Note complete lack of wings. Foam tail surfaces. We'll have an article by Georges in near future.

other hand, nowhere does it say that you can't take as many free passes as you want, between any maneuvers! It only specifies that they must be done in the sequence listed. However, the *direction* of each maneuver is also specified. Therefore, if you take off from left-to-right, you have established that direction as "upwind" (whether it actually is or not). Once established, the rest of the maneuvers must be done in that relationship . . . upwind is left-to-right, and downwind is right-to-left. In this particular instance, the C.D. was correct, because, although the rules do not clearly state that sequence *and* direction are of equal importance, the intent is quite clear.

Now then . . . All of the above is correct for Novice, Advanced, and Expert fliers. But what about Masters fliers? In an AMA contest, the Masters fly the FAI maneuvers, but otherwise, they are under AMA jurisdiction. In an FAI contest, such as the World Championships, the fliers are completely under FAI jurisdiction.

According to FAI, the direction and sequence of maneuvers, related to the wind, etc., is controlled by Section 13, Page 76 of the AMA '76-'77 Rule Book on FAI Rules, the second paragraph. To save you looking it up, it says that the flier has an optional pass after takeoff, and can start the Figure M in either direction. Another "free pass" is allowed after the Spin and prior to beginning the Rectangular Approach. It also states quite clearly that other than those two exceptions, a maneuver must be performed on each pass and in the proper sequence.

Woody Woodward and his Cruisair Mk 2 "800", classic R/C design. Plans available. Write to Woody at 4209 Elmer Ave., Studio City, Ca 91602. Span is 65 inches. Looks bigger.

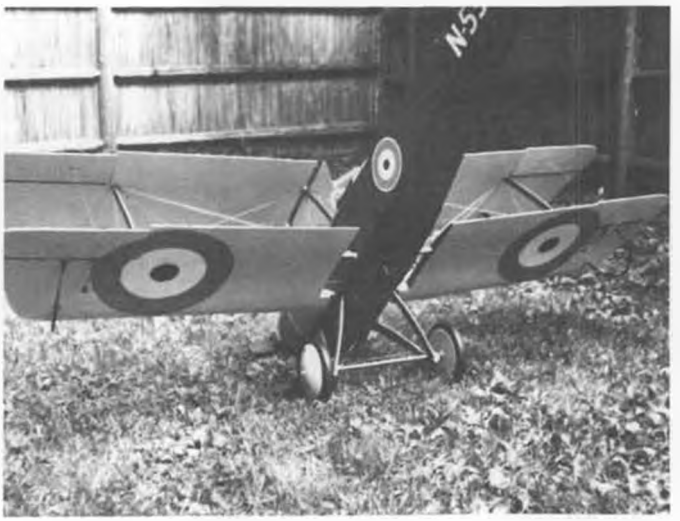


Quarter-scale Bristol Scout, built by Hank Iltzsch, Seekonk, Mass. Power, a bit marginal, is a Profi .76, turning a 16 x 4-1/2 prop at 9000. See text about big engine situation.

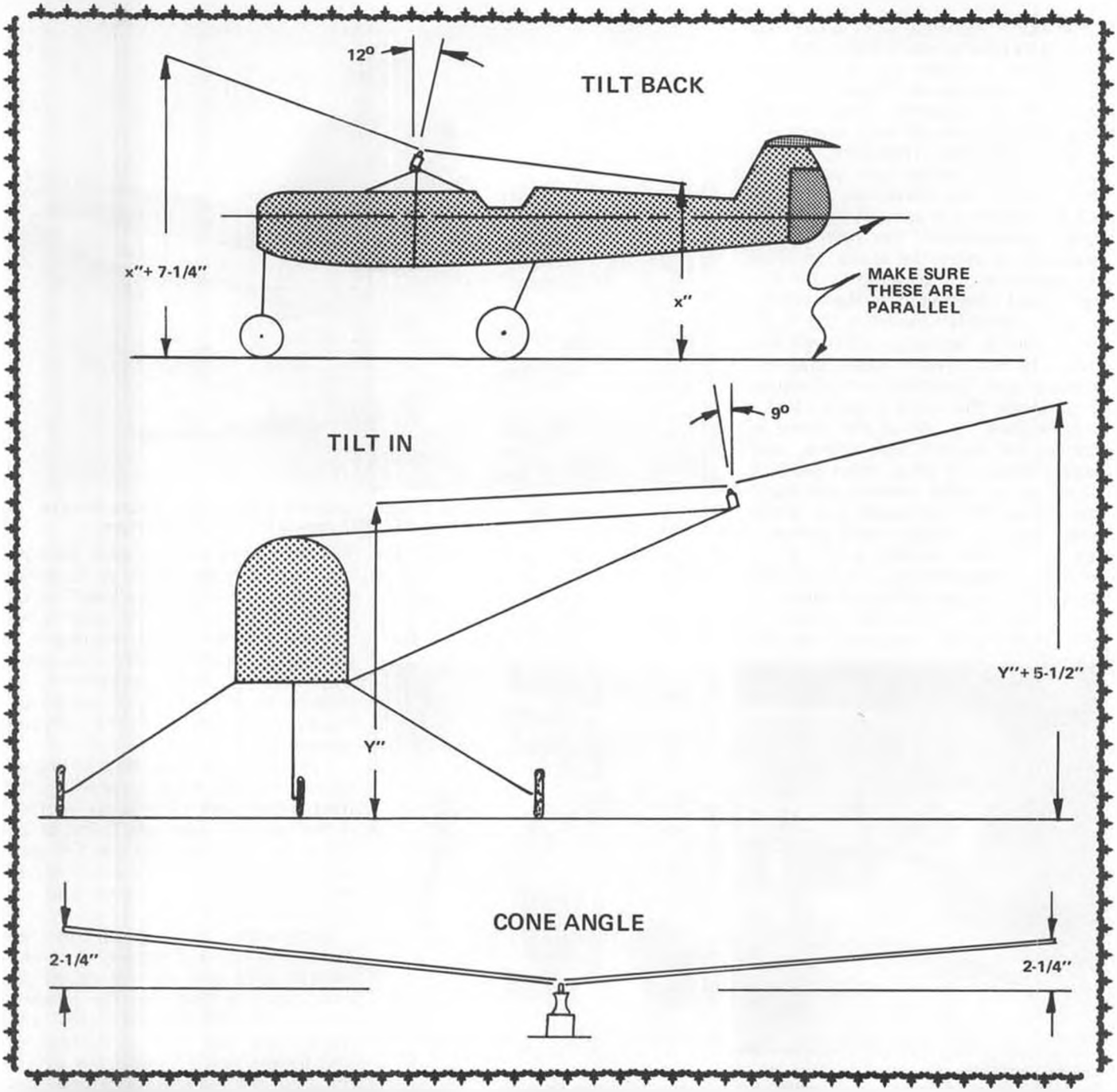
However (Is this beginning to sound like the recap preceding the next installment of a soap opera?), if the Masters fliers are flying at an AMA contest, they do the FAI pattern maneuvers, but are subject to AMA rulings on direction and sequence of maneuvers!

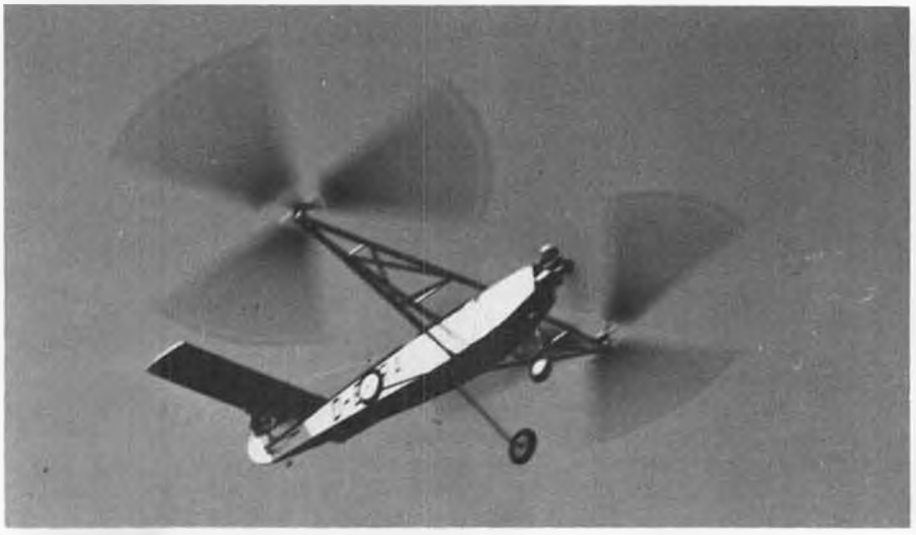
What's the answer to all this confusion? In our estimation, a careful switching of rule control could get everything in line. For the Masters Class, use 100% FAI rules and maneuvers. For Novice, Advanced, and Expert, use FAI rules for everything but the maneuvers. Simply stay

Close-up shot of Hank's Bristol shows off its AMA Scale detailing. AMA engine limit is 1.25 cu. in., but none this size are available.



Bottom view of Bristol reveals cut-aways in lower wings for pilot's visibility. Scale airfoil used. Hank plans to go to reduction system.





Skip Ruff's FA-61, in slow, stable flight, is an easy target for a photographer. Ship has all the characteristics desired of a trainer. A true autogyro, it has no wings, depends entirely on rotors.

with the maneuver lists we now have for Novice, Advanced, and Expert, skip the K-factors, as we do now, but in all other aspects, go with FAI. That's really all there is to it. In one respect, it's a complete switcheroo, but in reality, everything pretty much stays the same . . . except that the grey areas of overlapping AMA and FAI rules are eliminated.

Let us know how you feel about it.

ROTOR RAMBLINGS

One of our most popular R/C construction projects was the Focke-Achgelis 61 autogyro (a *real*, wingless autogyro, not a conventional fixed-wing aircraft with a windmill on top) assigned by Skip Ruff, and published in the April 1975 issue (Plan No. 4751, price $3.50).

Having flown the original model

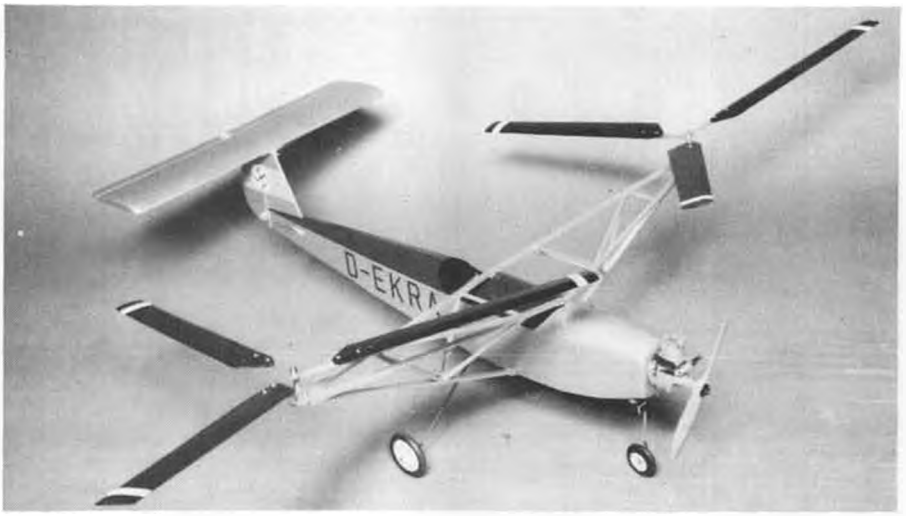
ourselves, we can vouch for its extremely stable and slightly different flight capabilities. Still, nothing has ever been developed that couldn't be improved on, and we have just received the following changes and recommendations from Skip. They, along with the sketches, will be added to the full-size plans and article reprint for the benefit of future builders of this fascinating and out-of-the-rut aircraft.

F.A.-61 MODIFICATIONS AND RECOMMENDATIONS by Skip Ruff

The following is a list of changes and recommendations for the FA-61 autogyro. The latest model I built used the specifications listed here, and the model "flew off the board", so I highly recommend their use. No structural changes are needed.

First, use the building sequence and especially the method of rotor adjustment, except as noted below.

Adjust the cone angle to give 2-1/4 inches of dihedral of each rotor blade tip. The pitch remains at −3 degrees. Now mount the rotors on the booms and shim the Cox cases to give a difference in height at the tips of the blades of 7-1/4 inches in the fore-aft position and 5-1/4 inches in the left-right position. Use the same method of adjustment as outlined in the article, making sure that the centerline of the fuselage is parallel to the surface you're measuring from. Block up the wheels if necessary. The center of gravity is 1/4 inch behind that shown on the plans with the fuel tank empty. I use an O.S. .35 turning a Top-Flite 9 x 6 wood prop. The engine has 5 degrees down and 4 degrees right thrust.



The semi-scale Foche-Achgelis FA-61, designed by Skip Ruff, and published in the April 1975 issue of MB, plans $3.50. Latest improvements at left and described in text. Very easy to fly.

This Quadra powered, quarter-scale Great Lakes 2T-1A, was built by Charlie Palermo, Houston Texas. Unfortunately, before you get too excited, no formal plans were drawn . . . dammit!

A 16 ounce fuel tank provides 15 to 20 minutes of flying time on Charlie's GLT, about 10 cents worth of gasoline. Compare that to glow fuel! Engine is easy to start, doesn't bother radio.

If your model has a tipping tendency when on the ground, bend the main gear forward until there is very little weight on the nose wheel. Do all your test flying in dead-calm air, if possible, and make all takeoffs and landings straight into the wind. Once the rotors are set properly, don't be afraid to fiddle with the C.G., thrustline, or elevator incidence, as you would a conventional model when making final trim adjustments. Most importantly, keep it light. Mine weighs 3 lbs., 6 ozs., ready to fly. If you have any further questions write to me at 128 Lexington Ave., Taft, CA 93268.

DRAGONFLYMANIA

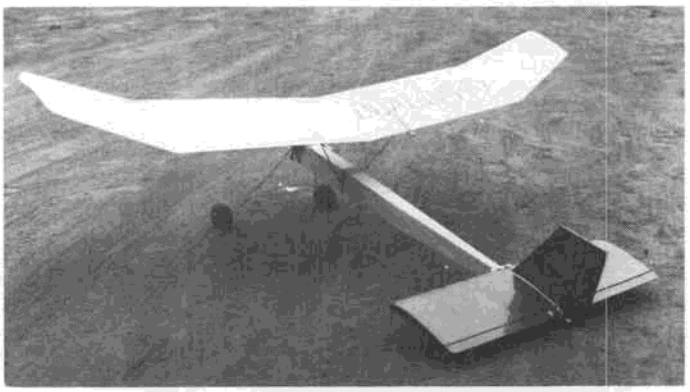
A strange disease has hit Poway, California. Here's Paul Denson to tell you about it.

It appears that Dragonflymania has hit Poway. We have three, evidence the pictures, as of right now, with three more on the boards. The pictures were taken at the regular Sunday morning meeting of the Poway Pilots at their field. Once a month, they schedule a contest and each type of flight gets its chance; control line, free flight gas, then free flight rubber, then R/C.

There is a rule at the field that the engines may not be started before 9:00 a.m., so that gives everyone a chance to fly the rubber jobs and hand launched gliders before 9:00. The good thing about the club is its versatility, there is someone flying something different every Sunday. The field is dirt and the President always drags the field prior to 9:00 a.m. It is the kind of dirt that gets

Horacio Almeida Silva, of Porto, Portugal, one of our overseas friends who we always see at World Championship competitions, gave us this photo while we were in Springfield, Ohio. Note his club's frequency/impound stand, and the variety of aircraft. Horatio, avid photographer, is at far right.

Paul Denson, at left, and some fellow club members in Poway, Calif., with their fleet of MB Dragonflies (Plan No. 2761).



Paul's "Dlagonfry" (He never could get anything straight!). A very popular ship for relaxed flying, it was designed by Tex Newman.

all over everything; guess that is part of the fun; even the hand launched gliders get dirty.

I tried a club that is interested in just one type of flight (The Torrey Pines Gulls) and I found that became monotonous. Here, a pattern contest is one in which the pilots fly 6 corners around the field then lands. A spot landing contest is one in which the winner's three attempts added together is over 100 ft., but it is fun. Really, it is a young club, not only in experience but young in heart. We have a control line ring (everyone brought out lawn mowers) around which there are usually a bunch of kids. The R/C bunch is all types; a couple of kids, a bunch of jet jockeys from NAS Miramar, and a few of us old-timers. Two or three of the guys are members of the Orbiteers, and they bring their rubber jobs out to get practice in between the Orbiteers contests. Everyone has fun and gets dirty. Still a bunch of kids.

Other than distracting the viewer, Nanci Hopwood can do no harm to Paul's Dragonfly.

The Dragonfly is our Plan Number 2761, price $4.00. It was designed by Tex Newman.

BIG ENGINE . . . BIG PROBLEM

When we introduced the Mammoth Classic Scale idea, there was one basic premise that, apparently, we failed to put across. Our idea, which we brainstormed into existence together with Le Gray, was to emulate the approach used by rubber scale modelers of that same classic era, in the years before World War II. The seed was planted when we both first had the opportunity to fly a large, lightweight, radio controlled old-timer. Here was an 8 foot span model weighing about 6 pounds, powered by a glo 60, swinging a large prop at moderate RPM's . . . Scale speed at its realistic best!

To reiterate, the basic premise was to take Classic era designs, blow them up to 7 to 10 foot monsters ('scuse it, Mammoths), and build them with the same type of open, lightweight construction used in the big gas jobs of the same era. In other words, the same stick-n-tissue method used in rubber scale, but blown up to Mammoth proportions.

The only marginal problem in this whole approach is the engine. Our idea was, that with proper selection of scale subject, and careful selection of construction materials, these models could be powered with AMA-legal 60's, 80's, and if available, up to 1.2 cu. in. displacement engines. The basic need is an engine with sufficient torque to turn a large prop at moderate RPM's. In our minds, the next step was gearing or belt-reduction drives, not bigger engines.

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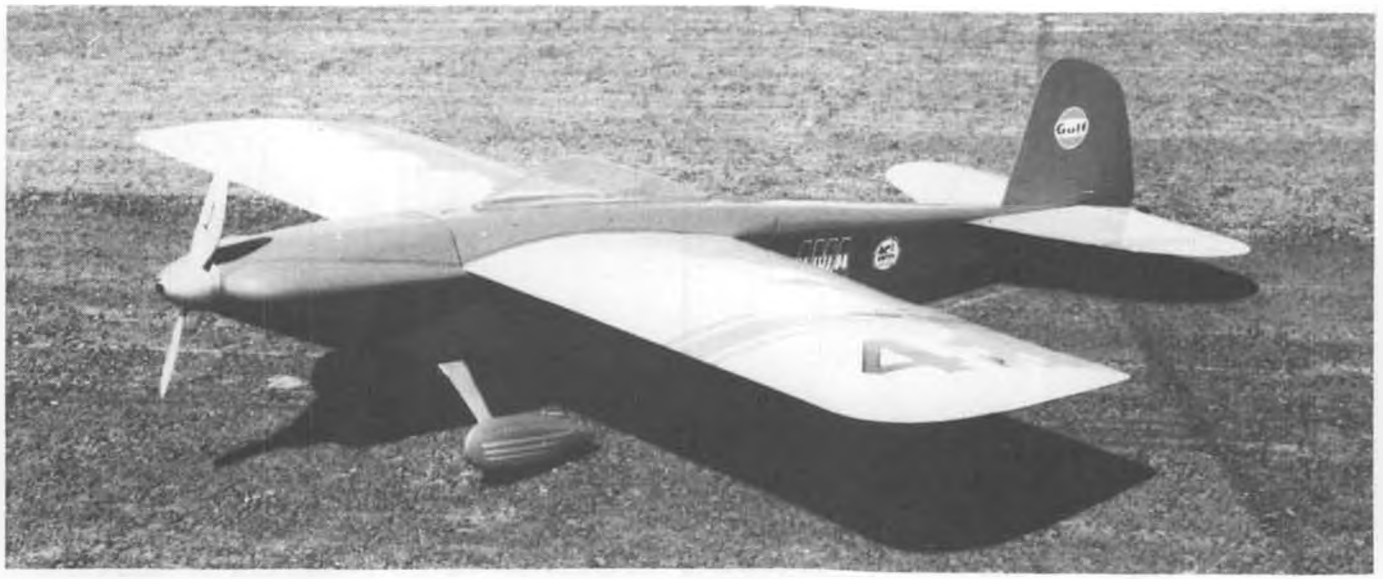


Quarter "LIL' GEM III" Midget

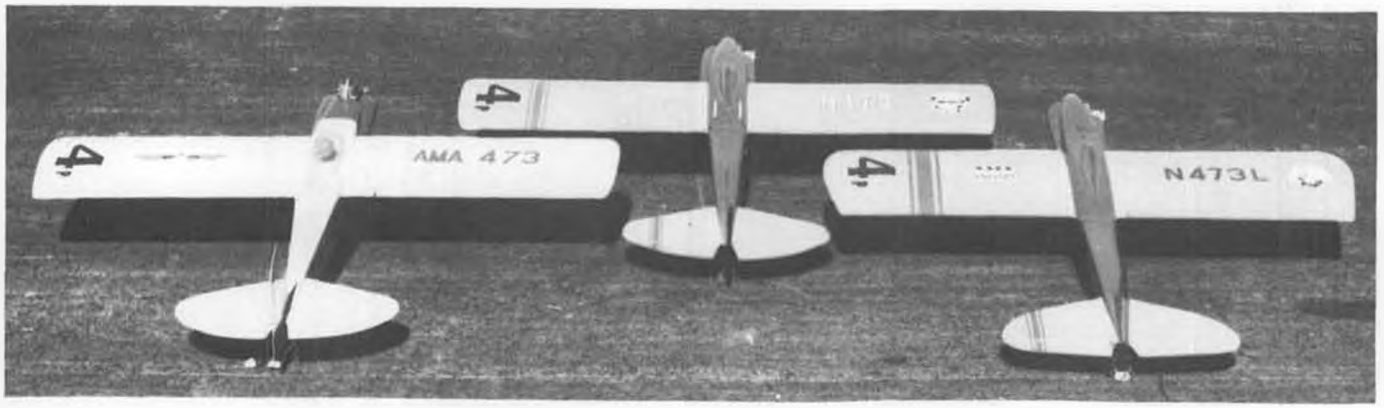
By AUSTIN LEFTWICH . . . Here's a competitive Quarter Midget Pylon racer that can be built from materials available at most hobby shops. No fiberglass, no foam, but a long record of top performance.

● As is typical with most competition R/C designs, Lil' Gem III is the result of an evolutionary process. This speedy little "jewel" had its beginning in the late summer of 1970, coincident with my introduction to quarter midget racing and the relocation of my place of residence to Cleveland, Ohio. My move to Ohio put me there a scant 10 days prior to the scheduled First "World" Quarter Midget Championships sponsored by the MARKS of Mentor, Ohio.

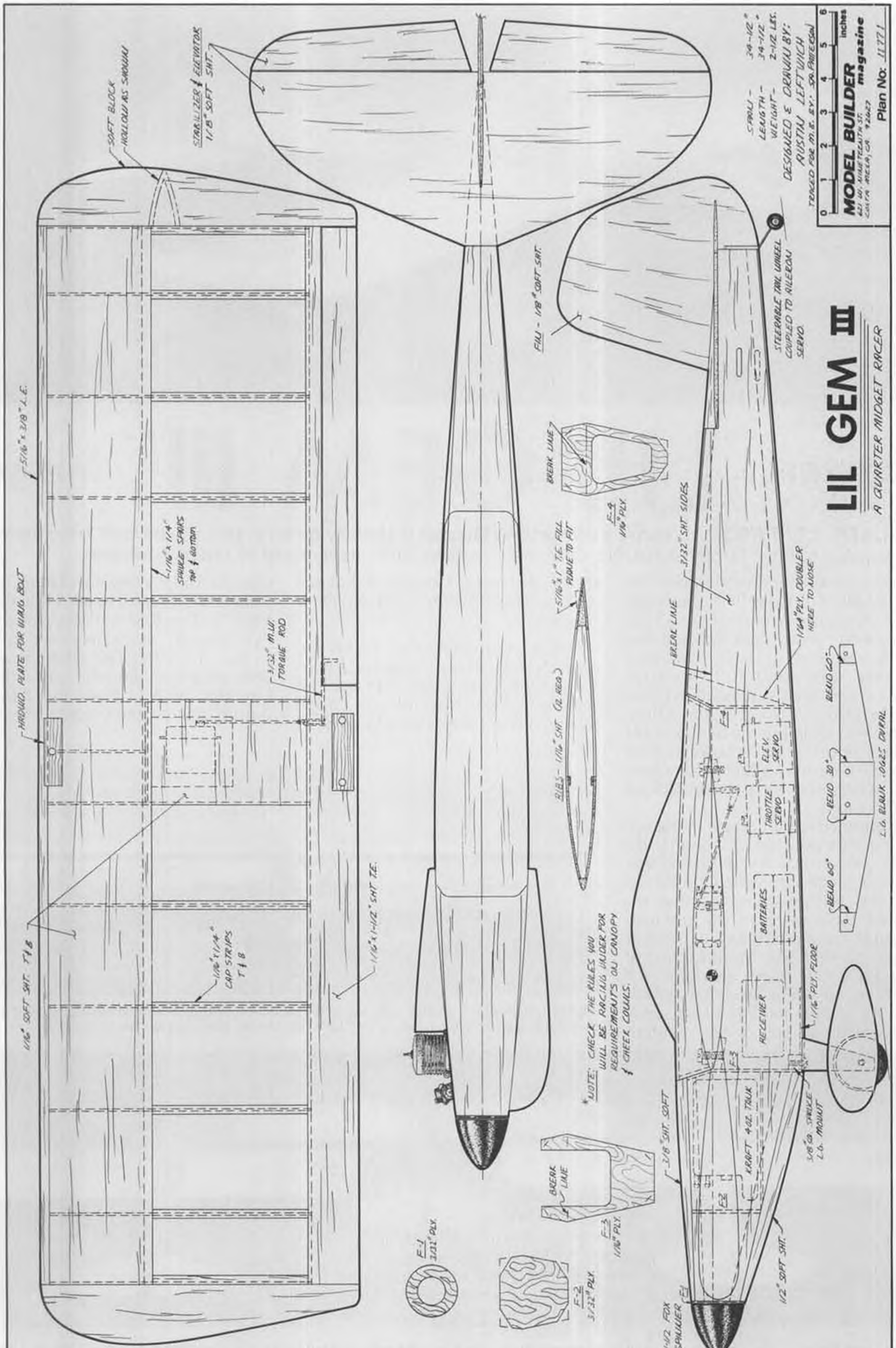
Determined to participate in the upcoming competition, I sought the advice of several local QM flyers regarding a design which could be built and test-flown in the few remaining days prior to the contest. Although none had tried it, several suggested that Sig Manufacturing Company's "Doubler" sport R/C kit might be an ideal base kit which could be slightly modified to a semi-scale version of any of the constant chord mid-wing Goodyear Racers, such as the "Buster", "Bonzo" or "Cassutt".

A quick examination of the kit and a search through my file on racing airplane 3-view drawings soon made it obvious that the ideal full size design after which to pattern the modified kit was Jim Miller's original "Little Gem", sometimes referred to as "Little Gem" Mod. I. The QM version, known as "Lil' Gem I", was completed in time to win the 1970 QM Championship with what was then the oustandingly fast time of 2:11:0 for the 2-pylon, 2-mile course then being flown in

In his article, Austin Leftwich talks about the reduction of frontal area which was accomplished when designing this 3rd aircraft in his "Lil' Gem" series. Here you can see the results.



"Three Little Gems" . . . sounds like a song title. When you think of the attrition rate in pylon racing, and the number of races in which Austin has flown . . . and many times won . . . it's surprising to see a complete string of aircraft in one photo (l to r): "Lil' Gems" 1, 2, and 3.



LIL GEM III
A QUARTER MIDGET RACER
MODEL BUILDER magazine
SPAN - 34-1/2"
LENGTH - 34-1/2"
WEIGHT - 2-1/2 LBS.
DESIGNED & DRAWN BY: RUSTIN LEFTWICH
STEERABLE TAIL WHEEL COUPLED TO AILERON SERVO.
FIN - 1/8" SOFT SHT.
STABILIZER & ELEVATOR 1/8" SOFT SHT.
SOFT BLOCK HOLLOW AS SHOWN
5/16" x 3/8" L.E.
1/16" x 1/4" SPRUCE SPARS TOP & BOTTOM
HARDWD. PLATE FOR WING BOLT
3/32" M.W. TORQUE ROD
1/16" SOFT SHT. T & B
1/16" x 1/4" CAP STRIPS T & B
1/16" x 1-1/2" SHT. T.E.
NOTE: CHECK THE RULES YOU WILL BE RACING UNDER FOR REQUIREMENTS ON CANOPY & CHEEK COWLS.
RIBS - 1/16" SHT. (2 REQ'D)
5/16" x 1" T.E. FILL PLANE TO FIT
BREAK LINE
F-4 1/16" PLY.
3/32" SHT. SIDES
1/64" PLY. DOUBLER HERE TO NOSE
ELEV. SERVO
THROTTLE SERVO
BATTERIES
RECEIVER
1/16" PLY. FLOOR
KRAFT 4 OZ. TANK
3/16" SQ. SPRUCE L.G. MOUNT
1/2" SOFT SHT.
3/8" SHT. SOFT
1/2 FOX SWINGER
F-1 3/32" PLY.
F-2 3/32" PLY.
F-3 1/16" PLY.
L.G. BLANK .062 DURAL
BEND 60°
BEND 30°

Low aspect ratio and single aileron are immediate recognition factors of the "Lil' Gem".

That fine southern gentleman, Austin Leftwich, with Li'l Gems II and III. Austin probably flies less distance in a 10-lap pylon race than most other pilots. He retired old AMA Pylon record.

Ohio. This ship, shown in the group photo, was campaigned heavily through the '71 and '72 contest season, posting an enviable string of wins, including the 2nd MARKS "World" QM championship in 1971.

As competitive activity and interest in QM increased, and "Lil' Gem I" became more battle weary, it was painfully obvious that if I was to remain competitive (and hopefully in the winner's circle), a new QM would be required for the 1973 season. Much thought was given to switching to a design with more eye appeal, but after due consideration was given to the easy construction, groovy flight charcteristics, and contest record of Lil' Gem I, I decided to stick with the design and simply clean it up.

"Lil' Gem II" came into being as a scratch-built version with exactly the same moment arms, surface areas, spans and outlines as LGI. The major modification included a side-mounted engine with half cheek cowl fairing, a new wing section, smaller wheels and pants, and a shorter landing gear. Unfortunately, at the time LG II was being created, the QM rules had not been solidified, therefore, no attempt was made to produce an airplane with minimum dimensions. Consequently, LG II has excessive wing area, wing thickness, fuselage width and height. In spite of these handicaps, Lil' Gem II succeeded in posting eleven consecutive first place wins, culminating in the National Championship at the '73 Quarter Midget Nationals, Rough River, Kentucky.

The formulation in early '73 of a firm set of rules governing QM competition, and the acceptance of these rules by our AMA as a provisional event, triggered the need for a Lil' Gem built to the minimum dimensional requirements but retaining all of the good features of LG I and LG II. Lil' Gem III is the end result of this evolutionary process. By reducing the aspect ratio of the wing and slimming the fuselage to minimum legal dimensions, a whopping 4-1/2 square inch reduction in frontal area was achieved. In its first season of competition, LG III garnered 7 firsts, 2 seconds and 1 third place in 10 competitions. One of the second place wins, and the third place win, were at the Lake Charles Nationals and the Second Annual Quarter Midget Nationals in Kentucky. The fault for not being in the winner's circle at these two important QM competitions lies not with Lil' Gem III, but with this tired old man, whose competitive thoroughness and skill seems to decline with each successive meet.

In addition to being extremely simple to build and fly, LG III incorporates two unique features which need explanation. The single aileron arrangement, which was first used by the author on AMA Pylon racers in 1957, is not only simpler to build and rig than 2 ailerons, but it reduces drag by a significant amount. The steerable tail wheel coupled to the aileron servo not only eliminates the weight and expense of the 4th servo, it also permits an aerodynamically cleaner vertical stabilizing surface, since it has no hinge line. When properly adjusted and used, the steerable tail wheel provides all the ground control required for racing takeoffs and landings.

CONSTRUCTION

In order to have a finished weight one to two ounces under the minimum weight of 2-1/2 lbs., it is essential that the lightest grade of contest balsa be used throughout. By beginning with an ounce or so of ballast in order to make minimum weight at the beginning of its contest career, you will never have to fly with a weight handicap, since you can reduce ballast as your Lil' Gem III picks up weight from field repairs of battle scars.

Wing: Construction of the wing is highly conventional, and can be ac-

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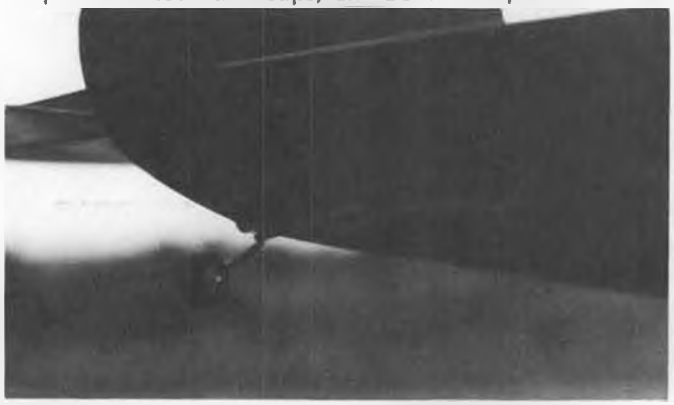


Steerable tailwheel is linked to aileron control for ground handling during takeoff. Fin/rudder is clean, saves weight of another servo.

The "Go" portion of Austin's Li'l Gem is this well-tuned Rossi. One important reason for his string of wins . . he has a way with engines!

"Miss Madison" moving to the finish line during Speed Week, June 20 - 26, on the Detroit River, Detroit.

PHOTOS BY AUTHOR

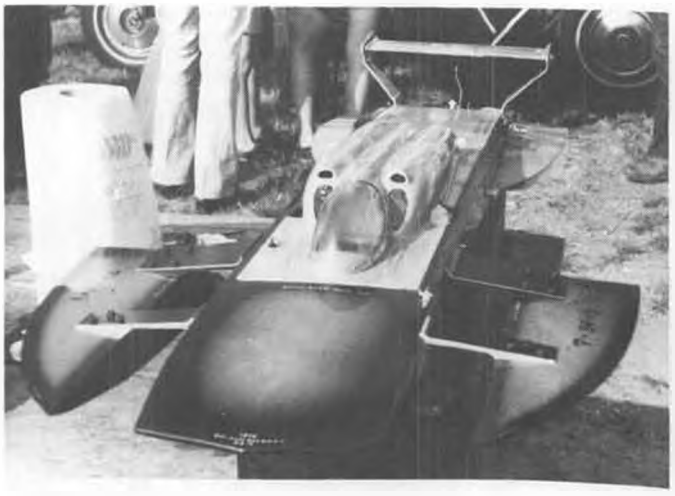
R/C POWER MINI-GOLD CUP BOATS

By BOB PREUSSE

• The week of June 20-26 is known to all Detroit race fans as "Speed Week". All the hydro enthusiasts get together with the latest R/C designs and hot engines to compete in the Mini-Gold Cup hosted by the Wolverine Model Power Boat Club, on Saturday, and then on Sunday, the scene shifts to the big Unlimiteds participating in the Annual Gar Wood Trophy Classic on the treacherous Detroit River.

This year's Mini-Gold Cup drew modelers from all over the country, with the greatest numbers from Illinois, Indiana, Ohio, New York, Ontario and, of course, Michigan. This was my sixth consecutive Gold Cup. It has always been one of the best and most exciting events of the season. Why? First of all, the course is on a large, semi-secluded lake on Bell Isle, in the center of the Detroit River. The size is ideal for six-boat heats, because it gives the drivers enough room to jockey their boats to the start. Secondly, the Wolverine Club always provides a long metal platform type trailer that is used as a driver's stand. You really get a great view of the course, with improved depth perception. It seems to improve everyone's driving, and results in fewer mishaps. The referees also view the race course from atop the platform. Thirdly, the Detroit Club has developed an excellent starting clock which includes 30-second staging lights. It is easy to read at a glance, and its accuracy helps for good starts. Fourthly, the club members are well prepared for this event. They try to keep things moving, and are able to complete as many heats as possible. Lastly, Detroit is a boat racing city, where the action is.

Speed Week begins with record



John Bridge's new twin-.60 outrigger, which set a new "F" hydro straight 1/16 record at 77+ mph. That's moving!!

Is this a J-30? Nope, this is a prop on a big unlimited. Sure looks familiar!

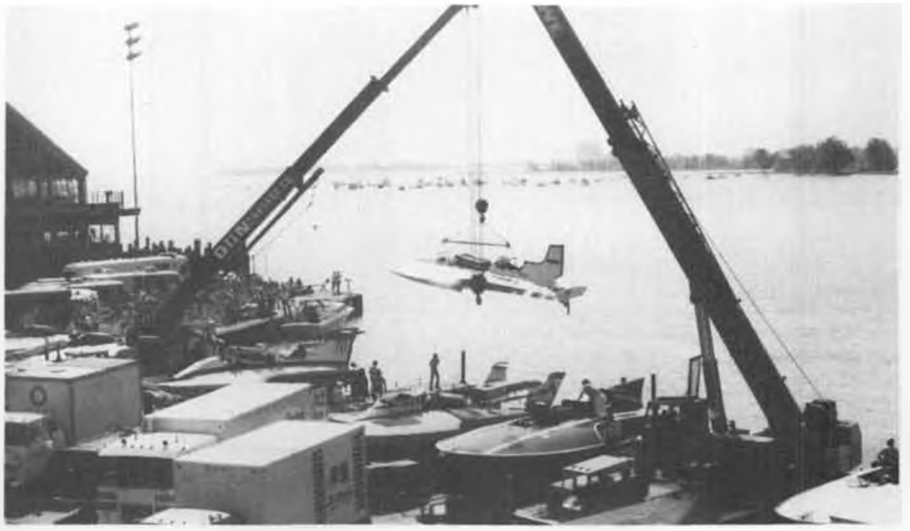
trials held at the Wolverine's sight in Flint, Michigan. Thread Lake, as the name implies, is very long and allows the boaters ample room for maximum acceleration at the beginning of the straight 1/16 mile. No excuses, if your boat can't break the straightaway record here, don't blame it on the sight. John Bridge, past IMPBA President, found the conditions just right, as he pushed his original design twin .60 hydro to a new F class straight 1/16 record of 77+ mph. Congratulations, John! While the record trials were in progress, the Unlimiteds were qualifying for the Gar Wood Trophy Race. So there was action for everyone.

Saturday was the day for the Mini-Gold Cup, which is for hydros only. This is an IMPBA sanctioned meet with the following classes: AB, CD, E, F, and scale hydro. The competition in CD and E has always been the fiercest, with the highest number of entries. But watch out for the scale hydro class! We had 15 entries in this new class, and the interest keeps growing. This is the most scale hydros seen at an IMPBA event. But as I said before, knowing the boating fever in Detroit, you would kind of expect that it could happen there.

The frequency spread was good, as we were able to run 3 to 5-boat heats in each round. Gary Preusse, driving his "Miss Budweiser," once again dominated the action with a perfect score of 1200 pts. At last year's Gold Cup, the spectators got a treat when Mickey Remund, driver of the full size Budweiser, was on hand to watch the models, and was given the opportunity to drive Gary's Budweiser. Mickey claimed it was too difficult to drive and that he would stick to the big ones! That's another nice feature about Detroit, big names in powerboat racing are always popping up at the model event. Being a scale hydro enthusiast myself, it is a great treat to talk shop with the pros.

Back to the race. Ron Wickersham, from Ohio, finished a strong second with 1025 pts. Ron's "Mister Fabricator" is a sleek black and silver machine, which won 2 heats and finished 3rd in another. Rick Jacobs, driver and owner of another Miss Budweiser, accumulated 825 pts. for 3rd place overall. The "King of Beers" must have been proud of the two Bud boats.

Here, in order of finish, are the 15 scale entries:



Pits are full of action on race day.

Special congratulations to Doug Riha, of Chicago, for winning the Concourse Trophy.

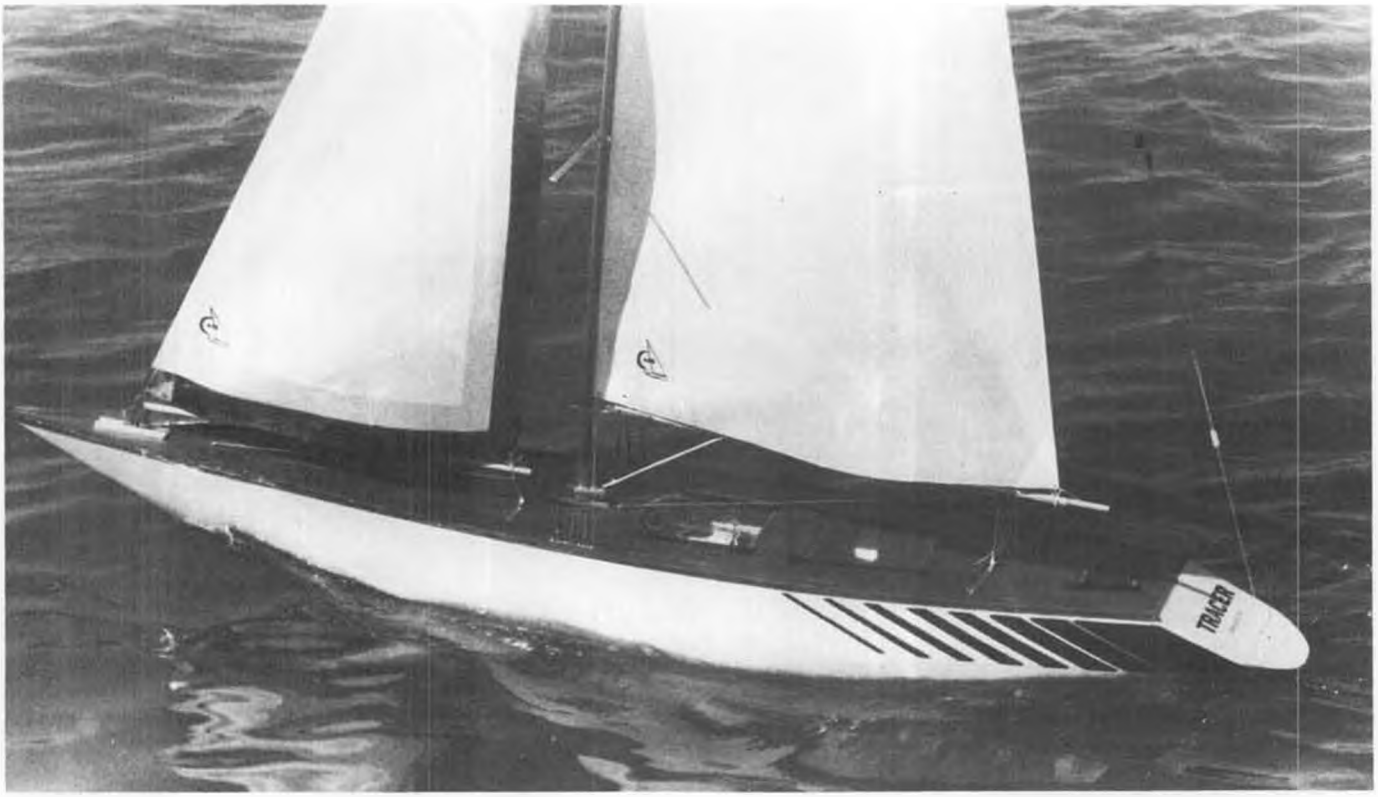
On Sunday, the crowds assembled along the shores of the Detroit River to watch the big unlimited race for the Gar Wood Trophy. Gar Wood was one of the founding fathers of powerboating. His efforts contributed greatly to the development of powerboating. He was the first driver to win

Continued on page 83

1. Gary Preusse	Miss Budweiser	1500 pts.
2. Ron Wickersham	Mister Fabricator	1025
3. Rick Jacobs	Miss Budweiser	825
4. Doug Bryant	My Gypsy	700
5. Don Boka	Miss U.S.	625
6. Doug Riha	Miss U.S.	550
7. Ron Picardi	$ Bill	550
8. Chuck Morris	Miss N.W. Tank Service	525
9. Richard Sawicki	Miss U.S.	475
10. David Lee	Shakey's Special	425
11. Bob Preusse	Lincoln Thrift	350
12. Ron Treichel	Miss Vernors	300
13. Ron Selk	Miss Lapeer	225
14. Bill Lefeber	Atlas Van Lines	225
15. Larry Schneider	Miss Madison	25

Pre-race beauty contest, as 15 scale hydros line up on driver's platform for judging.

Bill Muncey storms by in the Atlas Van Lines boat. This cab-forward design has dominated the unlimited racing scene in 1977.



Winner of the A-Class ACCR this year, at Marsh Creek, Pennsylvania, was our own columnist's "TRACER", which was fully described in the July 1977 issue. Hull is built-up, with bulkheads and pine planking, and fiberglassed on the inside.

STRICTLY SAIL

By ROD CARR

• August is typically the high tide mark for model yacht racing activity. With the approach of the new school year, model yacht club's schedule the ACCR's (called National Championships by everybody else in the world) through August thicker than flies on an unguarded watermelon. At least by the end of August, we have a new set of heroes, or a new design or two that has crept into the limelight. Such is the case in 1977.

I'm selfishly proud to report on the success of the A-Class TRACER that appeared recently in these pages. On August 28th, she was entered in the A-Class ACCR at Marsh Creek, PA. Bud Salika, former AMYA Secretary, journeyed all the way from the mid-west to act as Regatta Director. He ran a tightly organized event over a large course, designed to give the big A's a chance to stretch their legs. The accompanying drawing shows the course as it eventually was finalized after the second heat. The peninsula provided a real measure of seamanship. Not only was the shortest distance to the first mark hampered by a shoal bottom, the wind refraction across the peninsula made for interesting tactical choices. The wind direction shown in the diagram is really an average condition.

TRACER sailed the course as follows: First, a port tack start. Most starts were made before the rest of the fleet got there. However, in one instance I had to wait until the entire fleet passed by. I started astern of them, but headed straight across the course, close-hauled and in absolutely clear air after they were gone. I was able to follow the wind's bend up along the shoals. I generally tacked somewhat short of the layline at the weather mark, since there were some discernible shifts and these could be advantageous. After rounding the weather mark, the boat was gybed onto a starboard reach. The reason for this was twofold. The boat reaches better than on a dead run, and secondly, being on starboard tack allowed me to legally cut off any port tackers who were overtaking from behind, or control a port tacker ahead of me who I wanted to pass. Sometimes, the last half of the leg to the wind mark turned into a dead run and every effort to wing the jib was made. I also sailed a little bit below the mark, so that skippers passing inside of me would have a good chance of cutting the buoy, a couple did. After rounding the course to hold was high, above the rhumb line to the leeward mark. This fixed your chance to get new wind first, and be able to use the added boat speed to put followers right in your wake, which makes the going tough for them. One then hardened up at the leeward mark and stood on into the shore, for the third and final tack and a riding of the lift to the finish line. A total of 3 tacks and one gybe required for the whole course.

Now, so bent on the rights of starboard tack boats that they didn't want to delve any deeper into the mysteries of the course, most of the other boats opted for a start on starboard. It was usually not well timed, since the big A-boats would make quite a wind shadow and interfere with each other. Once the fleet was established and moved across the line they were all in hot water. (See course of FUMBLER TOO in Figure 1). The wind direction change was a header, and the whole fleet had to sail down to port, since only the weather boat had the right to tack onto port tack. Once he and they tacked, they were faced with the oncoming shoals, and to avoid them, bore off onto a reach, until they reached a point where they made tack No. 2. Most of them sailed fairly straight legs until tack three, since many of the boats showed little evidence of pulling themselves up into the wind as it lifted. Many tacked at

No. 3, it seemed out of sheer boredom and then had to tack again at No. 4, and bear off onto a reach to round the weather mark. Some, but not all, went onto starboard by gybing after weather mark, and generally an almost dead downwind parade resulted. Those lucky enough to be ahead of the pack were amazed at how much slowing occurred by the interaction of wind shadows on the run. Many fell below the rhumb line on the way to the leeward mark. Those boats that went high generally improved their position, since they got clearer air and moved faster to compensate for the slight extra distance to the mark. Rounding the leeward mark there was a general tendency to tack immediately (No. 5), and then not have enough of the lift to allow you to make the mark, requiring two more tacks (Nos. 6 and 7).

In comparing the two tracks, we see that twice the number of tacks, and at least a 15% increase in distance can become a burden to a skipper who has not studied the course. This would require a 15% increase in average speed to make up the deficit, and is just not to be found in any product on the market today.

Let me say at the outset, as I have in the past, this kind of Monday morning skippering is easy, at least easier than doing it on the lake. But if the analysis helps us understand the system, then it is worthwhile doing. Look at your lake and see if you don't see some similar situations.

When the smoke cleared, the fleet had run through 12 races. The finishing order of the top seven boats was as follows:

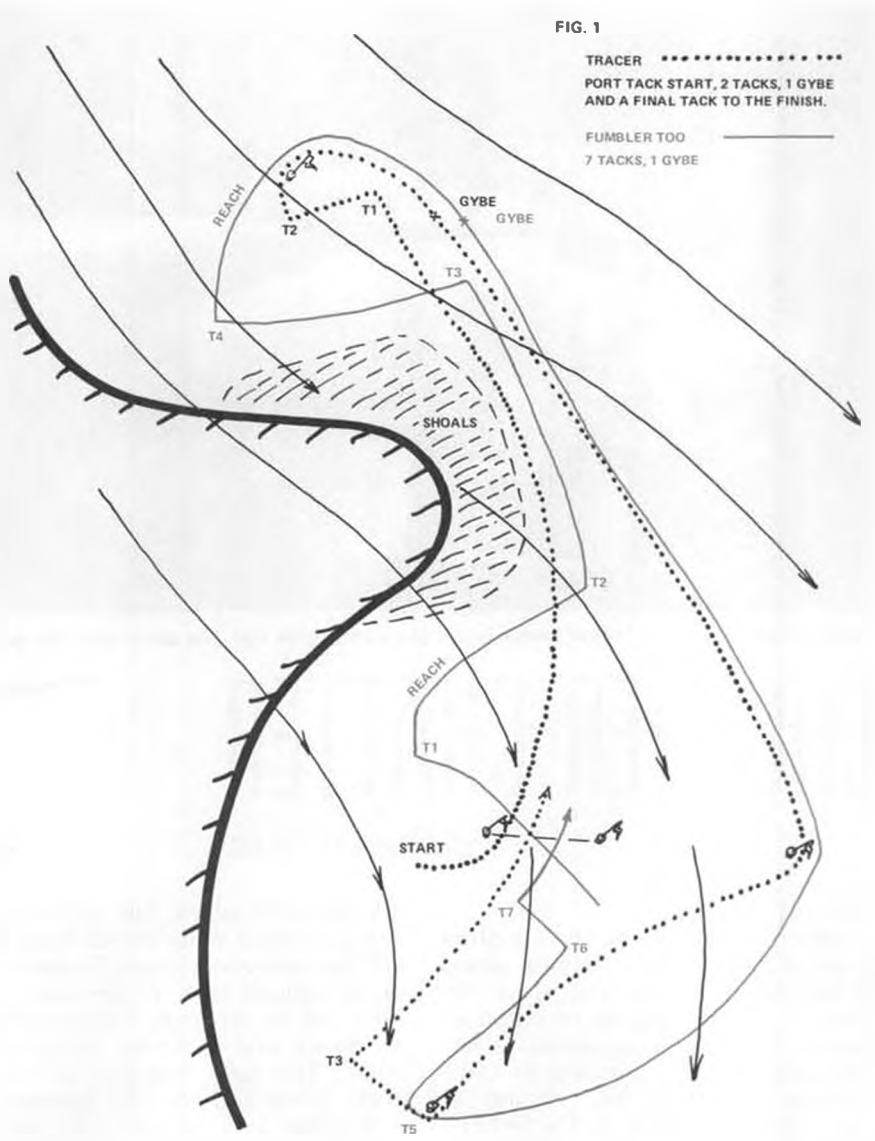
1. Rod Carr	17 pts.
2. Charles Obersheimer	29.5
3. John Krick	41
4. Fred Frey	53.75
5. George Debonis	61
6. Henry Morris	67
7. Jim West	72.75

The two top boats were sailed by sailmakers, giving some weight to the theory that knowing how to set and trim your "motor" will stand you in good stead.

Mr. Obersheimer makes full-sized sails from his loft, and this marks the first venture into model yachting's top levels of competition. I expect to see him become a common threat on the race course in future regattas, and must thank him for fielding a heavy (60 lb.) boat that was handled superbly. It took me all day to finally tune TRACER to the point where she would point with his white-hulled craft. It shows how important it is to sail with other skippers, if your goal is to improve your performance.

The most important result of this regatta was the demonstration of the potency of a lightweight, heavily canvassed A-boat. In the light airs of the regatta, 1-8 knots, her acceleration allowed TRACER to start on port tack, and keep clear air all the way to the weather mark, regardless of the fact that the majority of the fleet started on starboard, farther up the line. This ability has filled a hole in the typical A-Class fleet of recent years. This light-air hole was supposedly fillable by a well-handled East Coast 12, which some say would rate under the A-Class rule. Well, the best 12 finished dead last, and though a broken jib club contributed to her woes, she only won a single heat on the basis of finding new air before anyone else did. For those skippers who are contemplating entering a 12 in this class, my advice would be twofold: first, think twice, a 42 inch LWL and 1100 square inches seem to be hopelessly outgunned by a small A's 50 inch LWL and 1600+ square inches. Second, go through the required measurement procedure and stencil a big A on your sail to prove that you are really trying to comply with the spirit and letter of the rule.

FIG. 1



TRACER'S heat record is worthy of note, if only to indicate that the yellow punkin' seed really did dominate the event. Remember, all boats sailed all heats. TRACER FINISHES: 1-1-4-1-3-1-2-2-1-1-1-1

The top four boats were named to the AMYA Team, which will sail with the MYRAA Team at Whiting, N.J., in October. With the expectation of stronger winds, it will be interesting to see if TRACER can acquit herself with such finality in heavier conditions. The hope is that her surfing and planing bottom sections may begin to make a contribution to her speed, with the sail plan being kept under control by judicious use of the travelers that control her sheets.

Before leaving TRACER, let me say that as of this writing, the designer has not yet released the lines for distribution. I've queried him, and hope that arrangements may have been completed by the time this is printed. In a recent letter, he (Adrian Brewer)

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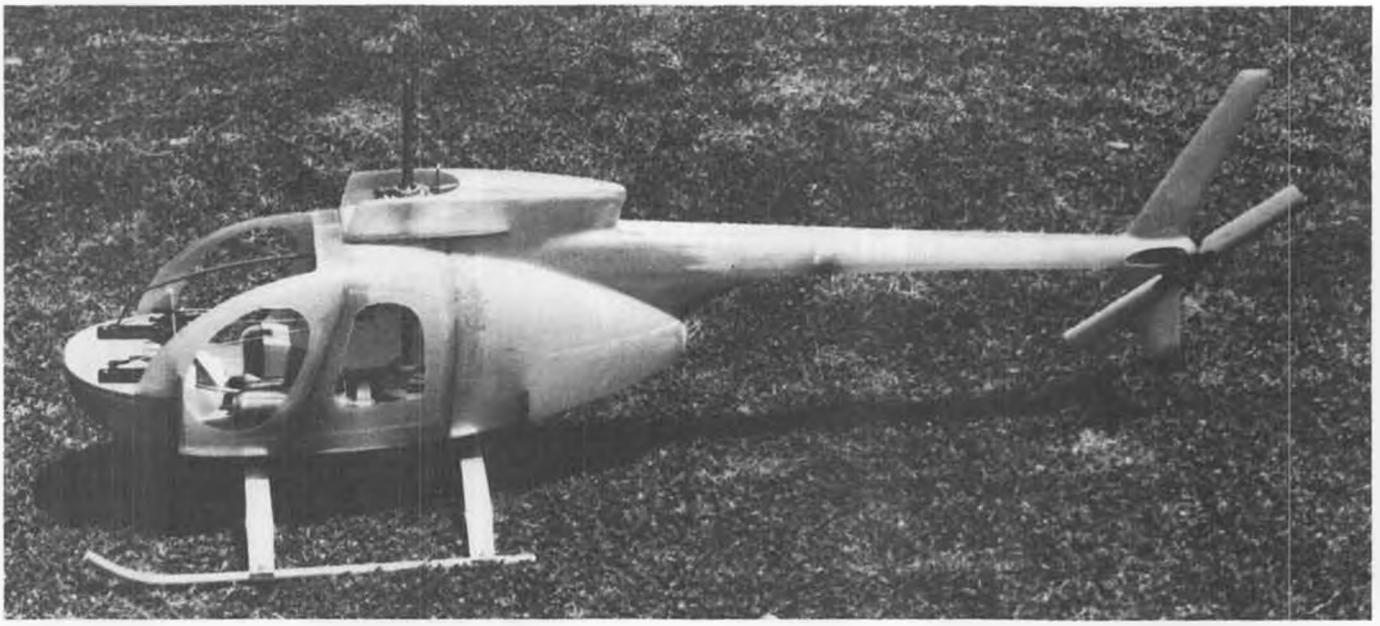


Latest project from John Tucker's workshop is this Kalt Hughes 500, just about ready for paint when this photo was taken.

CHOPPER CHATTER

By JOHN TUCKER

PHOTOS BY AUTHOR UNLESS NOTED

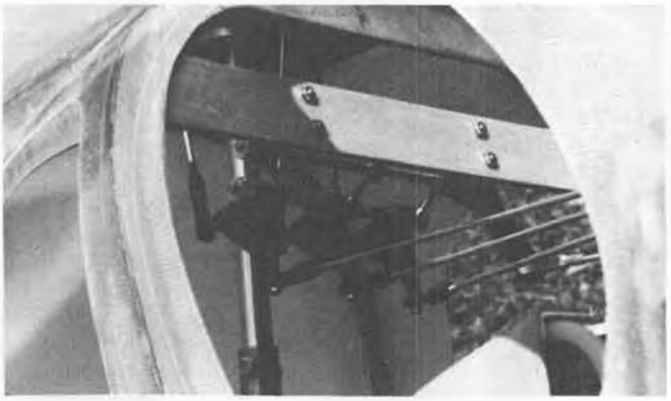
NEW R/C CLUB

Welcome to the North Carolina Helicopter Association, a new group of helicopter flyers who have organized for the purpose of introducing and involving more people in R/C helicopter flying. According to Dave Chesney, President, July 30 and 31 were the kickoff dates for the first Fly-In. Despite the breezy weather, 20 flyers showed up with 25 helicopters! In addition to lots of flying, there were a lot of ideas and bits of information exchanged.

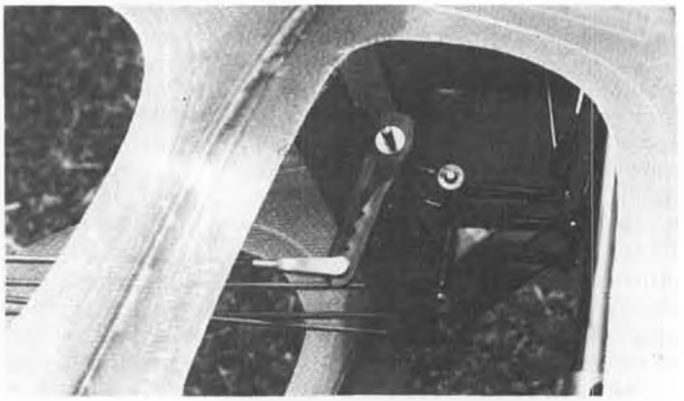
This year, membership in the NCHA is free . . . the cost of publishing and mailing their newsletter, "Collective Pitch," is absorbed by Crystal Products, Charlotte, N.C. If you are interested in joining and/or receiving the newsletter, send your name and address to Bailey Harris, 2118 Archdale Drive, Charlotte, NC 28210. You sure can't beat those dues!! Meetings will be held about every 6 weeks or so, at various parts of the state . . . They will be informal, with emphasis on flying and learning from each other. The next meeting is tentatively scheduled for late September or October in Salisbury, N.C., and a special mailing will advise exact time and place.

Lots of luck with your turn-outs Dave . . . we need a bunch of active clubs around the country to get the hobby in full gear, and your's looks like a very good start. Put me down for your newsletter . . . will look forward to the information. While we're at it, we might mention there are 5 helicopter pilots in the Charlotte area. Earl Harding is learning to hover a Jet Ranger, Bill Hensley is coming along well with his Revolution, Jim Helms is just starting to fly his DuBro Shark, Rick Sturkey is building a home-built which he hopes to have ready soon, and Bailey Harris, Secretary/Treasurer of the NCHA, is rebuilding his Graupner 212 after losing an engine at 45 feet. He sez he has had considerable problems with his engine overheating . . . any suggestions would be appreciated. One last word before we leave the NCHA . . . Dave Chesney has a Heli-Baby for sale. Max 40 FSR, Heliball muffler, custom blade holders, collective pitch conversion, extra rotor blade sets, main shafts, tail shaft, pulley and set of floats . . . all for $260.00. Sounds like a good deal and it shouldn't last long at that price.

SWEPT TIP BLADES



Front view of "walking crank", showing method of attachment to fuselage. Main rotor drive shaft just behind it.



Side view of "walking crank" for lifting swash-plate. Schluter control arm provides leverage to lift the three bellcranks.

Kalt Hughes 500 servo installation. Nyrod not connected goes to directional servo.

Kavan main rotor shaft, swash-plate, and Alouette anti-rotate bracket.

Tail skid is anchored in resin poured into hollow vertical fin. Good Kalt factory idea.

Dave Larkin, Nova Scotia, Canada, built this twin-rotor DB autogyro from English kit. Brrrr, look at all that snow! Fine flier, but Dave had problems until he switched rotor direction!

I see by the Professional Pilot magazine that swept tip rotor blades are being studied at Langley. They are changing tip shapes and planforms to effect increases in rotor performance, and at the same time, decreases in the impulsive noise, vibration and structural loads of the blades. A few months back, Chopper Chatter included some preliminary data and photos on model R/C helicopter blades which showed much promise along those same lines. My "Shrike" conversion still flys every weekend with those blades, and I am convinced they do an excellent job, and improve performance.

The first blades tested at Langley had an "ogee" tip shape with about 40 degrees of sweep. The shape was defined through a series of windtunnel tests and on the whirl-tower to see if the new tip diffused the tip vortex which creates the noise, vibration and loss of performance. Preliminary results indicate that the ogee tip does significantly reduce noise and vibration, and there seems to be increased performance in the low and mid-gross weights.

A Bell UH-1H test vehicle has been fitted with a modified ogee tip which has a sharp leading edge and a sharply pointed blade tip with about a 60 degree sweep. Windtunnel tests indicate this blade does a good job of diffusing the vortex, but not doing as well in terms of performance. Perhaps our future main rotor blades will be designed after this research project . . . and if they don't fly too well, we can always use them to mow the lawn, ha!

AUTOGYROS

Dave Larkin, 19 Sumac Lane, Nova Scotia, Canada B3M 1K4, sent a couple of pictures of his DB Autogyro which look very interesting. Dave has been flying this machine since March '76, and has had only a few problems in this time span. Most were peculiar to the equipment he was using. He found that vibration from his Webra 20 would affect the elevator servo, causing pitch-up. This was cured by switching from a 9 x 4 prop to a 10 x 3-1/2. He finally switched to an OS25, and replaced the servos with Ace Bantams and new 544 amplifiers.

Dave also mentions that the DB machine is a bit too stable, and behaves in an untidy way in roll when overcontrolled or disturbed by gusts. Nothing dangerous, but not very precise. Since the original plans didn't show which way the rotors should turn, Dave followed convention (per Bob Brown in his Aeromodeller Designs, and Skip Ruff in his FA-61 in **Model Builder** mag) and set his rotors so that the advancing blades were on the outside to give the maximum lifting moment on the high lift blade. Once he sorted out his radio problems, Dave swapped the rotors over, to place the advancing blades on the inside. This did the trick, and

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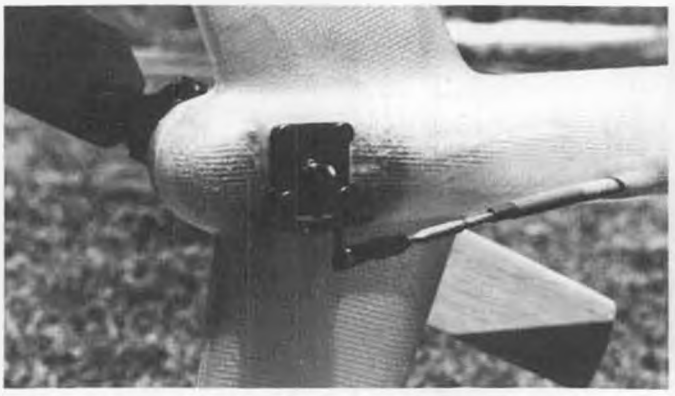
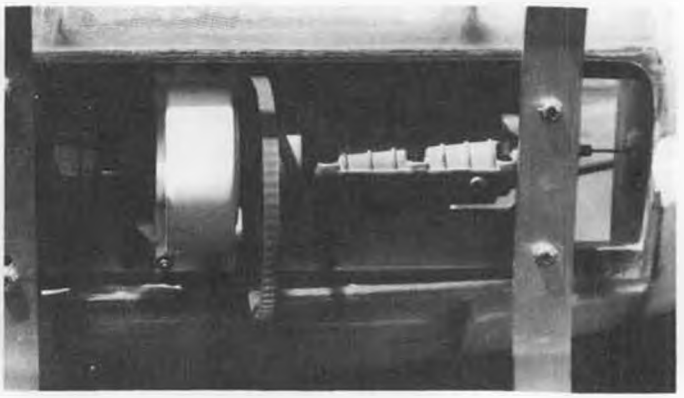


Dieter Schluter type tail rotor control. Kalt uses same system. Ball links are perfect for this linkage.



Bottom view of Kalt Hughes 500 transmission. Shows (l to r) engine, cooling fan, belt, clutch, and transmission.

Gorgeous J. C. Yates "Madman" with Orwick 64 for power. Built by Yates himself, and flown by Bart Klapinski at the 1977 Nats.

PLUG SPARKS

By JOHN POND

• As was announced at the SAM Championships held at Las Vegas, during the Annual Bean Feed, the Old Timer Events at A.M.A. Riverside AFB Nationals were really a blast! Despite the dust, heat, and smog (which was remarkably heavy), those contestants who did participate had themselves real fun.

As noted throughout the Nationals, attendance was down somewhat, as radio control had had the Masters and the World Pattern Championships, while the Old Timers had the Las Vegas Champs. Coupled with a quasi-boycott of the California Free Flighters, who would not fly if they couldn't use their cycles, the normally highly attended free flight events suffered for entries. With a cycle, most contestants can fly three or more events a day. Not so when you have to shag them on foot! *(Cycles were banned because of the extremely high fire hazard in all of So. California during this period. wcn)*

Actually, in retrospect, the ban on motorscooters was a blessing, in that once the crust of dust was broken, the flying areas were plagued with dust every time an automobile moved in the parking lot. It was just like the old days; get out and shag them!

For those modelers who wonder where the heck the columnist is most of the time during the Nationals week, we've decided to write this column in diary fashion so as to fully describe just what goes on behind the scenes and what leads to a successful meet.

AUGUST 7

Having decided not to compete in any of the Indoor Events or the C/C Biplane Meet being held over the weekend, the columnist drove down on this day to Riverside AFB, a mere 400 plus miles.

On the way down, we stopped off to see Otto Bernhardt (77 Products) to chew the fat, and in general, find out what is cooking in the line of new O/T items. As most of you already know, Otto produces an excellent line of converted ignition engines based on the entire O.S. line. He is also providing a special ignition conversion service for darn near any engine you have in mind.

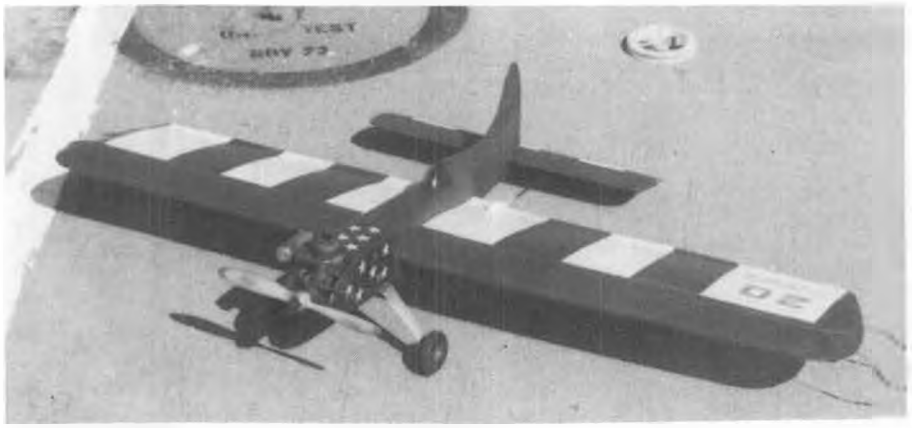
The latest item, the transistorized ignition system, as developed by Tom Bristol, is just about ready for marketing. Those tedious hours of wiring up a model can now be eliminated, as you now get an insulated box with three wires sticking out of it, i.e., wire to ignition points, ground, and high tension lead to the spark plug. If he makes it any simpler, we will start forgetting about how easy it was with glow plug engines!

Price has not been announced as yet, but anyone desirous of being the first on his block with a shielded ignition setup, should write to Bernhardt at 17119 S. Harvard, Gardena, CA 90247.

Needless to say, after four beers, the columnist arrived at Riverside AFB at 4:30 p.m. in time to pick up his contestant's kit. Can't say he didn't try to get an official's cap, as a pitch was really put on this year inasmuch as three days of old timer flying was scheduled. Gettum next year!

MONDAY, AUGUST 8

Arriving at the hangar bright and early, the first order of business was to locate a spot for the Old Timer Booth. Unfortunately, according to the AMA hierarchy, the only place available was by the open hangar door. You can imagine the gale coming through at that point during the



Another great old timer ukie, the Dmeco "All American", built and flown by Don Hollfelder, won glow power old timer Stunt event at the Nationals.

Bob Whitely poses with J. C. Yates' "Madman".

Dave Marshall, who helped set up the O/T Control Line Stunt rules, with his Zilch "X" on glow.

afternoon! What really got to the columnist was some of the choice locations being assigned to clubs, etc., which had absolutely no displays for the public.

After erecting the O/T booth, the shock came at 1:00 p.m. when everything was promptly blown down! After re-erecting the display easels, the banners, etc., and noting they were down again, the writer gave up after the fourth time.

This was truly a shame, as the annual display of Old Timer models was impossible. Imagine placing a group of models in a roped off area and exposing them to twenty mile-an-hour winds! Worst part about it all was that the tripods with pictures and descriptions were blown down so many times, they were finally stored where no one could see them.

The banner suffered the same fate, as the wind was so strong it actually snapped the cord holding same. First time in 14 years! In addition, the display of plans and other items were constantly being ripped by the wind. It was indeed a discouraging sight!

TUESDAY, AUGUST 9

Sign-making day. All notices of Old Timer events were posted prominently around the O/T booth, with time, date, and events. The writer conferred with his right hand man, Carl Hatrak, as to availability of timers, recorders, and other personnel necessary for the running of a meet.

About this time, after several phone calls, the Annual Old Timer's Reunion Banquet as firmed up, with a reservation at the Ramada Inn for Friday night. Believe it or not, steak dinners for $7.00 a head! (Compare that with the R/C dinner at $12.50/head) *(and rotten food! wcn)*

Some time was wasted trying to locate a 16mm projector for a showing of the 1963 Los Alamitos Nationals at the Banquet. Wouldn't you know it, the only place having projectors available was in Arlington, a suburb of Riverside, a good fifteen miles away! Well, ya takes what ya can get!

WEDNESDAY, AUGUST 10

This was the day for the Old Timer R/C Events, to be held at Lake Elsinore. A careful study of the free flight site near Riverside showed that it was possible to hold the O/T radio assist F/F events in the same general area as free flight, but with the glider boys within three miles, it was deemed wiser to go to Lake Elsinore for uninterrupted flying.

Arriving promptly at 8:30, the columnist set up the tent, table, and contest paraphanalia necessary to conduct the meet. As it turned out, locating close to the shoreline was indeed a boon. With that day's temperature running close to 107, the gentle breeze off the water had an ideal cooling effect.

Quite a few contestants had trouble finding Lake Elinsore for the first time. Art Schroeder and Al Novotnik, of Model Airplane News, claimed it took them a half-hour to locate the flying area. Lesson learned: provide good maps on how to get there!!

The same events that have featured previous O/T F/F radio assist contests were again staged. Two types of flying were offered: (1) for those who love to tinker with engines and try to get the best economy for the amount of gas allotted, and (2) for those who love to "hop up" engines to obtain the fastest climb during the 20 second motor run. The major difference thereafter is that the one longest flight wins in Texaco, whereas the Limited

Even old timer stunt models get the traditional pull test, as demonstrated by Don Hollfelder on his DeBolt All American.

Leon Nadolski, of the SCAMPS, tunes the Orwick 64 in his Comet Sailplane. An unbeatable combination.

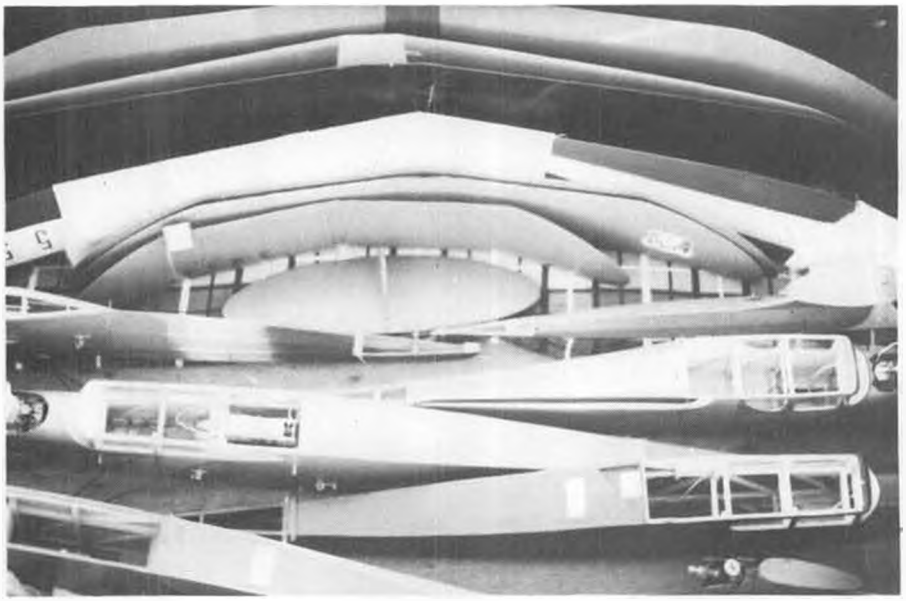
It never fails!! The only set of power lines for miles around the free flight sight, and this Playboy had to find 'em.

Stephen Payne, from England, lends a helping hand to Hank Cohan, who is trying to get a cranky engine started in his Baby (Sparrow?) Bombshell.

Engine Run Events required three five-minute flights. In neither case was a spot landing requirement set up.

The old man stole a march on the boys in Texaco, as very little lift was available despite the warm day. Finding a temperature gradient between the shoreline, water, and shrubbery, the Lanzo R/C Stick model quickly posted an eleven minute flight which turned out to be the longest of the day, as lift conditions deteriorated steadily.

Best flying model on the field from the standpoint of skyrocket climb, was Ivan Tarbert's Playboy utilizing the latest K & B Schneurle 35 for power. The model literally rocketed out of sight! Not to be outdone in Class C, Ivan promptly placed a .29 K & B Schneurle in the Playboy and a repetition of hot flights then ensued.



When Sal Taibi packs a flight box for the Nationals, there isn't too much room left over. Here's a Green Hornet, two Powerhouses, Long Cabin, Brklyn Dodger, Alert, Winged Yankee, 020 PB.

From a fun standpoint, Al Hellman provided the best entertainment with his R/C Guff. To say it was a bit squirrelly on the ground was a typical Hellman understatement. When Al gets the model sorted out and powered up, it should be a great sport model . . . haw!

No question about it, everyone had a great time with thoroughly enjoyable weather (wind doesn't seem to come up at Elsinore like it does at Riverside). Results looked something like this:

TEXACO	
1. John Pond (Lanzo Stick)	11:04
2. Al Hellman (Powerhouse)	4:00
3. Jack Albrecht (Mercury)	3:40
CLASS AB COMBINED	
1. Ivan Tarbert (Playboy)	9:36
2. John Pond (Bombshell)	5:41
3. Art Hemmler (Clipper)	4:19
CLASS C	
1. Ivan Tarbert (Playboy)	18:06
2. Jack Albrecht (Clipper)	4:26
3. Al Hellman (Guff)	3:57

In passing, it should be noted that Pond did it again at this meet. Thoroughly frustrated as the motor failed to shut off properly for the third time, the lightweight Playboy Sr. was spun very heavily with the net result being that the model kept going down . . . without the wing. There is always more than one way to bring a model down promptly.

THURSDAY, AUGUST 11

We finally made it an "official" unofficial Old Timer Event at the Nationals this year. The columnist has been experimenting several years with the idea of an old time control line stunt event, so, with the help of several outstanding W.A.M. (Western Associated Modelers) members, Dave and Arleen Marshall, the idea became a reality.

The writer, although having been exposed to control line for quite some time, was inexperienced at judging stunt. A few flights was all that was required to bring back the memories of what a good stunt pattern should be.

Probably the most outstanding model on the field was a Yates "Madman," originally built by J.C. "Madman" Yates. It was beautifully finished in cream with red pin striping, and Bart Klapinski, the flyer, had no problems in winning the ignition stunt event. The running of the Orwick 65 in the Madman was sensational. Many a modeler standing on the outside of the circle was heard to say, "That is ignition!?" The Orwick ran like the jewel it was, and with its deep-

throated roar, impressed the most avid glow flyer.

Again, unfortunately, this event was the victim of poor publicity, as many modelers stated they would have entered if the news had been made available. George Aldrich, the old stunt pro, was just hopping up and down on the sidelines, he was so turned on. When he found out the writer still had his old style Nobler (eligible under the rules), George said he would be back next year with a real ignition stunter.

Aldrich then donated merchandise prizes right on the spot so as to help encourage participation. After Judges William Grove, Arleen Marshall, Dave Marshall, and the columnist got through totaling the scores, the results looked like this:

CLASS I STUNT IGNITION

1. Bart Klapinski	266
2. Bob Whitely	84

CLASS II STUNT GLOW POWER

1. Don Hollfelder	240
2. Leroy Black	215
3. Dave Marshall	120

If it hadn't been for the fact that J.C. Yates says he gets dizzy now from control line flying, the events would have had a most auspicious opening. As it was, Leroy Black flew an original Zilch that really brought back the memories. We're gonna try it again next year!

FRIDAY, AUGUST 12

Getting tired already? We're just getting started as the traditional Old Timer Free Flight events were held on Friday at San Jacinto Valley, the free flight site selected for the National events.

Actually, the columnist was rather lucky in that the free flight flying scale event had been held the day previous. To hold the event called for scraping an area smooth for takeoffs. Inasmuch as the name of the game is R.O.G. in the old timer events, this turned out to be just what the doctor ordered.

Although processing of the Old Timer models is generally conducted on Thursday night in the work hangar at the Old Timer booth, entries were accepted on the field to help those modelers living in the L.A. suburbs. Noticeably lacking in attendance were quite a few of the SCAMPS members who are employed by North American. As Abe Gallas put it, "When the shuttle was being tested for free fall that day, all employees turned out to see if they still had a job."

Although the writer's car blew a tailpipe, requiring immediate repairs, the meet still got started within 15 minutes of the announced time. As usual, Sal Taibi was chomping at the bit and was the very first to fly. His excellent flying Forster 99 powered Powerhouse easily won the Antique Event.

George Perryman flashes that winning Georgian smile as he cranks turns into his Lanzo Stick. Terry Rimert supervises from a safe distance.

The strategy in flying at Riverside was to try to get all your flights in before 10:30 a.m., as the wind came up quite strongly after that. Luckily, on this Friday, the breeze did not make its appearance until 12 o'clock. This was simply great for the official recorders, Carl Hatrak and Woody Gregory, as it did give time to get more flights in.

Jim Persson, AMPS Prexy (now SAM 30) and his Comet Zipper.

The rubber events, surprisingly, enough, were the most hotly contested of all. Despite the fact that George Perryman won both the Cabin and Stick events, the wins did not come easy. Al McBaine was tied at 1 p.m. with George, but conceded when he was unable to retrieve his model for the fourth time.

The Stick event was not settled until ten minutes of four (quitting time), when Ernie Johnson finally took his last flight to garner a third place.

Looking over the field, particularly in Class C, here is an event that is completely dominated by the Sailplanes, most of them being Orwick powered. Al Heinrick was the lone standout using a hot McCoy 60 to motate his Sailplane.

A real heart stopping show occurred in the .020 Replica Event, with Abe

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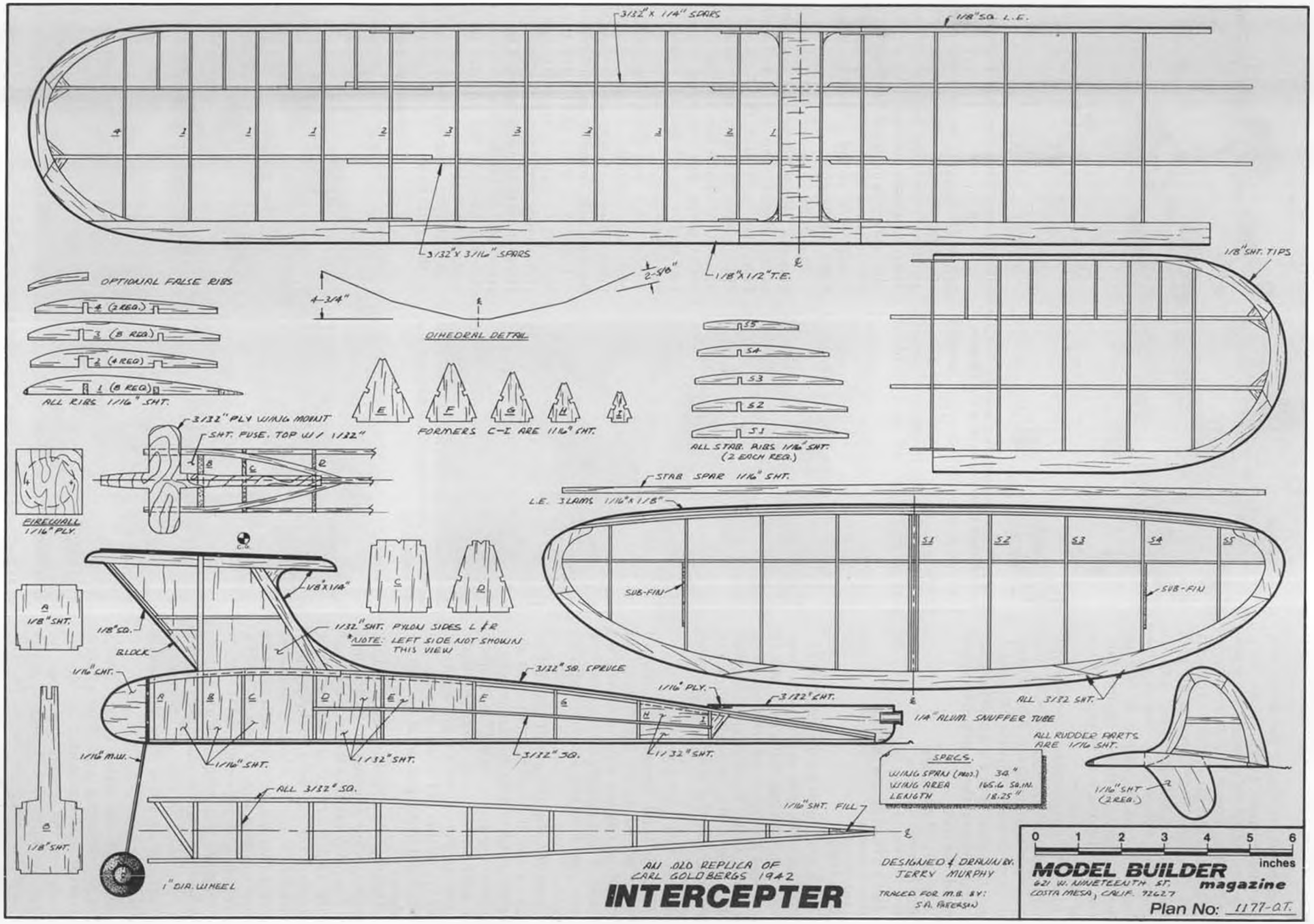
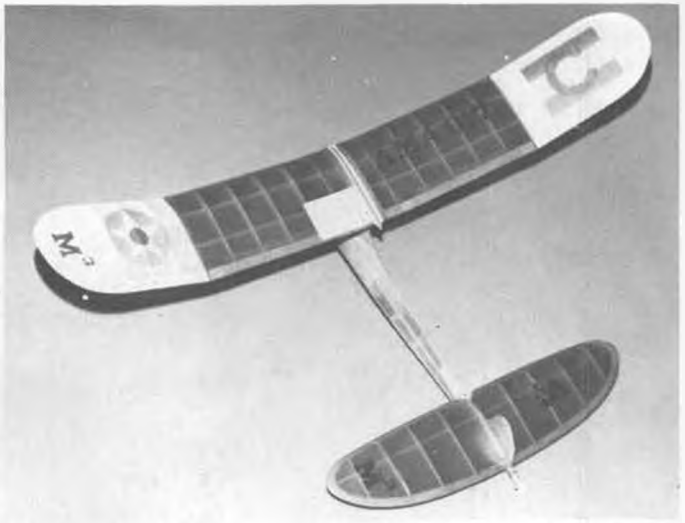
Daddy Warbucks' brother, Gene Pond, takes a look at Sal Taibi's Powerhouse. Toshi Matsuda, back to the free flight wars after a few years' layoff, in right background.


3/32" x 1/4" SPARS
1/8" SQ. L.E.
3/32" x 3/16" SPARS
1/8" x 1/2" T.E.
1/8" SHT. TIPS
OPTIONAL FALSE RIBS
4 (2 REQ.)
3 (8 REQ.)
2 (4 REQ.)
1 (8 REQ.)
ALL RIBS 1/16" SHT.
4-3/4"
1/2-5/16"
DIHEDRAL DETAIL
S5
S4
S3
S2
S1
ALL STAB. RIBS 1/16" SHT. (2 EACH REQ.)
3/32" PLY WING MOUNT
SHT. FUSE. TOP W/ 1/32"
FORMERS C-I ARE 1/16" SHT.
FIREWALL 1/16" PLY.
STAB SPAR 1/16" SHT.
L.E. SLANS 1/16" x 1/8"
SUB-FIN
SUB-FIN
1/8" SHT.
1/8" SQ.
BLOCK
1/8" x 1/4"
1/32" SHT. PYLON SIDES L & R
*NOTE: LEFT SIDE NOT SHOWN THIS VIEW
1/16" SHT.
3/32" SQ. SPRUCE
1/16" PLY.
3/32" SHT.
ALL 3/32 SHT.
1/4" ALUM. SNUFFER TUBE
1/16" M.W.
1/16" SHT.
1/32" SHT.
3/32" SQ.
1/32" SHT.
ALL RUDDER PARTS ARE 1/16 SHT.
1/16" SHT (2 REQ.)
SPECS.
WING SPAN (MOD.) 34"
WING AREA 165.6 SQ.IN.
LENGTH 18.25"
ALL 3/32" SQ.
1/16" SHT. FILL
1/8" SHT.
1" DIA. WHEEL
AN OLD REPLICA OF CARL GOLDBERGS 1942
INTERCEPTER
DESIGNED & DRAWN BY: JERRY MURPHY
TRACED FOR M.B. BY: S.A. PATERSON
0 1 2 3 4 5 6 inches
MODEL BUILDER magazine
621 W. NINETEENTH ST. COSTA MESA, CALIF. 92627
Plan No: 1177-QT



OLD TIMER
Model of the Month

.020 Replica "INTERCEPTER"

By JERRY MURPHY . . . A little more than our usual O.T. Model of the Month presentation, this hot .020 Replica will make you a threat at any contest. A famous Carl Goldberg design.

• The Intercepter was designed by Carl Goldberg in 1941 and was kitted by Comet in 1942. There were two versions of this design. One was a smaller class A model with a 42 inch wingspan and 288 squares. The other was the larger, class B model, with a 48 inch wingspan and 330 squares. The model presented here is a 0.71:1 scale reduction of the 48 inch Interceptor. It has a wingspan of 34 inches and 165 squares. With a total weight of 4.1 ounces (115 grams if you are into the metric thing), it has a truly outstanding performance. It won the first contest in which it was entered last summer in Denver and it placed third in the Rocky Mountain Championships while flying in the rain. The first and second place flyers flew in the morning in better air, while the author was busy with C gas. This year it won the Fort Worth Planesmen's Spring Rally. The prize there was a subscription to **Model Builder.**

This model will R.O.G. very well, and smoothly rolls into a steep right-hand power pattern. Once the engine run is over, it makes a smooth transition into its right-hand glide. This model flys so well that I decided to build a full size Interceptor for my old ignition K & B 29.

You might notice the pen bladder tank in the photos. Let me tell you, this is the only way to go. A pen bladder tank, coupled with Casey Hornbeck's 15P WindX Fuel (15% propylene oxide, 65% nitro, 20% caster oil) will result in easy starting and consistent high performance operation. If you don't want to mix your own, order from Casey at 3506 Dutchess Trail, Dallas, Texas 75229. Price is approximately $4.00 a quart.

By now, somebody is asking what's that crazy design on the right wing and what's M^3 mean? Well that crazy design on the right wing is the Colorado State Flag and M^3 equals "Magnificent Mountain Men", Colorado's only free flight club.

The construction of the Intercepter is very straightforward. The only modification I would suggest is maybe a sheet fin. The only area that might give you any trouble is the pylon and fuselage top, so let's give you some help there.

First, cut out all the formers from sheet balsa. Now lay out the 3/32 sq. fuselage longerons on the bottom view drawing. After this has had time to dry, install all the formers. I built my model with Hot Stuff and found it to be a super time saver. Now, after this is dry, run the top 3/32 sq. spruce longeron from the tail up to former B. I suggest using spruce because the balsa part that I used on my model is very easily broken while carrying the model on a motorcycle. Now, form the top of the fuselage by running soft 3/32 sq. stringers along the top notches in formers A through D. These stringers will butt up against the spruce top stringer just aft of former D. Add the two side stringers and the side sheeting. You should now have a fuselage that starts with a square nose and changes to a triangular tail.

Now add the pylon by first installing the 1/8 x 1/4 top and trailing edge. The pylon trailing edge sits on top of the spruce top stringer. I suggest that the TE be beveled to provide the best glue joint here. Now add the 3/32 ply wing mount. After adding the 1/8 sq. leading edge, leading edge block, and rib, you are ready to cover your pylon. Using soft 1/32 sheet and Hot Stuff, cover one side of the pylon. Now for a real time saving trick. You can use Hot Stuff to cover the other side of the pylon if you mark the position of the rib and

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Jerry Murphy enjoyed the .020 Replica version so much, that he built a full-size model of the Class B ship and installed his old K&B ignition .29.

Winner in Concours Scale was Chuck August's John Player Special. Radio had to be taken apart and distributed around car to get it all in! Note engine detailing.

Pete Fusco, right after winning Class B Oval, Expert Class. MRP car, TD .049 power.

R/C AUTO AT THE NATS!

By DAN RUTHERFORD . . . Our bearded battler bypasses the C/L combat circle to join in an event with no strings attached. Now he's a confirmed 1/12 scale R/C car nut. Watch out, Dan, it's one step from R/C planes!

• After years of trying, Don McKay has finally brought the 1/12th R/C car Nats to beautiful Seattle. Not just the 1/12th Nats, but the whole show, with 1/8th scale also. How Don managed to get everybody here, convinced that both 1/12th and 1/8th could be run at one location, is still a bit hazy, but he did it.

I'll let Chuck Hallum handle the report on the 1/8th racing. Let's look at the action in 1/12th.

Friday, July 22, found me with the day off, so I was at the track early. First thing to hit me was the drivers stand/timing tower erected by Tony Bellizi's Construction Erectors, Inc. Double-decked, with drivers standing on a flatbed trailer and the timers, announcers and kibitzers on the second story, which was scaffolding erected on the trailer, the course could easily be seen from either level, and the driver stand/timing tower made things a bunch easier for everybody.

Don McKay manning the heat board. Don worked hard, also managed time to run car.

Next thing to register was the track. Twisty devil, for sure, but enough straightaways to give the horsepower freaks a chance to show their stuff. I personally thought the track was too wide for 1/12th cars, plus the corners seemed to be a bit more open than ideal for this scale, but it was a good track when it is remembered that the same track was also used for 1/8th scale racing.

Lots of the usual Bott's Dots and yellow tape outlined the track, but the barriers were sheet metal numbers, held to each other with a couple of bolts. Every few lengths of barrier there were assorted buckets (full of scrap metal stampings . . . very heavy!), tires, strap iron uprights, etc. The barrier seemed to be very effective. It did OK at containing the cars, yet would give a little bit when smacked by a car. And there were very few problems with cars getting stuck in, on, or under the barriers.

Grandstands, PA system, pit areas and lots of parking completed the picture . . . for Seattlites, at least. For those new to the Great N.W. big 'n beautiful Mount Rainier, looking like you could reach out and touch it, made the ultimate backdrop. Many of us had difficulty at first in figuring out why the Californians kept staring at Rainier. Then we realized it had probably been years since they had been able to see that far.

I guess we'll start with Concours. In this event, the idea is to build a replica of an existing car. In airplanes, we'd call it Scale. The big thing here is static display; the cars only have to do one lap of the course to show that the actually do run. Gary Kyes, Bill Clark and myself judged this event, coming up with Chuck August's John

Carl Petri with dragger that won with a 3:08 in final race. Engine was stock . . he said.

Bob Van Zee, the guy behind French Motor Company, with his Class A oval car. Took 3rd in Amateur/Expert combined.

In spite of having our bearded C/L editor as his pit man, Dick Reed managed to become National Class A Oval Champ.

Player Special as the winner. Jeff Travelstad came second with his Pantera, and Bob Van Zee was third with a Ford van.

Part of doing any kind of a report on an event is slipping in personal observations and I have a couple concerning Concours. First, I found it amazing that none of the entrants had any drawings, pictures, etc. to back up their claim that their entry was a scale model of an existing car. The judges were given a car to judge, and a sheet of paper that simply listed the entrant's name, car entered, etc. There was absolutely no documentation of any kind, making juding an eyeball thing at best.

Dirty: "That Pantera sure has neat paint."

Kyes: "Yeh, but it isn't a replica of a full-size car and the interior isn't very scale."

Clark: "There's a bunch of neat detail on the J.P. Spl., lot's of work there."

Kyes: "The J.P. Spl. is the most scale of all of them in every way I can see. Of course, the body is actually a Ferrari painted to look like a J.P. Spl."

Dirty: "Really? How can you tell?"

Kyes: "I just know it's a Ferrari."

Dirty: "I think we need to flip a coin."

This exchange (or something like it) went on for a bit until it was decided that Chuck's entry was (evidently) the most scale model of those entered. A strange way to judge such an event, in my opinion.

Next comment is that although the J.P. Spl. did have a lot of work in it, and was the best entry in the final judgment, these eyes that are used to seeing AMA Scale airplanes found the car to be quite far removed from what is possible using existing modeling techniques. The door is definitely open for some dyed-in-the-wool Scale guy to build a car and really do a number with it.

As I don't have a Class A car, I wasn't involved in any racing until late afternoon, so A practice, tech and heat races seemed to go on forever. Finally though, it was time for the Main event, with mostly Experts and a few shakey-in-the-knees Amateurs ready to duke it out on the road course for 50 laps. Did I mention that Expert and Amateur drivers compete together in A class? Consider it mentioned, OK?

Right from the wave of the flag, Gary Kyes did a number on everybody. His driving is very smooth and fast, the car was working in the twisty stuff, and he had horsepower on everybody in the straights. At the end, Kyes had about two laps on the second place car. But at the tear-down inspection after the race, it was found that the internal gas passage was oversize. The venturi was not punched out, just the passage preceding the reed. It is highly questionable that this actually does any good at all, and I tend to agree with Gary's claim that his 40% fuel was the difference (most everybody else was running 15%), not the oversize passage. Still, rules are rules, and in A you don't do funny things with the engine. Stock is the word here.

After all the shouting was over, we had Tony Bellizi in 1st and Don McKay 2nd, both running MRP cars. Dick Reed, Al Shum and Jeff Travelstad were all running Jerobee cars and

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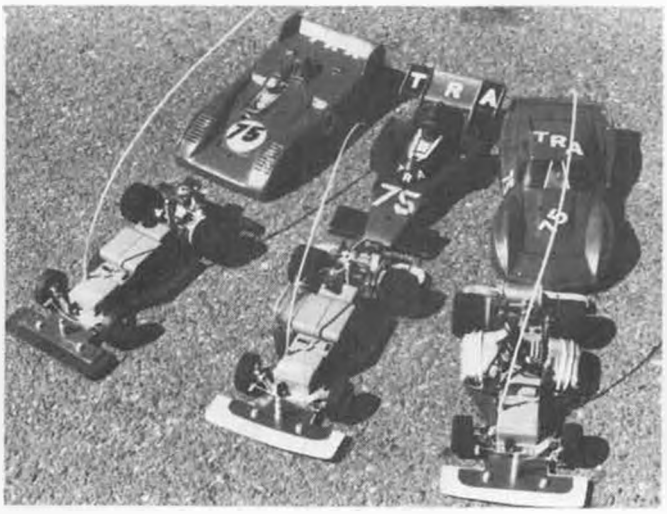


Jerry Imboden fielded these TRA (Thunder Road Automotive) cars. (L to r) Class B road, Class A oval, Class D 6-cell electric.

(L to r) Jeff and Bob Travelstad try to get Jeff's Class B oval car fired up for practice heat. Jeff a smooth driver, constant threat.

R/C SOARING

by Dr. LARRY FOGEL.

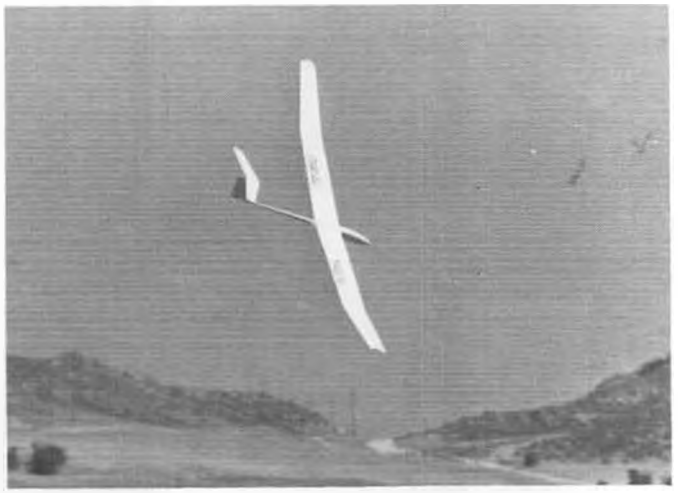
PHOTOS BY AUTHOR

• While returning from this year's RC Soaring National Championship, I asked myself, "What is it that brings these people together from distant points to pit their skills against Mother Nature and one another?" I thought for awhile, and then concluded that what they all share is some considerable degree of masochism.

This year the weather frowned upon the Nats as it has so many times before. Instead of fog, driving rain, or ankle-deep mud, we encountered a heat wave in the middle of August in an area that's already too hot and dry. This year's Nats was headquartered in Riverside, California, with most of the activity taking place at March Air Force Base. The RC soaring event was conducted just north of Hemet, in a field facing rocky hills a mile or so to the west, and similar hills just to the northeast. The challenge was to perform eight rounds of seven-minute, man-on-man, precision duration flight. This required launching up to eight planes on parallel winches with seconds separating the launches (for safety's sake).

The weather was quite predictable, though more than anticipated. Early morning is generally calm and cool. The air begins to come from the southwest, as the temperature climbs to 100°F. by midday. By 2 p.m. on the first day, our thermometer read 115° in the shade. In all that heat, hat-sucking thermals are sure to abound, but it's difficult to maintain one's "cool." The wind becomes steady from the west, and by mid-afternoon the thermals break into unwanted turbulence. Toward the end of the day, the wind comes from the north and is marked by blowing sand, dust, and sometimes dust devils which randomly march across the landing area. You must be continually on guard over your plane to prevent an unwanted flight in one of these devils.

It was difficult to max in the early hours of each day, but soon the problem became, "How far can the plane go before I lose sight of it?" As the ridge lift built up, most pilots preferred to slope soar, than seek out the remains of thermals. You'd launch to maximum altitude, then drift eastward in the hope of remaining above the outline of the hill. It feels good

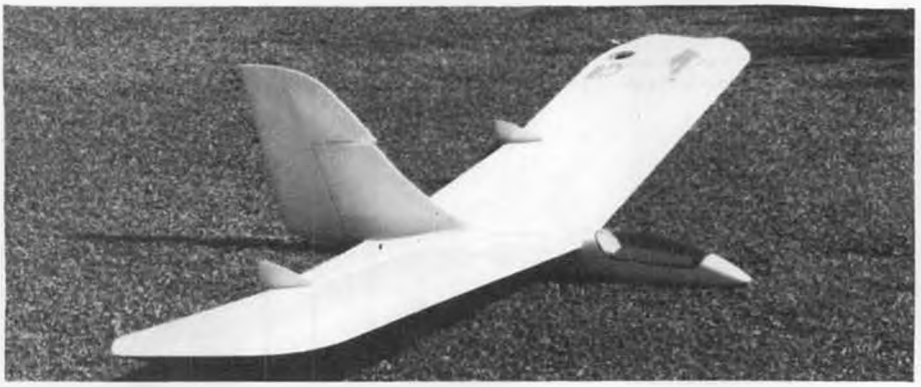


Noel Jones' Mariah turning into final. This 99 inch span model was designed by Jack Chambers. Has 18.3 aspect ratio.

Noel Jones, Laguna, Claif., with Mariah. With 9-1/2 ounce loading, sleek ship gains efficiency through increased Reynolds Number.

Larry's son David, being coached by Alex Mladeneo, won Junior class, his first Nats!

World Champion R/C soarer, Skip Miller, had overall top points, and was winner of his class. Member of Rocky Mountain Soaring Association.



Larry Fogel's "Windlord", designed by Ken Bates and a design winner at this year's Toledo Exposition. Larry entered it in Northrop Flying Wing contest.

Don Edberg examines his left palm while flying.

to see blue sky between your plane and those rocks. Below that altitude, it's difficult to tell the distance from your plane to the nearest hard surface. A number of sailplanes bit the dust . . . I mean the rocks.

After five minutes of slope soaring from the bottom up, each pilot brings his plane back for a two-minute precision landing. Late in the day, this became difficult due to the high wind and turbulence in the landing area. There were many exciting moments with sailplanes coming in over the parked cars.

Before the contest began, I had a chance to look over the many craft. I saw an unusual rubber-powered helicopter constructed by Terry Aldrich, of Santa Maria, California. I didn't see it fly. It looks like an interesting experiment. Then there was Jim Jentzen's "Murphy's Law," which consists of full flaps and a one-inch wide geodesic constructed fuselage. That leaves just enough room for three tandem-mounted servos. It flies at six ounces per square foot with great versatility. Another aircraft of particular interest is the Mariah, a 99 inch span polyhedral creation by Jack Chambers. This plane was flown by Noel Jones, of Laguna, California. It had an 18.3 aspect ratio and weighed in at 34 ounces . . . 9-1/2 ounces per square foot wing loading. Here is a sleek bird that gains efficiency through increasing the Reynolds Number. A more conventional design is the Compromise, designed by Bob Radcliffe, of San Diego. The airfoil is that of the Olympic II, but the planform is different. This 100 inch wing has 888 square inches, with turbulators built in. It has a full flying stab and inboard controls. Bob always does a particularly fine job of Monokoting. Mike Klasey flew the Reyer 3300. All went well until he experienced a radio failure.

Skip Miller, the World Champion, took overall high points and First Place in the Modified Standard Class (no wonder I didn't win that category). Skip is 29, and hails from Boulder,

Our columnist launches his flying wing Windlord, as Bob Radcliffe holds down the winch.

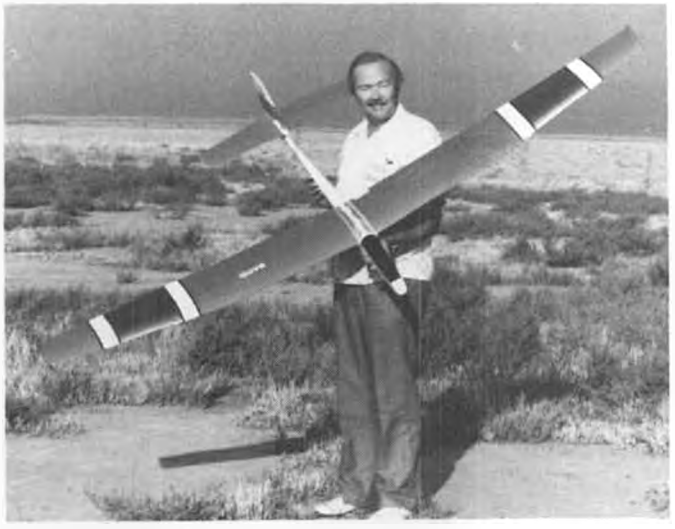
Colorado. He has been in RC soaring for only two years, but has been modeling since high school days. In fact, his father was an early RC power pilot. Presently, Skip concentrates on RC sailplanes, but flies power "for relaxation." All in all, Skip is a generally happy individual and he's very athletic. He plays tennis and racquetball, skiis, and claims that all of this helps to sharpen his reactions. He doesn't practice RC soaring a lot, but does some mental exercise in preparation for this sport. As he sees it, RC soaring is still a challenge. He hasn't really had a chance to try aerobatics yet, and hopes to take part in the RCM trophy race. It's only fair that he continue his interest in FAI contests and defend his title. Skip was educated as an aeronautical engineer, but has now turned to surveying. He also builds fine acoustic guitars, claiming these are longer-lived than the models.

Ray Marvin served as Contest Director for this event, which lasted Wednesday through Friday. On Saturday morning, there was the official RC scale sailplane event, with Dick Shilling as Contest Director. A number of beautiful models demonstrated their ability to fly as well as they look. These ranged from sleek modern craft to replicas of historic birds, such as the Baby Bowlus, by Bob Thacker, of San Clemente, California.

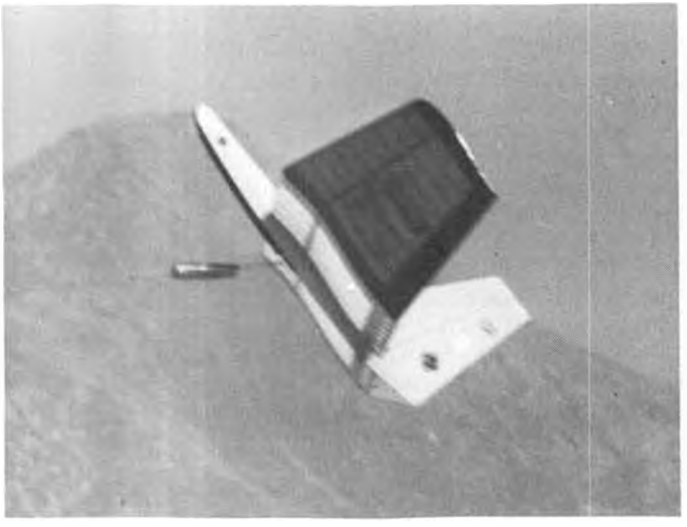
That morning there were also two unofficial contests held at the same site. The first was for flying wing sailplanes, CD'd by Dave Jones, of Los Angeles. The second was for electric-powered sailplanes, CD'd by Bob Boucher. In the first of these, there were a number of Ravens of different vintage. I entered the Windlord, designed by Ken Bates, of Ypsilante, Michigan. This was the bird that took first design prize at the last Toledo show. It carries what appears to be spoilers under the wings, but these

You'll usually find more of a variety of radio equipment in R/C soaring than in any other event. One reason is that soaring is more tolerant of marginal operation and offers no vibration.

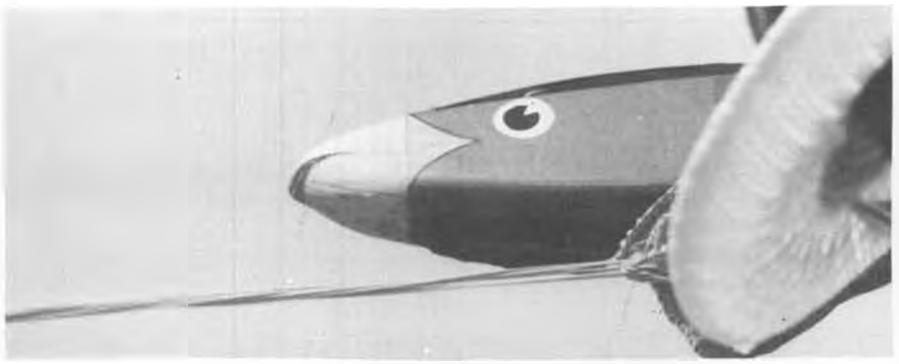
Action on the flight line, as Ed Hoppe launches, with Don Edberg waiting his turn.



Bob Radcliffe, San Diego, and his Compromise. Olympic II airfoil, 888 squares, turbulators built in, flying stab, controls inboard.



Another flying wing design, the Raven, grabs for altitude on the winch. Note slight reflex in airfoil.



Jim Smith, of the SULA club, has a sailplane that is on a constant lookout for thermals!

Soaring competition can get kind of rough. Those long, slender wings are highly susceptible to damage in a ground loop and/or flip over when jockying for that spot.

are really flaps used to convert kinetic into potential energy once you enter a thermal. Dropping these flaps 30 degrees adds little drag, pitches the nose up some, and brings you near the point of instability. At slower speed, you can turn tighter without such a high angle of bank. It seems to work well, but presses the pilot to the utmost, especially when soaring at high altitude. Another flying wing of particular interest was designed and flown by Howard Short of Los Angeles. He calls it the FW8. Here the airfoil is 9%

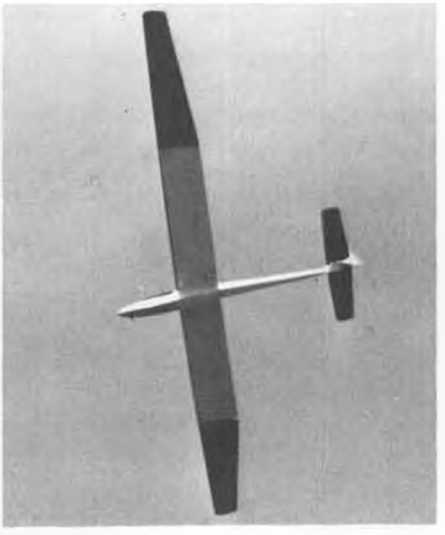
Joan Nolte displays excellent piloting form. No radio problem, just blocking the strong sun.

flat bottom with the high point about 20 percent from the leading edge. With a 100 inch span and 15 inch chord, the 47 ounces are carried by 1500 square inches. The elevator is 80 square inches. A tricky mechanism controls the moving surfaces.

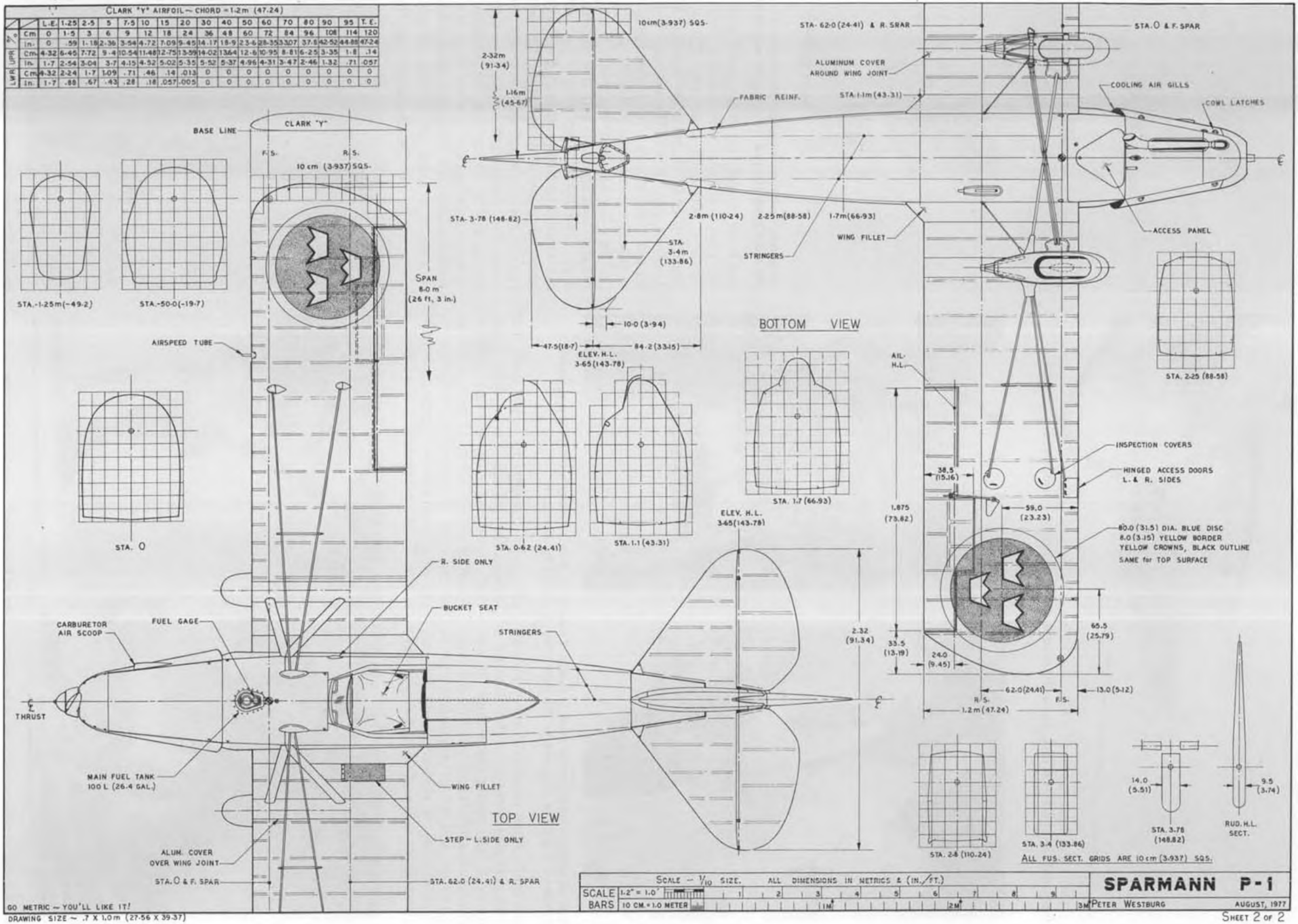
The '77 RC Soaring Nats was a notable success in spite of the weather. The National Soaring Society responded to a request from the AMA, accepting the responsibility for preparing and conducting this event. An awful lot goes into making such a contest a reality. There are the problems of finding an acceptable site near Nats Headquarters, of obtaining permission to use that land, of setting up and

Continued on page 100

Mark Smith in what would have to be called a "heated discussion", especially with the temperature around 125°F! He flew in a variety of events this year, including HLG.



Mark's "Contest Winner" passes overhead. It has split flaps.


CLARK "Y" AIRFOIL — CHORD = 1.2m (47.24)
L.E. 1.25 2.5 5 7.5 10 15 20 30 40 50 60 70 80 90 95 T.E.
% Cm 0 1.5 3 6 9 12 18 24 36 48 60 72 84 96 108 114 120
in. 0 .59 1.18 2.36 3.54 4.72 7.09 9.45 14.17 18.9 23.6 28.35 33.07 37.8 42.52 44.88 47.24
LWR UPR Cm 4.32 6.45 7.72 9.4 10.54 11.48 12.75 13.59 14.02 13.64 12.6 10.95 8.81 6.25 3.35 1.8 .14
in. 1.7 2.54 3.04 3.7 4.15 4.52 5.02 5.35 5.52 5.37 4.96 4.31 3.47 2.46 1.32 .71 .057
Cm 4.32 2.24 1.7 1.09 .71 .46 .14 .013 0 0 0 0 0 0 0 0 0
in. 1.7 .88 .67 .43 .28 .18 .057 .005 0 0 0 0 0 0 0 0 0
BASE LINE
CLARK "Y"
F.S.
R.S.
10 cm (3.937) SQS.
STA. -1.25m (-49.2)
STA. -50.0 (-19.7)
AIRSPEED TUBE
STA. 0
SPAN 8.0 m (26 ft. 3 in.)
2.32m (91.34)
1.16m (45.67)
10cm (3.937) SQS.
STA. 62.0 (24.41) & R. SPAR
STA. 0 & F. SPAR
ALUMINUM COVER AROUND WING JOINT
FABRIC REINF.
STA. 1.1m (43.31)
COOLING AIR GILLS
COWL LATCHES
STA. 3.78 (148.82)
2.8m (110.24)
2.25m (88.58)
1.7m (66.93)
WING FILLET
STRINGERS
STA. 3.4m (133.86)
ACCESS PANEL
STA. 2.25 (88.58)
10.0 (3.94)
47.5 (18.7)
84.2 (33.15)
ELEV. H.L. 3.65 (143.78)
BOTTOM VIEW
AIL. H.L.
STA. 1.7 (66.93)
INSPECTION COVERS
HINGED ACCESS DOORS L. & R. SIDES
38.5 (15.16)
59.0 (23.23)
1.875 (73.82)
80.0 (31.5) DIA. BLUE DISC
8.0 (3.15) YELLOW BORDER
YELLOW CROWNS, BLACK OUTLINE
SAME for TOP SURFACE
STA. 0.62 (24.41)
STA. 1.1 (43.31)
ELEV. H.L. 3.65 (143.78)
R. SIDE ONLY
BUCKET SEAT
CARBURETOR AIR SCOOP
FUEL GAGE
STRINGERS
2.32 (91.34)
65.5 (25.79)
33.5 (13.19)
24.0 (9.45)
62.0 (24.41)
13.0 (5.12)
R.S.
F.S.
1.2m (47.24)
THRUST
MAIN FUEL TANK 100 L (26.4 GAL.)
WING FILLET
TOP VIEW
STEP — L. SIDE ONLY
ALUM. COVER OVER WING JOINT
STA. 0 & F. SPAR
STA. 62.0 (24.41) & R. SPAR
STA. 2.8 (110.24)
STA. 3.4 (133.86)
14.0 (5.51)
9.5 (3.74)
STA. 3.78 (148.82)
RUD. H.L. SECT.
ALL FUS. SECT. GRIDS ARE 10 cm (3.937) SQS.
GO METRIC — YOU'LL LIKE IT!
DRAWING SIZE — .7 X 1.0m (27.56 X 39.37)
SCALE — 1/10 SIZE. ALL DIMENSIONS IN METRICS & (IN./FT.)
SCALE BARS 1.2" = 1.0' 10 CM. = 1.0 METER
SPARMANN P-1
PETER WESTBURG
AUGUST, 1977
SHEET 2 OF 2

by PETER WESTBURG

The Sparmann P1

PART TWO
(Conclusion)

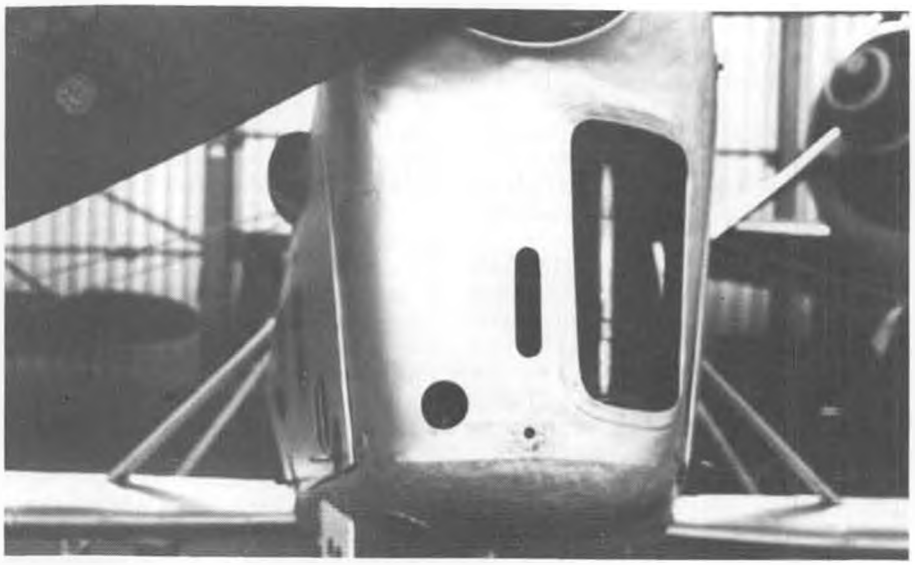
• The P-1 could carry radio or camera equipment, and optionally, two 12.5 kilogram practice bombs, one each outboard of the landing gear, or four on the fuselage under the cockpit. For gunnery practice, one .30 caliber Browning was mounted in the airstream on the right side of the cockpit; 250 rounds were carried internally, but the spent cartridges and links were captured in a box mounted on the outside with the gun.

One S1 was registered as a civil airplane, SE-ADX, and played a role in a film entitled "Ungdom Av I Dag" (Youth of Today), wherein it was crashed by Lt. Lambert-Meullers on the 25th of August, 1935

The P-1 weighed only 927 lbs. empty, had a wingspan of 26 feet, 3 inches, and a length of 20 feet, 3 inches, making it one of the smallest fighter trainers in any air force. Finish was usually all aluminum, with black numbers and the insignia of three yellow crowns outlined in black on a blue disc, on both sides of the fuselage and the wing surfaces. Metal work was damascened to cover hammer marks, all of the cowling being formed by hand, including the streamlined fairings over the wheels. These fairings were unusual, in that the lower halves were sprung with the wheels and telescoped into the upper fixed fairings.

In the history of the Swedish Air Force, "Att Flyga Ar Att Leva" (To Fly is to Live), by Col. Norrbohm and Bertil Skogsberg, the P-1 is shown in dazzling white finish with a black number "97" on the engine cowling and aft of the insignia on the fuselage, and a black number "1" just

Continued on page 103



Top photo shows only remaining Sparmann, modified into S1-A by adding large headrest and aerodynamic balance area to rudder. Above photo of 130 hp DH Gypsy Major cowling.

Original P-1 had civil registration, called S1. Note rounded wingtips, lozenge rudder, and no headrest. Note cooling air gill in cowling, similar to Tiger Moth.

The business end of Citation stunt model, by Ted Fancher, San Francisco. Supertigre 40, Zinger 11 x 5 prop. Concours winner, also tied for 3rd in Open Stunt competition.

Joe Kirn was the highest scoring Junior in C/L Scale with this B-25 as modified by Tallmantz. Model designed by father, Dale. Used as photo ship for many air movies, aircraft is based at Orange County.

control line AT THE NATS!

By "DIRTY DAN" RUTHERFORD

• Those who are really interested no doubt already know who won and who lost at the '77 Nats, so I don't see any need to go into a blow-by-blow report here. It would only be a duplication of other reports. So I'll let all the other C/L reporters do the standard Nats thing that generally describes what happened, but falls far short of describing what it was actually like to attend the '77 Nats.

GOIN' TO A CAL NATS . . . FINALLY

With the Nats having been someplace East for a number of years, everybody on the West Coast is hyped for going to Cal, many of them for their first Nats. As I strongly dislike SoCal, I'm not too excited about it. But we have planned a combination business/vacation trip to the L.A. area for the family in '77, so it seems logical to go at Nats time. Only problem is that August is probably the worst time to be going. . .

SATURDAY, AUGUST 6

The Dirty Van is packed, the mail has been stopped, a neighbor kid is going to water the plants and the pet gerbil is being gerbil-sitted at a gullible friends house. We're ready to go . . . just have to mail in one more packet of orders, a never-ending chore for sales reps. As we pull out of the Post Office parking lot, just as I've done a million times, the clutch linkage on the 4-month old Ford van quits linkaging. Back home, shifting without the clutch all the way, expletives thrown to the winds without regard for the nice folk out early on this beautiful day. The fix turns out to be fairly simple once all the parts are located, and we decide to drop the lawsuit against Ford.

A few miles down the road I decide that I was up too late the night before, and Cheri drives while I sleep in the back. Sleep is interrupted by the siren on one of those funny cars with the bubble-gum machines on top. Seems that somebody wanted to go 55 in the left lane of a 4-lane freeway. As Cheri cruises at 65, there was a bit of a hang-up here, which ended up with the intimidating end of our bull-nose Ford flat to the bumper of the go-slow obstructionist. State Bulls refer to that as tail-gating, and we pick up the only ticket of the whole trip. I'm too sleepy to explain how to deal with left-laners and get away with it. Besides, Cheri is a damned good driver, so I leave her to do her thing and go back to dreaming about winning all three Combat events, plus Stunt, all with the same plane.

After 200 miles or so of dreaming the same dream over and over, I take the driving chores for the rest of the day. The usual lunch stops and potty stops are made, plus one for gas. The Dirty Van holds 42 gallons, so we don't stop for gas very often, which keeps the kids sitting with their legs crossed much of the time.

Into southern Oregon the view has definitely changed from the green-everyplace we are used to, and a lot of brown is showing. Across the line into Cal, we tell the kids they are in California for the first time in their lives. They are immediately disappointed. To many kids, California rhymes with Disneyland, and they are shocked when it is realized that Cal really isn't solid amusement park. A moment of silence is held for the shattered dream left lying beside the road. Growing up must be more traumatic than it used to be.

Once into Cal, we leave behind the dreaded radar traps of Oregon and Washington. Dreaded is not too strong a word, as anyone who has had their picture taken by a four-wheel drive pick-up, innocently parked alongside the freeway, will verify. Washington Bulls are really tricky. And Oregon's are a close second.

Ted Fancher and his winning Citation shown in close-tp photo above.

Mark Bauer, Norridge, III, with his ST 60 powered Pitts.

Jeff Perez, Larned Kans., was first in Sport Scale with his Northrop P-61 Black Widow. Dropped bombs, jettisoned tanks, etc.

Roland Baltes, San Pedro, Calif., placed 5th in AMA Scale with his Junkers JU-88, powered by K&B 40's.

In Cal, we bump the speed up to 75 and pay *very* careful attention to the rear-view mirrors and on-ramps. The State Patrol cars are all well-marked and prove to be easy to see, so during daylight one can make good time. For one used to radar traps and plain-wrappers, it's a piece of cake.

Glenn Lee, Batavia, Ill., 3rd in FAI Speed at 129 mph, places model in takeoff dolly.

About 11:00 we pull into Yuba City and make it over to Larry Driskill's place for some wine, conversation and sleep. Out with the sleeping bags for the kids, the hide-away comes out of hiding for Cheri and I, and sleep comes quickly. My dream is enlarged to include a win in Rat, again with the same plane used to win all Combat events and Stunt.

SUNDAY, AUGUST 7

We wake up about 6:30, extremely disappointed to discover that not only has Larry not fixed us a large breakfast, but he is still asleep. We don't know the combination to the lock that was obviously put on the reefer just the night before, so it's off down the road after leaving a note of thanks for Larry and Patty.

In Stockton, we almost make the mistake of going down I-5, which is an extremely boring chunk of road from here going South. We take Hwy. 99 which isn't quite as bad. Into a rest area for breakfast made on a Coleman, and who should show up but our previous night's host. After a cup or two of coffee, it's back on the road with Larry leading, only now we've pulled a Dirty Trick on him by having Joshua, our six-year-old boy, ride with Larry. Ask Larry about it sometime.

With Larry handling the front door, I take care of the back door, and we

Dan Osdoba, Mankato, MN. was 2nd in AMA Scale, made US team, with Sig Zlin Akrobat.

pick up a few other members of the 70 plus mph club that nestle in between us. A few Bulls attempt to clock us, but they aren't as sharp as they need to be to nail me, and our average speed only suffers slightly.

Hours of driving later we hit the Grapevine before L.A. Long, steep hills to pull, but none are a problem and we pull into the rest area at the

Dirty Dan was so entranced with the combat site that he took this photo to remember it by. A national C/L organization could probably prevent this kind of site from happening again.

Luke Roy lighting a fresh one. Very active speed flier who is always willing to help others.

Flipper and Whipper out-flipped and out-whipped 'em all to win Bad-year. (L to r) Whipper (Phil Shew) and Flipper (Les Pardue).

Dr. Ron McNally (lt) and Combat CD Neal White don't appear to be having much fun while drawing the Open Fast Combat pyramid.

top with the temp only slightly higher than normal, while others are boiling alongside the road. In the rest area, I feel as if I have truly been welcomed to L.A. A guy walks up, flashes something in the palm of his hand and says, "Wanta buy this ring?" From here you can't see L.A., but it's obvious that we're close; the Freakos are out already.

It seems to take forever to get to Riverside, but by about 4:00 p.m., we finally make it. Larry is in the Air Force, so he knows the way to March AFB and that's where we head. The gate guard snaps a salute as Larry pulls up and then simply waves me by. I thought I deserved a salute also, but didn't get it.

Into the Nats area, we pass a maintenance hangar on the left and a brown, rocky field on the right. Further down is acres and acres of asphalt, and again on the left is another hangar, this one being used for the Nats HQ. Larry leaves to find on-base housing, and we make it to the AMA booth to sign up for a dorm room. It is exactly two minutes after 5:00. Guess when dorm sign-up closed. Yep. 5:00. At least one thing at this year's Nats came off *exactly* on schedule.

Over to another AMA booth, this time to talk Larry Bolich out of a free AMA hat and to get a Press Pass that was destined to be used only once all week.

Back in the hangar, Neal White is getting ready to process those entered in Slow Combat. Neal takes my Nats Press Packet, containing the usual propaganda, and gleefully stamps it with an absolutely huge "DISQUALIFIED" stamp . . . in red letters, of course. Neal seems to be in the proper attitude for anyone faced with CDing a week's worth of Combat.

Somebody tells me that the brown, rocky field we drove past on the way to the hangar is to be the site for Combat. Early on in Nats week, everybody seems to be trying their hardest to B.S. anyone within hearing. That field wouldn't even make a parking lot for bulldozers, so I forgot about it.

At 7:00, the dorm registration opens up again, and we pay $112.00 for the family of four to stay 8 nights. Just before leaving for the dorms, Rotten Ralph Cooke comes up and he's worried. He tells me that the previously mentioned brown, rocky field is not only brown and rocky, but also full of large ant hills, animal holes and worse. What could be worse? We could be expected to fly Combat on that piece of crap, that's what. And that is what Ralph is worried about. He checked it out and claims it is no rumor, that we will be flying Combat on a no-man's land. I still can't believe it, but Earl Witt happens to be standing next to me and, on the off-chance Ralph is right, I tell Earl that I'm going to have to start flying R/C just to get some respect out of the AMA. Only I didn't say it that politely or with exactly those words. You know what I mean, don't you?

With that we boogied off to see what the dorms were like, and unfortunately they were just what one would expect . . . dorms. Two single beds per room, one naked light bulb hanging from a high ceiling, community showers, etc. The family was not thrilled. As soon as the van is unloaded, I get on the phone and start calling motels. Turns out that Riverside is almost empty, and rooms with reasonable rates are fairly easy to come by.

Continued on page 73

Top combat flier, Mike Tallman, from Wichita, Kansas.

Ken Long, Whittier, Calif., flew this "Betty" bomber on a pair of Enya 19's. Nicely built model, but no point-making gidgets.

The winner once again in Control Line Open Stunt, Al Rabe, wiping down his Mustang after an official flight. No sign of the rebuild required as the result of a stooge release accident earlier in the year.

control line STUNT AT THE NATS!

By BART KLAPINSKI

PHOTOS BY THE AUTHOR

• March Air Force Base, near Riverside, California, was the site for the 1977 Nationals. The Southern California folks had made a promise to the AMA that if the Nats were held here, there would be no rain. Although the mountains and deserts to the east received plenty of the wet stuff, not a drop found its way to the March AFB facility. This was welcome relief after several past Nats, when on at least one day, models of all descriptions could be seen floating away to the nearest tributary.

If you don't know something of the record of these two ex-Stunt champions, you ain't been around modeling very long (l to r): Bob Palmer and J.C. "Madman" Yates.

On most days, the fog was in evidence in the early morning, and some pilots who were practicing could be heard to say, "I hear it, but I don't see it. What'll I do when the engine quits?"

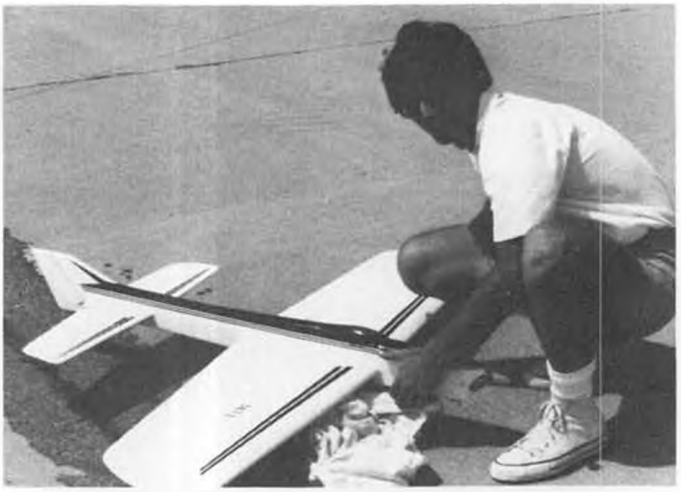
Although the wind became somewhat gusty in the afternoons, it was flyable, and all but a few pilots came through it very well.

All considered, it was a very good and well run competition, and those flyers from the midwest and eastern states who did not attend missed a good one. Too bad!

Arlie Preszler was this year's event director. He, along with his assistant, Lanny Shorts, did an excellent job in running the event and executing a few new ideas.

Arlie asked me to assist him, and Lanny, with the appearance judging.

Twice World Champion, Bob Gieseke, readies his Gieseke Nobler for an official flight as his son holds model. Placed second in Open Stunt.



Bob Baron and his Supertigre 46 powered, Monokoted ship, which tied for third with Ted Fancher.

Ted Fancher, with his Concours winner, which also tied for 3rd spot in stunt competition.

Wynn Paul, editor of P.A.M.P.A. Newsletter, with his Pampawagon, which placed 5th in Open Stunt.

In years past, each of the Junior, Senior, and Open class planes was judged on separate evenings. Along with that, each model was judged totally by itself . . . so no real comparison to other models could be used. This year, the Junior and Senior models were judged the same evening. All entries were put in a line. Then the line was reworked so that at the finish, the best model was at the front of the line and the lowest scoring model was at the rear. This turned out to be a super idea, especially in the Open class, as some 51 models were present. The normal four to five hour job took less than two hours, including late entries and the pilot's briefing. *(This idea first became well-known in Formula I Pylon racing, where as many as 120 airplanes had to be rated before flying could start. wcn)*

Rookie-of-the-year winner was Norm Whittle, Scott AFB, Ill., who placed 9th with his own design "Eagle", powered by a Supertigre 40.

Junior and Senior Stunt was flown on the same day, and some very good flying was seen. Two rounds were flown in each category, and the results are as follows.

In Junior Stunt, Karl Hiesl, Van Nuys, Calif., showed the way, flying his very new (not completely rubbed out) "Miss Poppy" from Ed's Garage. Karl's plane has a C.S.C. foam wing, with a 60 inch span. The model is powered by a stock ST46, swinging a Zinger 11 x 6 prop. The finish is Sig Dope over Japanese Tissue, and weighs 58 ounces. Karl used wood parts in place of the plastic parts included in the kit. The plane was finished on July 21st, and Karl showed some good flying without much practice.

Second place went to Dan McClellen, of Burlingame, Calif., and third was captured by Gordon Marshal, of San Carlos, California.

Dave Fitzgerald brought home the bacon in Senior stunt. His first place Sig Chipmunk is the same plane he

David Fitzgerald was Junior winner last year, Senior winner this year. He's from San Mateo, California. Super Chipmunk.

Bob Whitely placed 6th with ST 46 powered Derringer. He's from Fountain Valley, Ca. Nats newcomer Lynn Barnett gets pic in mag.

used last year to win first place in Junior stunt. His 42 ounce model is powered by an Adamisin/O.S. 35, with an Adamisin muffler. The engine swings a Zinger 10 x 6 prop and runs on straight suction. Dave's Chipmunk sports Monokote covered wings and tail, with K&B Super Poxy on the fuselage.

Second place was nailed down by Joe Musemecci of Richardson, Texas, flying an Olympus. The Fox .35 used in the model was assembled using an old style Fox case with a new "hand" piston and sleeve. Bob Gieseke had mentioned that these engines run well, and he is right.

Greg Brown, of Los Angeles, Calif., was third. His Sig Akrobat used an internal muffler which was homemade by Greg's father. The idea is great although the engine appeared to run just a bit hot.

Open stunt went smoothly all week long. On the first day, four circles were used, which made for less flyers per circle. This not only made the job of judging much easier, but also took less time.

Arlie Preszler tried a new system of using flight scores and I agree with the system. More than just the high flight score of the day for each pilot was used. For the semi-finals, there were three scores used for each fliers over a two-day period. This is a positive step, as the winners not only needed one good flight, but also consistency. This trend will probably continue.

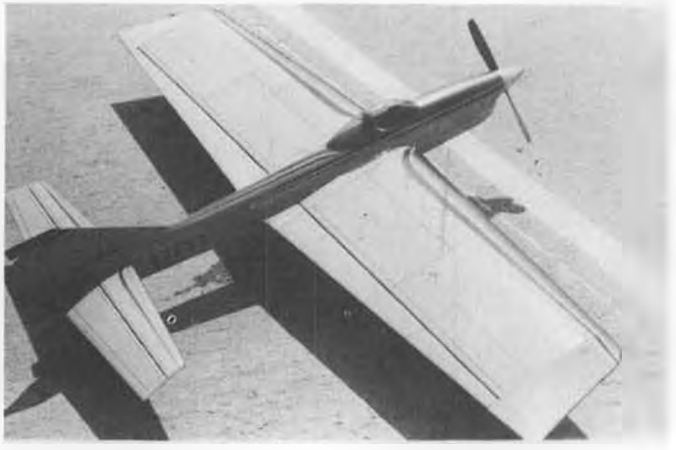
When the bash was over, it was Al Rabe in first place, flying his 1976 F51 Mustang. The model has well over three hundred flights, and a completely new nose and wing leading edge due to an accident while launching from a stooge. The Mustang is powered by an Aloise/ST 51 engine and homemade internal muffler, and the combination runs very well. He uses no muffler pressure. The built-up and planked wing spans 57 inches, and the massive model weighs about 51 ounces. That's light. It's a very beautiful model, and is finished with Hobby Poxy.

Second place went to one of stunt's favorite people, Bob Gieseke. Bob has twice been World Champion flying Gieseke Noblers, and although this year's model had never been flown in competition, it flew as well as his other models.

Bob's model has a "D" tube built-up wing, which spans only 48-3/4 inches. The plane is covered with tissue and finished with Aero Gloss Dope. It weighs a scant 40 ounces, and is powered by a Fox 35 using an old style case with the new hand piston sleeve. This, along with a Fox flow-through muffler on pressure, made for a smooth running combination. The Fox swings a Rev Up 10 x 6 prop, using Fox Super Fuel.

There was no fourth place award, as there was a tie for third by Bob

Continued on page 90



Gorden Delaney sent this fine stunt machine from Salt Lake City, Utah, for Bart Klapinski to use for stunt judge warm-ups.

Frank McMillan, Bellevue, Nebraska, placed 7th with foam winged Impulse. Supertigre 46 power.

Les Pardue, winner in Open Badyear at '77 Nats, makes famous mid-prop blade catch on sophisticated team design. Pilot Phil Shew found this one a bit hot to handle. Lorna Samuel photo.

Les Pardue again, with Cox 15 Badyear. Note typical Racer Knees. Hand behind back conceals sub-micro electric starter designed to look like a finger. Photo by partner Phil Shew.

PHOTOS BY AUTHOR UNLESS NOTED

Control line

By "DIRTY DAN" RUTHERFORD

HELLO TO HOWARD RUSH

I was planning on running into Howard at the '77 Nats, and just to let him know that I still play dirty, the August issue of this column featured a pic of Howard and an early FAI Nemesis. That is probably not too unusual, but the caption made it seem as if Howard was claiming the plane to be the ultimate FAI Combat plane. A statement like that is like saying a Ringmaster is the ultimate Slow Combat ship.

So the pic and caption were intended to lay it on the Colonel, not to lead you into thinking the FAI Nemesis is a viable FAI Combat plane in today's Combat scene.

MORE GLOBEE PLUGS

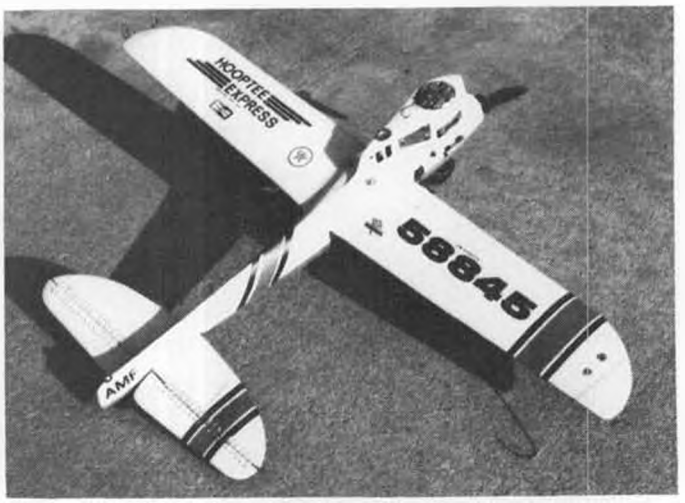
At the Nats, Harry Roe turned me on to some neato plugs that he is developing for the Cox 049 engines. There will be a couple of versions available, one for low nitro fuels and reed-valve motors, with the other designed for use with fuel containing at least 50% nitro. This high performance version can be used in reed-valve engines, but will no doubt see more use in the TD .049's and .051's.

By next month, I ought to be able to show ya these plugs in this column, plus letting you in on how well they work.

FUTURE NATS. . .

Even though I have been home from the '77 Nats for a couple of weeks as I write this, I still feel somewhat bummed-out about the whole early August AMA traveling road show. And I'm not really sure that I should feel that way. No, I'm not sure that I should

K&B .15 installation in US Combat Team member Chuck Rudner's FAI combat ship. Rear intake presents mounting problem.



Hooptee Express, by Jim Ricketts, Sioux Falls, S. Dakota. Bill Allen glass top, Kelly 8x8 prop, OS Max 40 SR, K&B paint. Ricketts pic.

be using this column to tell all of you that the '77 Nats was a bummer for everybody, or to in some way give that impression. I know for a fact that '77 was lousy for me, and I know exactly why. It was the Combat site. That one thing set my Nats off to a negative start and things seemed to go downhill from there.

The smog, heat, wind and a bunch of other factors only made matters worse. By the Tuesday of Nats week, it was quite plain to me that I should have stayed home this year.

I have absolutely no doubt that many people went to this year's Nats and had a great time. But a lot of us were aware of the many problems and went home disappointed. *(And there were many who were aware of the problems, but still had a great time. wcn)*

While at the Nats, there was a lot of discussion going on about how things were going and one of the most often proposed solutions was to have a split Nats for C/L only in the future. This is a rather radical proposal, and quite frankly, is one that cannot possibly come off within the next few years. But it is still a very interesting proposition. If we had a C/L-only Nats, just think of the many sites that would be available to us. All we would need is a hunk of asphalt for the majority of the C/L events, plus several grass circles for Combat.

As it is now, when a potential Nats site is considered, it must have room for F/F, plus an exhorbitant amount of pavement for those funny R/C planes *(and dorms that cost more than the local motels. wcn)*. As the past few years have shown, it is very difficult to locate a proper Nats site when the needs of all widely varied AMA events are considered. And even when a site is located, at least one, and more likely several groups within AMA, must suffer along with conditions not to their liking. This year, the Combat fliers took it on the chin with a site that was worse than anything anybody I talked to had ever flown on. When I was a kid, I used to attempt flying in our barnyard. It was better than the field used for Combat at this year's Nats, and I have pics of both March AFB and the barnyard to prove it. Laugh if you want, but I'm not trying to be funny.

Back to the point, I understand that many of the F/F boys were also unhappy with their site, especially the fire danger and the fact that motorcycles could not be used for retrieving. If I wanted to, it would not be too hard to come up with many compromises, as far as event sites is concerned, that were made at this year's Nats and have been made in years past.

Our AMA has searched the country over looking for a proper Nats site, and none has been found yet, although some have been OK. But just "OK" doesn't seem to me to be good enough, especially now that I have been faced with flying (or not flying) on an obviously sub-standard field.

R&R columnist for MAN, Harry Higley (left), with world-traveling photographer and Combat star, Charlie Johnson. Photo courtesy of Gertie Camel, San Diego Zoo.

The long-range solution, at least for C/L fliers, seems to be a separate Nats, and I'll bet that many F/F guys feel the same way. With a C/L-only Nats, we could go back to rotating the Nats around the country, as a really good C/L site would not be that difficult to find in most any area of the country you would like to name. The first site that comes to mind is that used for the Winston-Salem bash, the first C/L contest to be granted AAAA sanctioning. Although I have never been to Winston-Salem, I have seen maps of the field and people I have talked to, who have been to W-S, say the site is really super.

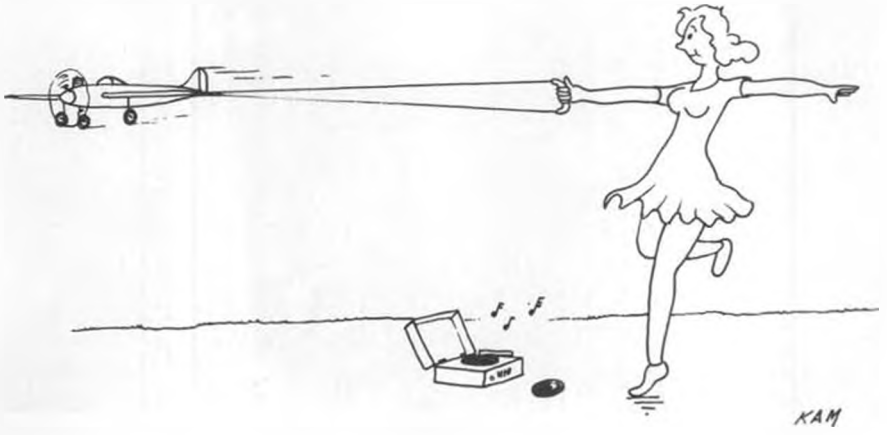
Another site I've never seen is that used for Bill Allen's Annual Muscular Dystrophy benefit. I'm not sure that a C/L Nats could be accommodated there, but the fact remains that Bill's meet attracts many fliers participating in most C/L events, and that Bill got the field for this meet on his own, in a town that has almost zero C/L activity.

Here in the N.W., we have two sites that could easily accommodate a Nats C/L site, with super circles for everybody. If a search were made, I have no doubt that several Nats-quality sites could be located right in this area. The same must hold true for most areas of the country, so lack of flying sites seems to me to be the last thing holding us back from having a C/L-only Nats each year, and on a rotating basis as it should be.

NCLS WHERE ARE YOU?
WE NEED HELP.

If we had a National Control Line Society, maybe talk of a separate Nats C/L site wouldn't be such a radical

Continued on page 100



MODEL ROCKETRY

By DOUGLAS PRATT . . .

Excellent example of static display. Dry-transfer lettering gives professional look.

Use simple, reliable birds at demo launches. Keep Murphy's law in mind.

• Now that NARAM-19 is over (at least for everyone except me) it occurs to me that some remarks on publicizing our hobby would be interesting and helpful. After explaining things to myriad newspapers and radio people, not to mention spectators who came out to see what the hell was going on, I feel qualified to speak on this subject. People who have other ideas are encouraged (begged) to write to me; I usually publish letters I receive, since it saves typewriter ribbons.

Press coverage concerning model rocketry can be divided into two groups: good and bad. Contrary to the Madison Avenue saying, bad publicity *is* worse than no publicity; towns have passed laws against model rockets because of some mistaken impressions that found their way into print. I remember the days when model rockets were considered fireworks by most state legislatures; furthermore, "model" rockets consisting of CO_2 cartridges and lead pipes stuffed with match heads were regularly killing inquisitive people. It has taken a long time to get to our present state of bliss, with FAA and state regulations patting us on the head; and it was a fight not without setbacks. You are likely to find that local fire marshals have wide and arbitrary authority in their localities; and the crazy kid down the block who likes to launch firecrackers can ruin it for everyone if he isn't squelched.

Bad publicity can generally be divided into two groups; which I will characterize as the "Look at the toy rockets" article and the "Look at these nuts and their bombs" article. The first kind is usually innocuous; but it's offensive, because it looks down its nose at us. Unlike the British, I still flinch when people call models "toys" (incidentally, at the time of this writing, model rockets are still illegal in Great Britain, thanks to a moss-covered judge's interpretation of the Guy Fawkes law!).

The "Look at the nuts" article is very dangerous. The writer usually thinks he's being funny, or fitting into what he may see as the frivolous and fun-loving nature of the event. Well, we are not amused, and you won't be either when you hold another public event. Flying fields have been closed for less. Ask anyone who flies any kind of model.

When in the presence of the press, realize and remember that his impression of you and what you are doing will cause hundreds (or thousands) of other people to form their impressions. Restrain your sense of humor to well-chosen remarks. Exclude the usual jocular comments about catastrophic

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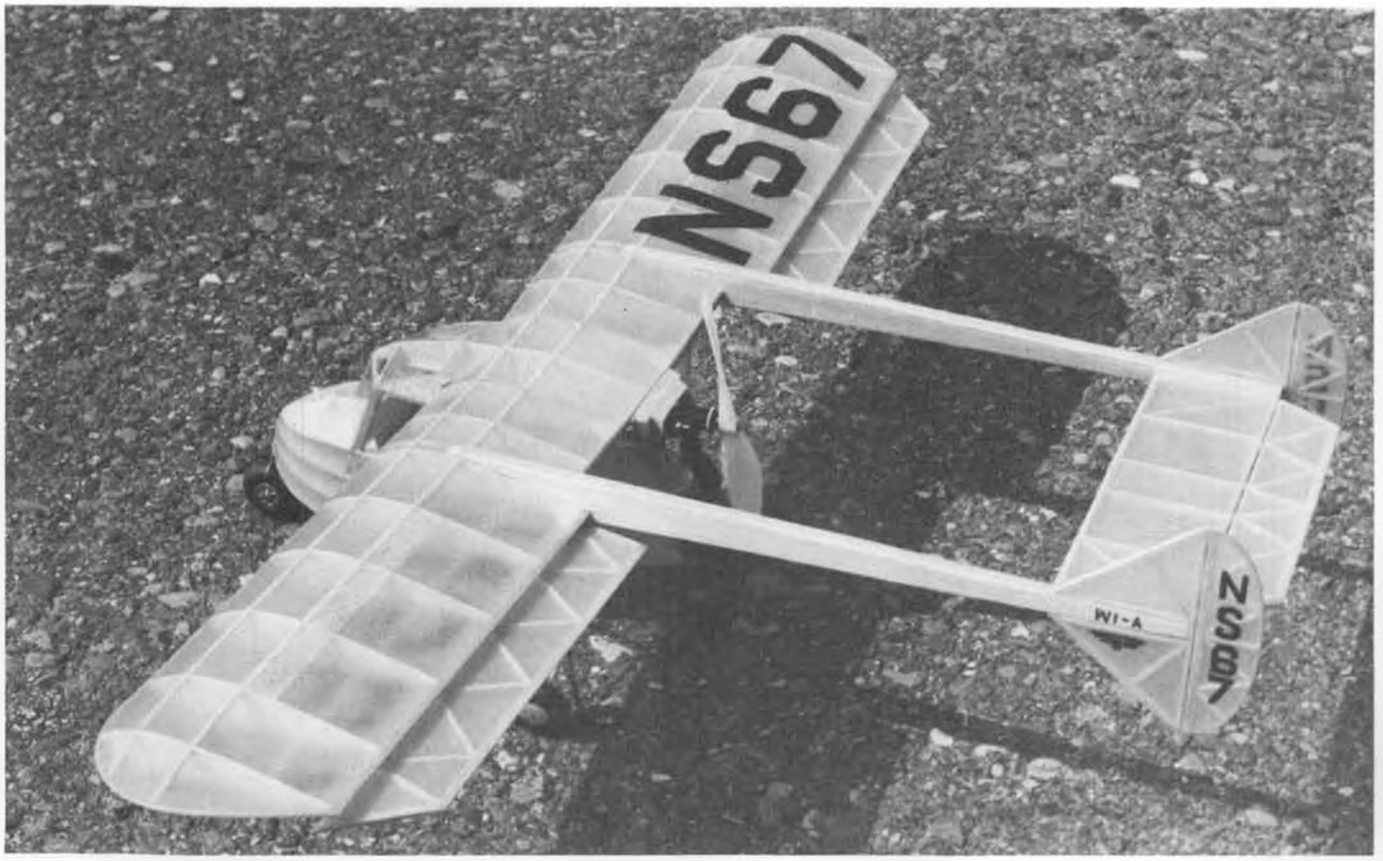
Part of Michigan Aerospace Fair, sponsored by Great Lakes Assoc. of Rocketry. All photos this page by Harry Neuman.

Static plastic models add a lot to a static display. Have some along with your flying birds.



WEICK W1-A

By WALT MOONEY . . . What does our Peanut Bender do when he finds a design that hasn't enough room for a rubber motor? Turn to Fizz Power! This little ship is a perfect subject for CO_2 engines.

• The Weick W1-A was built in the early 1930's as a research safety airplane. It was operated and tested by the U.S. Bureau of Air Commerce in 1935, and was known for a time as the Weick rudderless. It went through several modifications over a period of several years, and was rebuilt by Fairchild Aircraft Corporation to the configuration modeled here.

Mr. Fred Weick went on to design the Ercoupe, another safety airplane, and also to work for Piper Aircraft, where he had some influence on the design of the Cherokee and some agricultural airplanes.

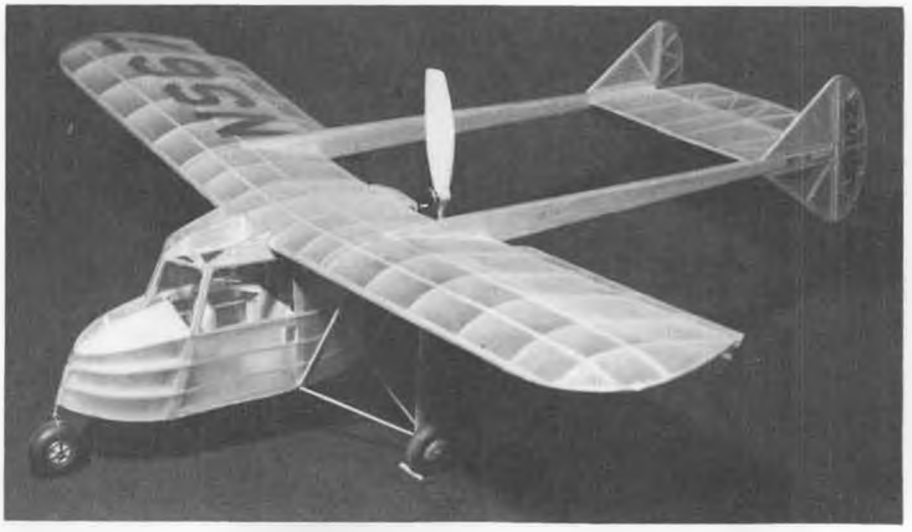
With the exception of the very early airplanes by Curtiss and a few others, the W1-A was one of the first aircraft to be equipped with tricycle landing gear, something that almost all modern general aviation aircraft have, for safer landings and ground handling.

This aircraft was selected for a CO_2 model for several reasons:

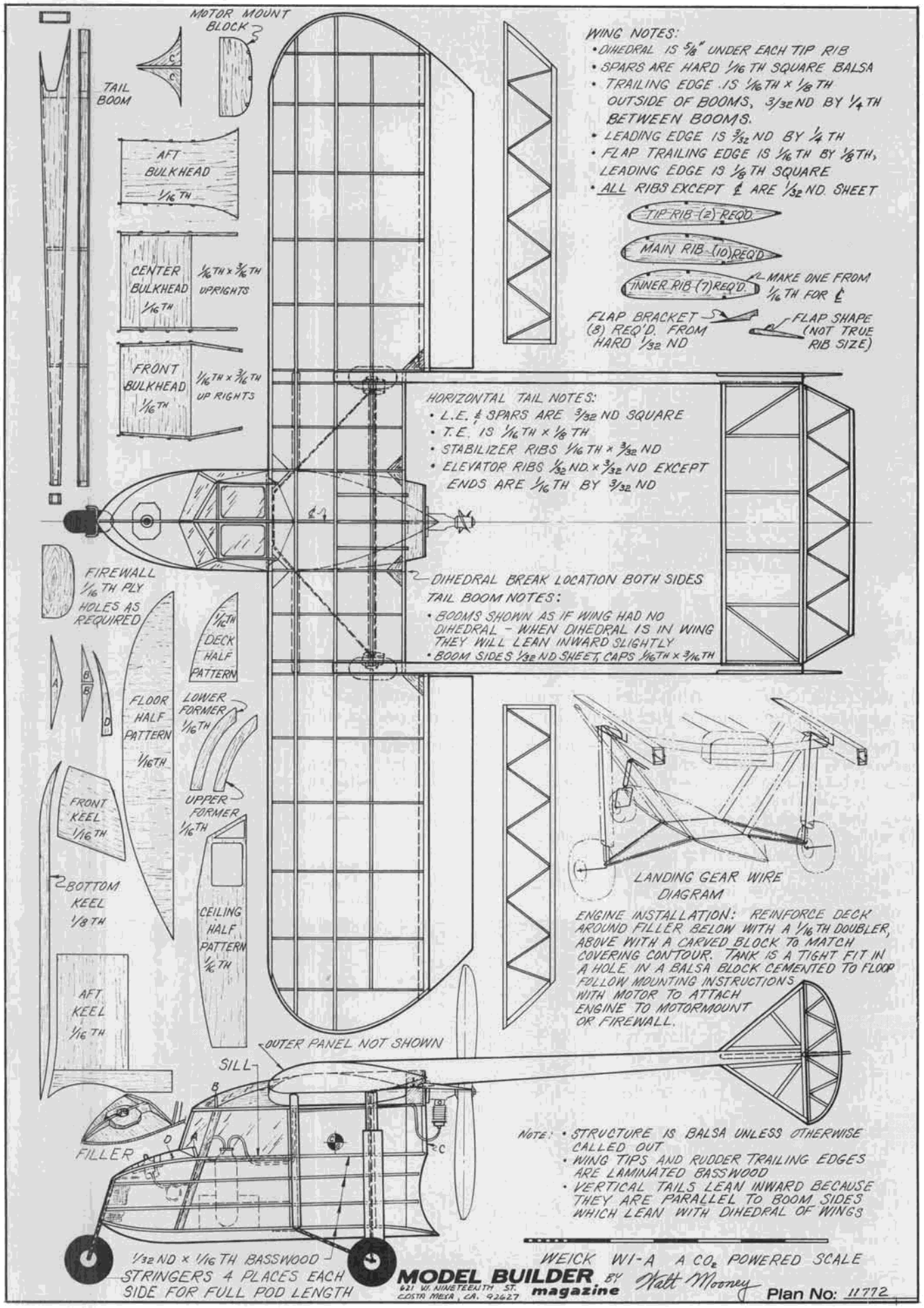
1. It is an historically significant airplane.
2. It has a reasonable free flight configuration. Tail size and dihedral were satisfactory.
3. Being a pusher, the CO_2 engine is protected in case of a crash.
4. CO_2 engines are easy to start, even when they are located between booms.
5. And, of course, it's an interesting shape.

This model is not what is known to the model airplane world as a straightforward design. However, it is not a difficult model to build.

Besides its general twin boom, center pod, pusher configuration, the model is built with separate surfaces. The flaps, elevator, and rudders (it certainly wasn't rudderless after the Fairchild rebuild), are built separately from their respective fixed surfaces. The flaps forced this deci-



Like the Blue Boomer in the September issue, this is an ideal subject to protect that valuable CO_2 engine. A little large for single-cylinder engines, watch your weight as you build.


MOTOR MOUNT BLOCK
TAIL BOOM
AFT BULKHEAD 1/16 TH
CENTER BULKHEAD 1/16 TH
1/16 TH x 3/16 TH UPRIGHTS
FRONT BULKHEAD 1/16 TH
1/16 TH x 3/16 TH UP RIGHTS
WING NOTES:
• DIHEDRAL IS 5/8" UNDER EACH TIP RIB
• SPARS ARE HARD 1/16 TH SQUARE BALSA
• TRAILING EDGE IS 1/16 TH x 1/8 TH OUTSIDE OF BOOMS, 3/32 ND BY 1/4 TH BETWEEN BOOMS.
• LEADING EDGE IS 3/32 ND BY 1/4 TH
• FLAP TRAILING EDGE IS 1/16 TH BY 1/8 TH, LEADING EDGE IS 1/8 TH SQUARE
• ALL RIBS EXCEPT ℄ ARE 1/32 ND. SHEET
TIP RIB (2) REQ'D.
MAIN RIB (10) REQ'D.
INNER RIB (7) REQ'D.
MAKE ONE FROM 1/16 TH FOR ℄
FLAP BRACKET (8) REQ'D. FROM HARD 1/32 ND
FLAP SHAPE (NOT TRUE RIB SIZE)
HORIZONTAL TAIL NOTES:
• L.E. & SPARS ARE 3/32 ND SQUARE
• T.E. IS 1/16 TH x 1/8 TH
• STABILIZER RIBS 1/16 TH x 3/32 ND
• ELEVATOR RIBS 1/32 ND. x 3/32 ND EXCEPT ENDS ARE 1/16 TH BY 3/32 ND
DIHEDRAL BREAK LOCATION BOTH SIDES
TAIL BOOM NOTES:
• BOOMS SHOWN AS IF WING HAD NO DIHEDRAL - WHEN DIHEDRAL IS IN WING THEY WILL LEAN INWARD SLIGHTLY
• BOOM SIDES 1/32 ND SHEET, CAPS 1/16 TH x 3/16 TH
FIREWALL 1/16 TH PLY HOLES AS REQUIRED
1/16 TH DECK HALF PATTERN
FLOOR HALF PATTERN 1/16 TH
LOWER FORMER 1/16 TH
UPPER FORMER 1/16 TH
FRONT KEEL 1/16 TH
BOTTOM KEEL 1/8 TH
CEILING HALF PATTERN 1/16 TH
AFT KEEL 1/16 TH
LANDING GEAR WIRE DIAGRAM
ENGINE INSTALLATION: REINFORCE DECK AROUND FILLER BELOW WITH A 1/16 TH DOUBLER, ABOVE WITH A CARVED BLOCK TO MATCH COVERING CONTOUR. TANK IS A TIGHT FIT IN A HOLE IN A BALSA BLOCK CEMENTED TO FLOOR FOLLOW MOUNTING INSTRUCTIONS WITH MOTOR TO ATTACH ENGINE TO MOTORMOUNT OR FIREWALL.
OUTER PANEL NOT SHOWN
SILL
FILLER
1/32 ND x 1/16 TH BASSWOOD STRINGERS 4 PLACES EACH SIDE FOR FULL POD LENGTH
NOTE: • STRUCTURE IS BALSA UNLESS OTHERWISE CALLED OUT
• WING TIPS AND RUDDER TRAILING EDGES ARE LAMINATED BASSWOOD
• VERTICAL TAILS LEAN INWARD BECAUSE THEY ARE PARALLEL TO BOOM SIDES WHICH LEAN WITH DIHEDRAL OF WINGS
WEICK W1-A A CO_2 POWERED SCALE
MODEL BUILDER magazine
621 W. NINETEENTH ST. COSTA MESA, CA. 92627
BY Walt Mooney
Plan No: 11772

sion, because they are separate airfoils. Therefore, there are a few more pieces to make than usual.

In addition, the pod and boom arrangement doesn't lend itself to the usual construction techniques. Try to keep the model light in weight, because it is rather large for the single cylinder CO_2 engines.

The fuselage pod is the most different of all the components, so a fairly complete building sequence follows.

First, cut out all the separate parts. Note that the "floor," "ceiling," and "deck" are only given as half-patterns. Make two halves and cement them together, or make a complete pattern before making them out of a single piece. Note the grain direction indicated on the various pieces. Two of the three bulkheads are assemblies. Use light 1/16 sheet, or even 3/32. Cement the uprights on either side of the web as shown. Note that the front bulkhead leans aft in the side view, and cut the ends of the uprights appropriately. Hot Stuff is useful (although not indispensable) to fix the bends in the front uprights. Use hard balsa for the front keel, and bottom keel. Use light balsa for the aft keel, which is also assembled from two pieces. Use hard balsa for the upper and lower formers. Note that two of each are required. Above the ceiling there are three cabin top ribs. One long one goes along the centerline of cabin forward of the wing.

Start assembling the body by cementing the bottom keel to the complete floor. Now you know why the floor grain goes crossways to the fuselage! The grain direction makes it easier to bend the floor to match the bottom keel shape. Next, cement the front keel and aft keel in place. Start thinking about how the engine will be installed. It will require a hole in the front bulkhead to allow the filler line to get through. Start bending your engine tubing so you can see how it will finally fit in place.

Now cement the bulkheads in place. Cement the ceiling on top of the bulkheads. Fit a 1/16 x 1/8 bottom windowsill between the front and middle bulkhead on each side. Cement the complete deck to the top of the front keel and the front of the front bulkhead. Part A is cemented in place and then part D along the aircraft centerline forward of A. Cement blocks on either side of D above the deck, and some 1/16 sheet below to reinforce the location for the CO_2 filler. Now cut a hole for the filler, notch out filler clearance in the front keel, and install the filler. Locate the other components of the CO_2 system. Make a snug fitting hole in a soft balsa block to fit the tank and cement the block to the floor. Press the tank into place.

Cement the motor mount block in place. Mount the engine on the firewall using the recommended attachment method for your CO_2 engine. Then cement the firewall to the motor mount block. Cement items "C" in place. With the engine installed, the structure of the body can be finished by adding the formers and three side stringers. Use 1/16 x 1/32 basswood for the stringers. Then add the three cabin top ribs, noting that the side ribs lean inward at the top. Add items "B" on either side of the cabin top center rib. Add the windshield center post.

Cramped quarters for the prop are no concern with a CO_2 engine, as starting is extremely easy. One light flip should do it every time.

Make the nose gear. The wire fork extends up through a short length of 3/32 aluminum tubing and then extends back on either side of the front keel for about half-an-inch. Use a commercially available rubber-tired wheel. It must be in place while the wire is being bent. Cement the wire and also the aluminum tube to the front keel, using short cloth strips wrapped over the tube and back on either side of the front keel for reinforcement.

The side braces for the main landing gear are bent out of a single wire and cemented to the underside of the floor. See the landing gear wire diagram. This will require a temporary cut in the bottom keel to install the aft brace, which is continuous. End the forward braces short of the keel. Cloth reinforcing for the wire-to-floor attachment is in order.

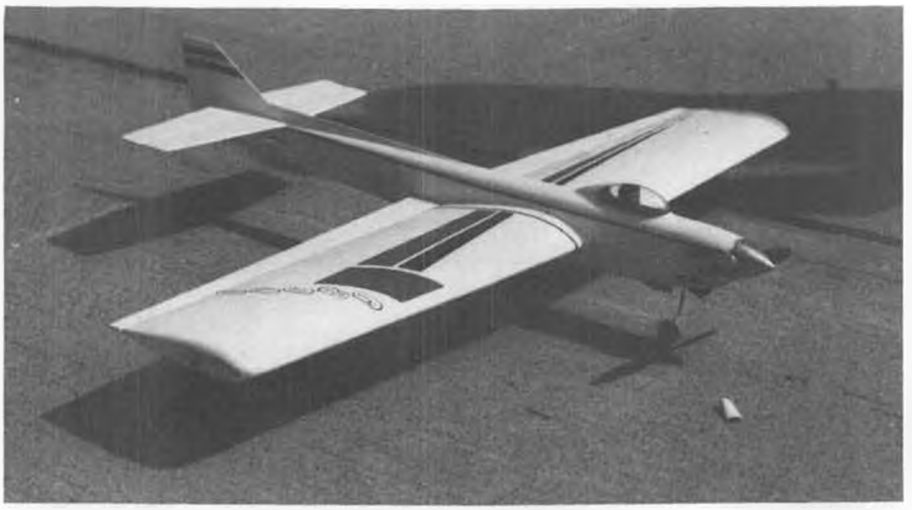
Next make the booms. They are essentially box spars that taper in the side view and are constant width in the top view. At their forward end, they are notched to fit over the trailing edge of the center section of the wing. Firm balsa is in order here, for strength.

The flying surfaces are conventional in construction. Just follow the plan.

The dihedral of the wing starts at the fuselage sides. Don't forget the gussets in the wing structure. The booms, which are fitted to the wings as if there were no dihedral, will slant inward, as will the fins, which are fitted to the booms as if the

Continued on page 82

Designer of this plane, Fred Weick, later came up with the famous Ercoupe, another safety airplane. Interesting format for an R/C Sport Scale model, no?



Bob Whitely's new model which he used to make it two years in a row as winner of the Half-A Stunt event at the Nationals.

Dave Fitzgerald also made it two in a row, taking 1st in AMA and 1/2A, Senior division.

The 1/2-A SCENE

By LARRY RENGER

• The National's have come and gone once again. Half-A Stunt this year showed both improvement and regression. Improvement occurred in the quality and type of models flown. I feel that the event regressed from the standpoint that entries were down from last year.

A quick look at some of the models will show some of the latest trends. First place Open winner this year was again Bob Whiteley. This year he replaced his Little Miss Kell with an as-yet-unnamed model which was larger and sleeker. Bob's new airplane featured a Control Specialties (Bob Hunt) foam wing and tricycle landing gear. Bob used an unusually long tail moment to help control the apparent jumpiness which is typical of 1/2A aerobatic models. The wing is the "Tercel" design, and carries this 10-1/2 ounce model easily.

Second place this year was again captured by Rich Porter of Florida. Rich flew his 44 Magnum design both in Open Stunt and in 1/2A. I saw one of the practice flights of this model, and it's really impressive. Pen bladder pressure and drilled venturi, coupled with lightweight and high angular engine offset, yield a model which just goes where Rich wants. No bobble, no slack lines, no mush at all in turns. In fact, the model will turn very close to the legal 5 foot corner! Rich's construction is improving, and his styling of this model is getting to be rather handsome. Sort of a super-slick, futuristic combat model with fillets and built-up tail booms. An interesting note, Rich independently came up with the idea of using the heat sink from Cox's cars to help even out his engine run! He agrees that it works well. I can vouch that his engine ran superbly despite 95° heat and the humidity which preceded a record-breaking rainstorm that hit the area just a few days after the Nats.

Third model was Dave Fitzgerald's Pinto stunter. Dave, as you may recall, won Junior last year in both AMA and 1/2A Aerobatics. This year he became a Senior, and won both AMA and 1/2A Aerobatics. The Open fliers had better watch out! The Pinto was published in Flying Models, by Dick Mathis, but is really a scaled-down Oriental design by Dee Rice. Dave modified his to use a foam wing. Finish was plastic film on wings and tail, with an epoxied fuselage. Very nice job, and a far cry from his last year's Little Tom Tom kit model.

Although it crashed and was totaled, I'd like to show you a model built by Bart Klapinski. He took a House of Balsa Chipmunk as his starting point and added a slightly larger (220 sq. in.), and fully symmetrical wing with flaps. Weight came out at 15 ounces, but Bart says he can easily knock off an ounce next time. This airplane was gorgeous! On the ground or in the air, I found it really exciting.

Bart had engine problems stemming from cooling in the fully-closed cowl of this large model. When the engine was running at full RPM it flew great, but he couldn't get a full smooth

Rich Porter holds his "44 Magnum" while examining a 1/2A stunter/trainer.

Bart Klapinski and his outstanding Chipmunk, wiped out as engine quit during a wingover.

engine run. The fire went out about 1/3 of the way up on his official flight wingover, and you can't run very far straight down to keep line tension.

Quoting from Pampa's Stunt News, the final results were:

OPEN		
1. Bob Whiteley	454	Pass
2. Richard Porter	444.50	357.50
3. Norm Whittle	413.50	397.50
4. Ron Haydan	311.00	Pass
5. Doug Hallfelder	303.00	Pass
6. Doug Brown	84.00	255.00
7. Lanny Shorts	235.00	Pass
8. Bart Klapinski	Pass	Pass
SENIOR		
1. Dave Fitzgerald	222.50	Pass
2. Leonardo Silva	220.50	10.0
JUNIOR		
1. David McClellan	282.50	317.00
2. Gordon Marshall	—	234.00
3. J. McClellan	47.00	81.00
4. Brian Marshall	—	10.00

A special vote of thanks is due Bill Bradford and Arlie Preszler, who judged the event.

Moving away from competition for a moment, the next airplane is Sig's newest kit, the "Skyray". Designed by Mike Grets, it features a solid sheet wing with a fair amount of area. This model should provide the beginning flyer with an opportunity to learn the basic aerobatic maneuvers.

Next is a different kind of model entirely. It may not seem so, but this is a very successful competition model. Sal Taibi built the Corben Super Ace and powered it with a Black Widow .049. He used an auxiliary fuel tank to achieve a 9:00 minute engine run. Total flight time was 16:51, to take first in its class at the S.A.M. Nationals held June 28th to 30th, at Las Vegas.

Sal said that he was especially pleased with the engine performance, since most of the diesel engines used by his competitors were overheating, going lean, then stopping in that hot desert environment. The old Black Widow just kept churning out power with great reliability.

Not a Powerhouse, but he can still win with it. Sal Taibi's Corben Ace, powered with a Cox Black Widow, took first in O.T. Scale at the Las Vegas SAM Champs.

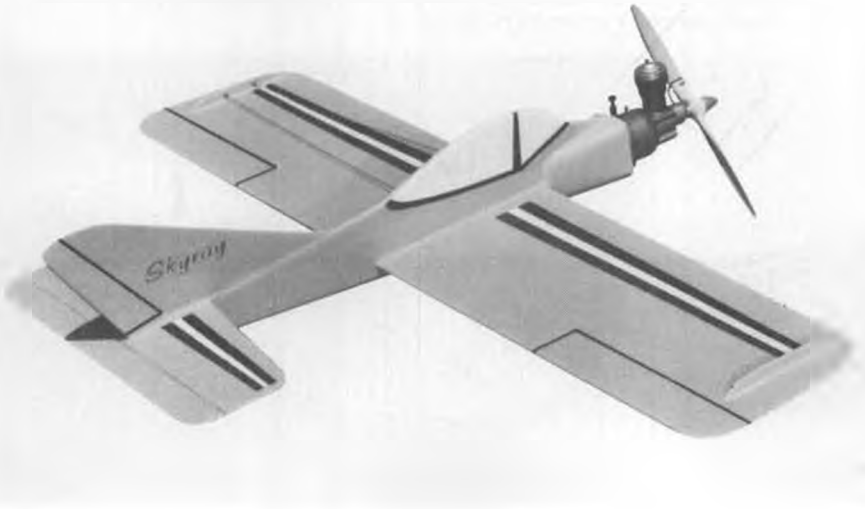
This model has 50 inch wingspan, but weighs in at only 14-1/2 ounces. His winning flight took place at 6:30 in the morning, so his drift was negligible. Sal says he had to walk only about 100 feet to retrieve the model after that immense time in the air.

I got a letter from Bill Pepen, of Modernistic Models (P.O. Box 6974, Albuquerque, NM 87107), describing the plan sets he offers. Bill also included a set of his latest, the Spirit of St. Louis. Scale is 3/4 inch yielding 34-1/2 inch span. The quality of drawings is excellent, all templates are drawn, and even the markings are laid out for you. Nine square feet of plans in 2 sheets for 5 bucks is hard to beat these days!

Send an SASE for Bill's list of available plans. He has Peanut, Walnut, Hazelnut size models, copies of old California Kit plans, plus his own series of 3/4 inch jobs.

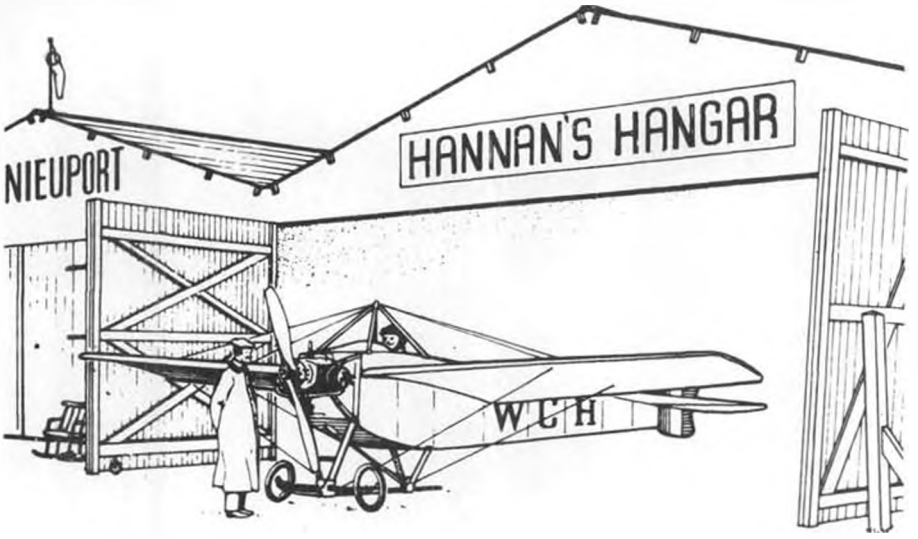
Before I toddle off into the sunset, I must mention that I got a new goodie to try out, Glo Bee's new "Stinger" starter for 1/2A engines. This unit is fully self-contained at the field, and includes a separate unit for charging from wall outlets. The Stinger is convenient to use and lighter than a separate 12V motorcycle battery and starter of the more conventional design. It works properly, as you would expect, and I haven't had the batteries run down on the field even after some extensive use on a given day. What more could you ask? With the starter available, I no longer even try to hand-start engines.

My goodness, we get lazy fast when a modern convenience comes along. See you next month. ●



Good design for basic stunt/combat training, the Sig Skyray. Features simple, lightweight construction.

Bill Sestito with Allied Hobbies' "Free Spirit", reviewed last month. Flies great.



AMA Pres. Johnny Clemens admires Sport Scale Fokker DR-1 by John Burgess, at Nats.

"Nothing good ever happens fast."

• Our lead-in line this month, by courtesy of Nat Antonioli, and it would certainly seem appropriate to model builders *(except for those who compete in racing events! wcn).*

THE CALIFORNIA NATS

Ten years of waiting . . . was it worth it? You bet! Sure there were problems, and the usual complaints, but mostly there was an abundance of pleasure for everyone willing to share it. Naturally, the Nationals means exciting competition and fascinating model aircraft, but the primary attraction is the enthusiasts, many of them working their heads off, in order for the remainder to have more fun. Kudos to the many officials and judges; the gang from AMA Headquarters, and all the California volunteers, who worked so hard obtaining the sites and coordinating the events. Certainly we owe every one of them a hearty thanks!

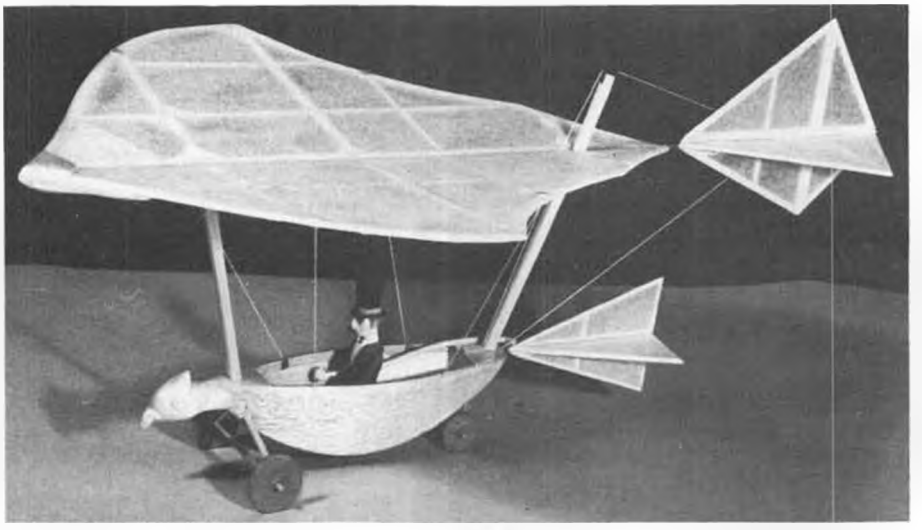
But we would like to single out for special praise, the feminine segment . . . the too-often unsung heroines of the Nats. Take Betty Stream, for example; truly a prime-mover in bringing the contest to California in the first place . . . and her schedule never lessened for the duration of the meet. Then there is Bev Wisniewski, with patience beyond belief; and Sylvia Lien, another dynamo carrying more than her share of the workload. And Dolly Wischer, who co-authors the Model Aviation R/C Scale column.

In addition to being a first-rate modeler herself, she is renowned for her sign painting specialty, radiating cheerfulness all the while.

Patty Sasnet, editor of "Patty's Pinkie", would surely rate anyone's award for meritorious service WAY above the call of duty, in the control-line arena, while woefully understaffed. We understand that she skipped meals while attending to her commitments.

Lady competitors were showing

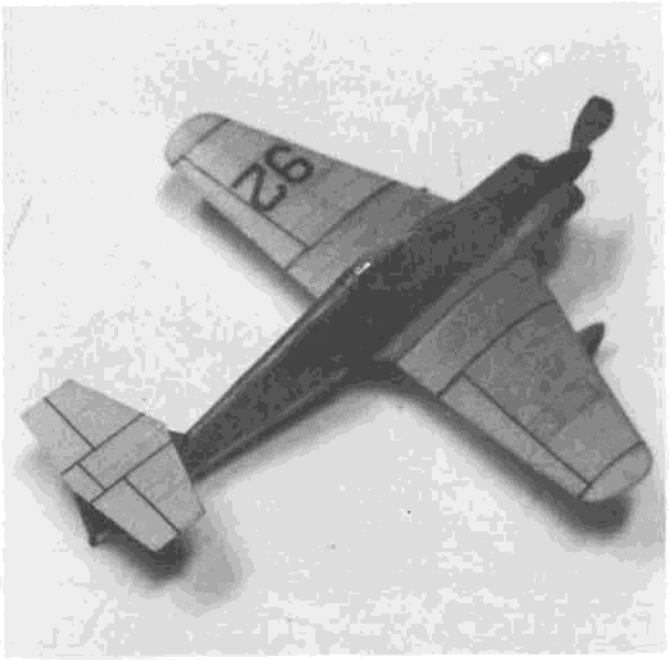
Continued on page 86

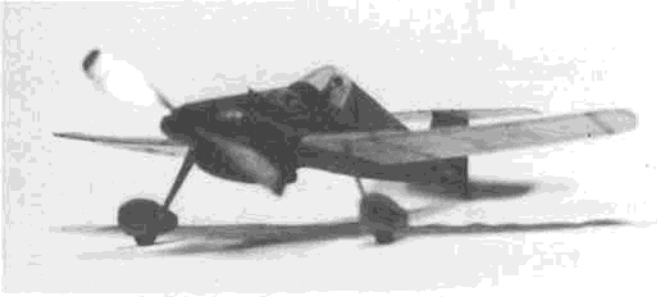


Model of Sir George Chyley's 1853 man-carrying glider, by Ray Malmstrom, England, actually glides. You could take a bath while you're flying!

Granger Williams' Gee Bee "Z", powered by K&B 40, is stable R/C flier, but very tricky to get off the ground.

Bill Warner's Lee-Richards Annular Wing (Does it only fly once a year?). Converted from CO_2 to rubber to fly in Nats.





"RIVETS"

By MARK DRELA . . . A most unlikely design for a Peanut . . . that is until you see it finished and watch it fly! This little racer has flown in excess of a minute outdoors, and actually glides in a decent manner.

• Contrary to the impression one might get from its name, "Rivets" must be one of the cleanest racing airplanes of all time. Powered by only a small 100 hp engine, it won 16 firsts and 4 seconds out of 23 races in which it was entered.

Like the original, the Peanut is also a winning ship, having won 1st and 2nd in the two contests it was entered. With lightweight construction, flight times approach 60 seconds outdoors, in dead air. This, together with its high static scores, make a winning combination. The airplane is especially potent under the Flying Aces Rules, which give a bonus of 25 points for a low-wing racer, plus another 30 points if all the external detailing is duplicated . . . easy in such a clean airplane.

The emphasis in the model is on scale fidelity . . . the only deviations are a bigger tail and more dihedral. Nevertheless, the model came out relatively light . . . less than 3/10 oz. Due to the cheek cowls, wheel pants, and half-shell construction, this is a somewhat complicated Peanut. If you are a beginner, or if you never built a flying scale ship before, I would not recommend the Rivets.

Except for the spinner, super-light wood should be used for the block parts. All ribs, formers, and especially the tail surfaces, should also be built from very light wood. The spars and longerons do not have to be hard wood . . . medium is about right. Use Titebond throughout for wood-to-wood joints.

A few construction hints are in order. First of all, raise the wingtip about 1/16 inch when building the wing. Add the 1/16 washin when installing dihedral, and check it again when covering the wing . . . it is essential for stability.

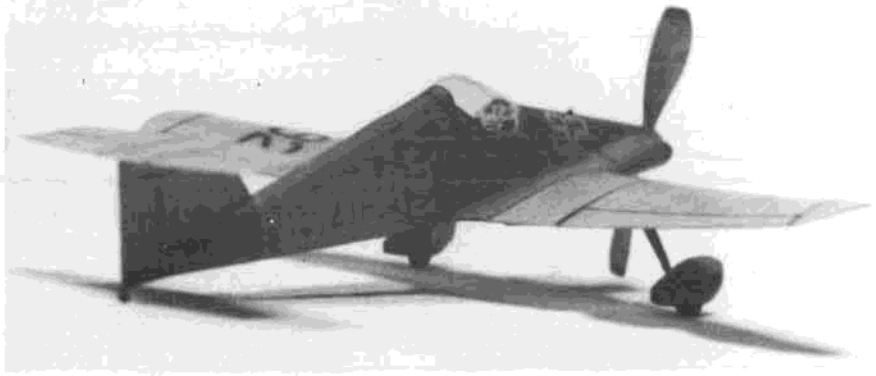
Installing the landing gear is tricky. First, the bottoms of both wing panels are covered with tissue from W1 out. The rear wire struts are now installed by pushing them into W2 at the proper angle, bending them over, and epoxying to the top of the rib. After this operation, bend the wires over and cut to leave 3/32 long stubs which will be pushed into the wheel pants and epoxied. After covering or painting the pants, mount a wheel in each pant with 1/32 sheet spacers. Notch the small 1/16 sheet fairing where the front wire juts off at an angle. This fairing should be fairly hard wood, since it supports both of the wires. Push the front wire with the wheel and pant attached through W2 at the proper angle, bend over, and epoxy to the short spar. Wrap the wires with tissue and paint silver (don't shrink the tissue, though).

When building the fuse, pre-curve the longerons with your fingers. This is essential to maintain the correct fuselage contours. Formers F3 and F4 are glued on in one piece. F3a is later cut loose and re-glued to match the wing chord precisely. F4a is cut loose and discarded. The missing stringer slots are cut after assembly. This is easily done by using a felt-tip pen to mark the slots with the aid of a light, flexible straightedge. When cutting a slot, place the former in question flat on the corner of the bench to support it.

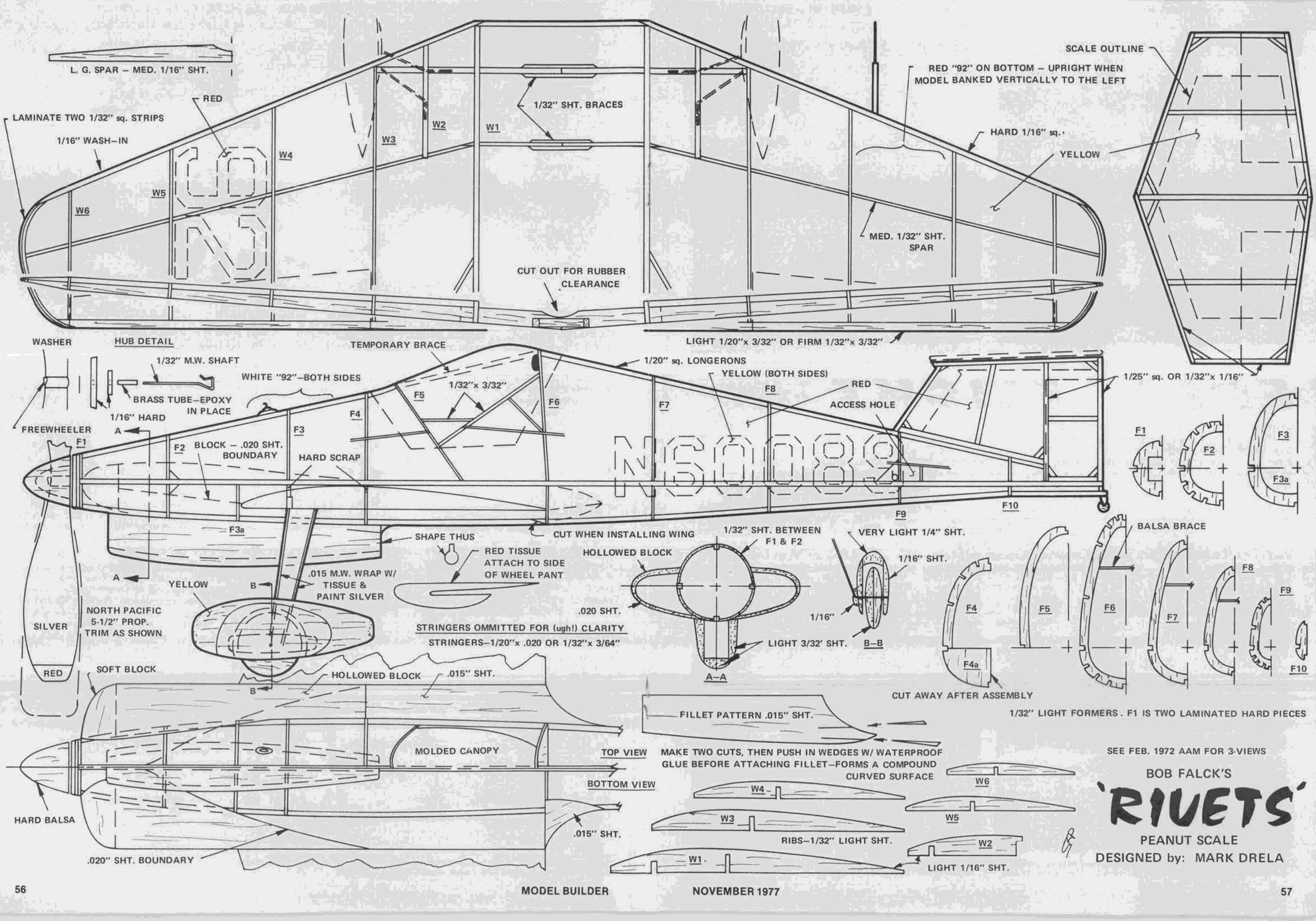
Omit stringers on the bottom between F3a and F6. When covering the fuse, omit tissue on the bottom between F2 and F6. The short stringers between F2 and F3a only serve to strengthen the wing mounting.

After the fuselage tissue is water-shrunk, and the wings steam shrunk (more on that later), the wing is ready to be attached to the fuselage. First glue the leading edge and trailing edge

Continued on page 102



A little tricky to build, but an excellent flier if the weight is kept down. Here's an excellent subject for those equipped with a small vacuum molding machine.



SEE FEB. 1972 AAM FOR 3-VIEWS

BOB FALCK'S

'RIVETS'

PEANUT SCALE

DESIGNED by: MARK DRELA

Andres Lepp, Russia, with his 2nd place A/2 Nordic, shown in 3-view on page 60. He was just 13 seconds behind the winner.

Jim Walters, highest placing U.S. flier in any category (15th) prepares his Nordic as Team Manager John Lenderman looks on.

FREE FLIGHT

By BOB STALICK

ALL PHOTOS BY LARS OLOFSSON, SWEDEN

• These are the times to please a free flight correspondent's heart! I have just returned from the Nationals in Riverside, CA., and also have a ream of material on the recently completed F.F. World Championships in Roskilde, Denmark. Elsewhere in this issue you will find my comments about the Nats. This column this month, will be devoted primarily to the FAI F.F. Champs. So, let's get on with it.

NOVEMBER MYSTERY MODEL

Joe Norcross gave me all kinds of kindly chiding for presenting models which were too easy for literally anyone to identify. He took me to task on the Space Rod, featured in the August issue. Well, Joe and all you old-timer types out there, here's one for you. Good luck with this one, an early 1/2A which forecast the efforts in FAI power for development of the flapper concept. And for those of you who just look at the outline, it wasn't designed by Stan Hill. If you think you know which one this one is, drop a line to Bill Northrop with your guess and he'll reward you, if you are the first in line.

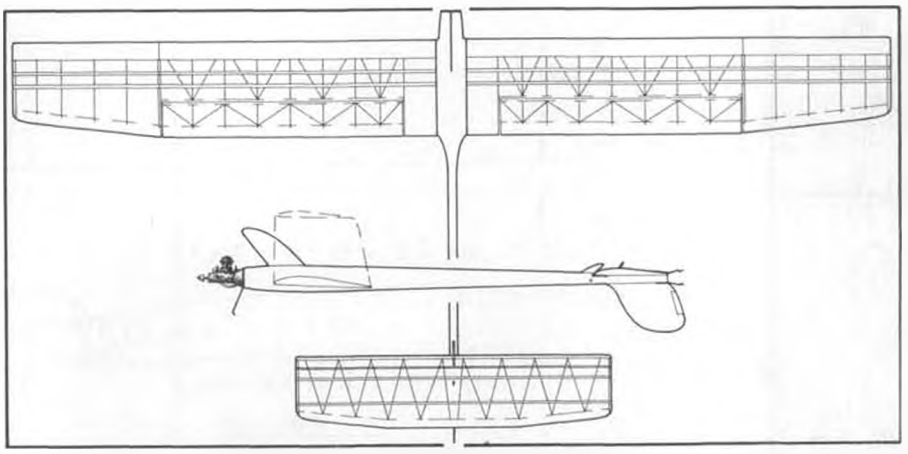
DARNED GOOD AIRFOIL — RSG 28

Some time ago, I featured the RSG 29 airfoil (January, 1975) in this column. This is a thinned out version of the RSG 29. It has been suggested for use most often as a non-zip-zip

Popular Russian, Eugene Verbitsky, could not come (They said it was snake bite!), but he was placed 3rd by proxy flier Igor Rilberg.

Bruno Fiegel, Italy, with his power model. A long-time international competitor, he placed 10th in F1C.

hand launch glider airfoil. The flat bottom and relative thinness should fit right in with the trend toward thin stabilizer airfoil sections for power models. As you take a look at the picture of FAI Power winner, Tom Koster's Speed Cream and its 6% flat bottomed airfoils, you might be convinced that even *this* airfoil is probably too thick for current FAI power designs . . . try it.



NOVEMBER MYSTERY MODEL

NOVEMBER 3-VIEW AL-29
by Andres Lepp

This is the A/2 glider which won second place at the Roskilde FAI F.F. World Championships in July, 1977. As with the usual Russian approach to Nordic, it is robustly constructed to take the shock of the strong zoom launches employed. The following article is taken from the Boeing Hawks Newsletter and is supplied by Jim Walters, US A/2 Team Member.

"The following comments are based on observations of the Russian team on the practice field, as well as inspection of some of their models after the competition. In addition to the normal circle tow rudder motions actuated by the swinging Russian style Circle Tow hook, this model, along with the other Russian team models, employs 4 rudder positions which are activated by a single-function timer, but with multi-function discs. To begin with, many, if not all European A/2's do not use washin on the inboard panel, such as U.S. models do, in order to control catapult attitude and prevent strong thermal spinout. Having no washin now requires other methods to control the model's attitude during catapult. The Russians have since abandoned the use of aileron to do this. Why do Europeans not use washin? Very simple . . . European thermals are gentle and small, and as were the Denmark conditions . . . also windy. Models with washin-trim simply do not circle tightly in wind and small thermals, therefore, proper catapult attitude must be achieved by other means, i.e.: the rudder and/or stab actuated by the timer after launch. The operation of the Russians' models were thus:

1. When hook was unlatched, rudder deflection was small to provide some bank angle. Clockwork timer starts with unlatch. Time = 0.

2. When tow-ring was disengaged from model, the rudder resumed to neutral position. Time = 1 to 2 seconds. During this interval, the flyer is imparting high velocity to the model via running and some hand-over-hand action.

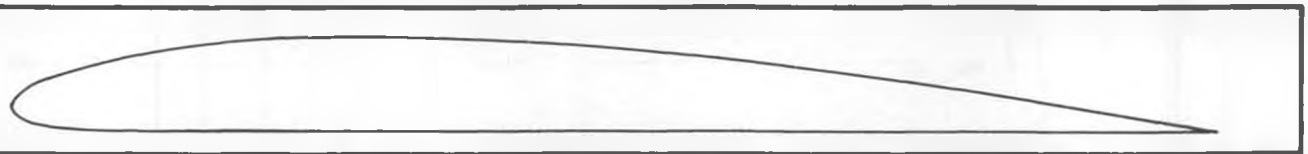
3. Model is now climbing due to velocity of the catapult release. (Jim reports a zoom launch of 30-50 feet. This figure is corroborated by Bob Isaacson, who reckons the distance

Continued on page 97

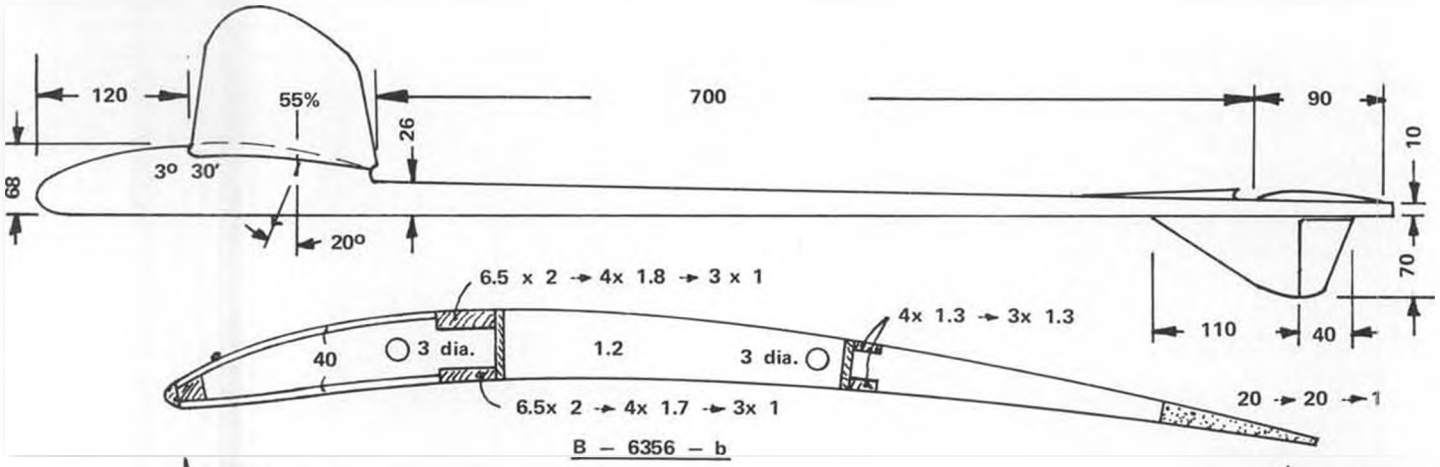
Dave Sugden, Canada, top placing North American in F1C, finished 5th. Led Canadian Power team to 2nd place.

Andres Lepp shows the auto-rudder timer start mechanism on his glider to Lou Leifer, of Canada. See 3-view on next page.

DARNED GOOD AIRFOIL – RHODE ST. GENESE 28



STATION	0	1.25	2.5	5	7.5	10	15	20	30	40	50	60	70	80	90	95	100
UPPER	1.87	3.35	3.97	4.84	5.6	6.12	6.85	7.46	7.58	7.23	6.65	5.71	4.55	3.15	1.58	.82	0
LOWER	1.87	.78	.46	.24	.12	0	0	0	0	0	0	0	0	0	0	0	0



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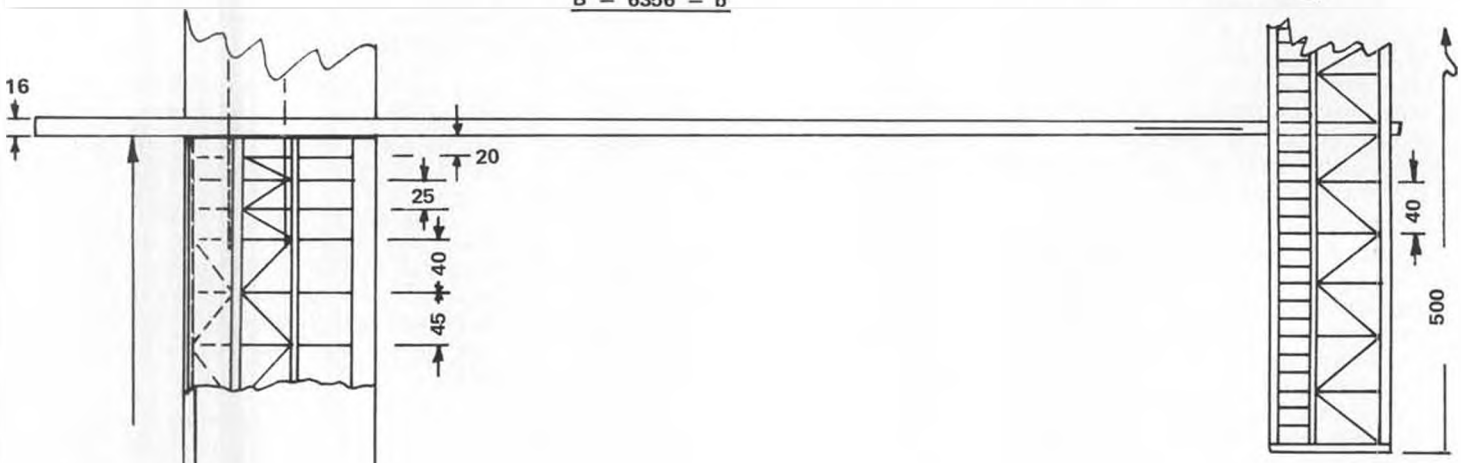
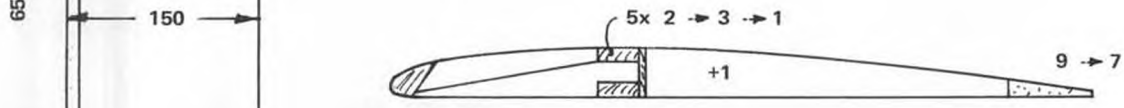
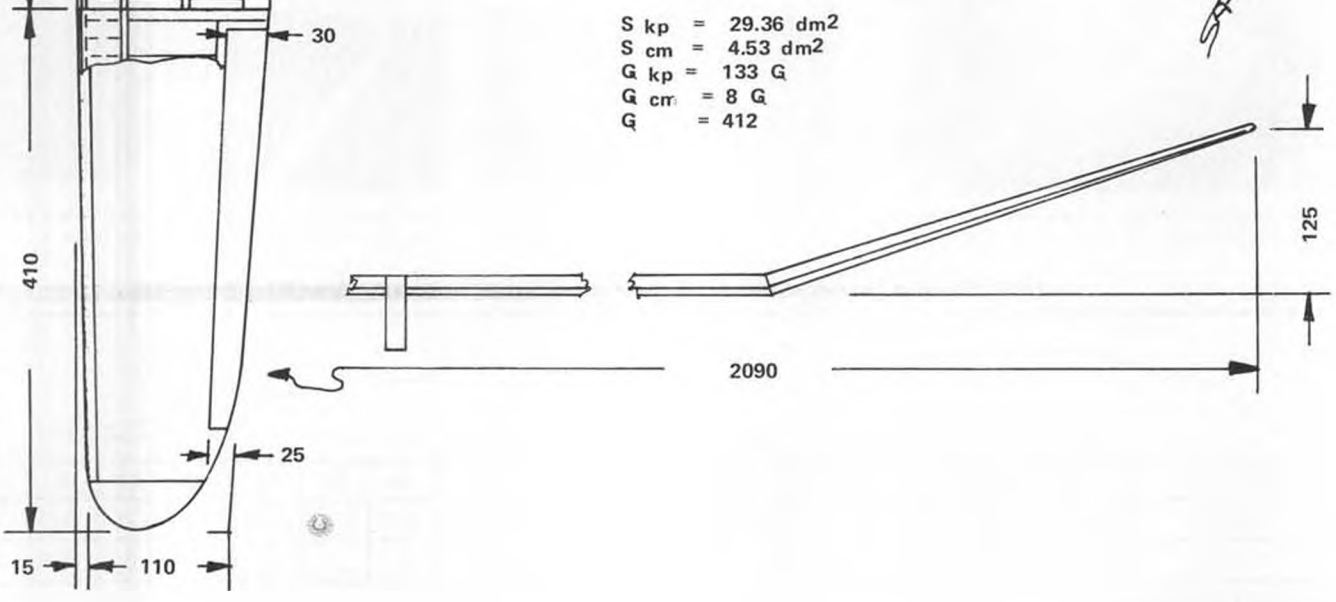




AL – 29

BY: ANDRES LEPP – RUSSIA

S kp = 29.36 dm²
S cm = 4.53 dm²
G kp = 133 G
G cm = 8 G
G = 412



Contestant's eye view of the 1977 Nats F/F site when peering toward the timer tents and parking area.

Timer's tents eye view of the 1977 Nats F/F site when peering toward the contestants.

1977 FREE FLIGHT AT THE NATS!

By BOB STALICK

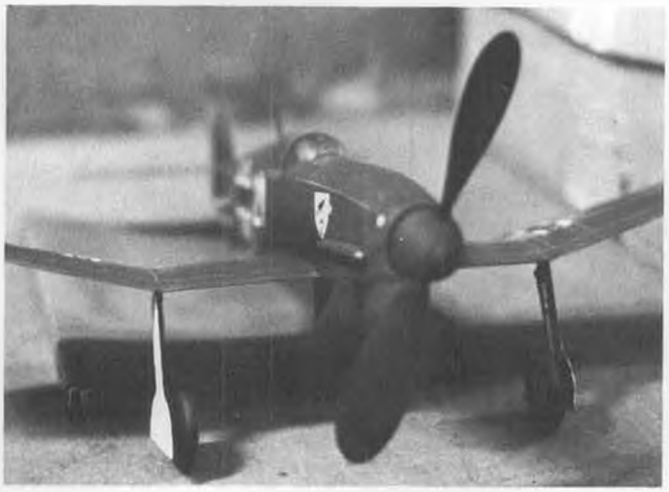
PHOTOS BY AUTHOR AND PETER YOUNG

And while we're on the subject of sites, here's the indoor site for the 1977 Nats at Norton AFB, not far from March AFB and Riverside, California.

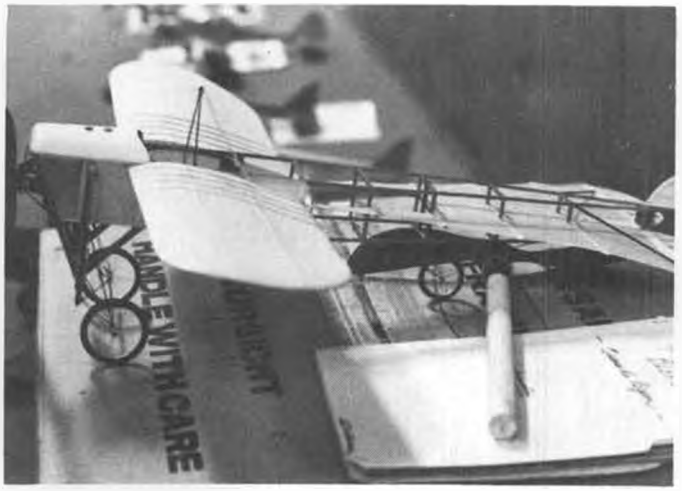
• The Nats! The visions it conjures. In the eyes of the one who has never been but would like to have gone, it's a mecca, a place of excitement, a culmination of a dream. It's seeing Carl Goldberg, Sal Taibi, John Pond, Charlie Sotich, and the other heroes in person. Flying side-by-side with them in the flesh. There was a time during the AMA's heyday with the Navy that the Nats went on the road each year. A traveling circus. On the West Coast, the East, Texas, Chicago. Those days are long gone now. They have been replaced with Oshkosh, Lake Charles, Springfield, and now Riverside. In a small way, the Air Force has stepped in to fill the void.

Ten years ago, in 1967, the Nats was held in California. This year, it returned. For West Coasters, it was the dream in the back yard. For most non-West Coasters, the Nats didn't exist in 1977. Normally, during the Navy days, a West Coast Nats was next to the poorest attended of all of the sites. This year's Nats upheld the tradition. It wasn't that the competition wasn't keen, it's just that there wasn't as much of it. On top of that, there are more events. Al-

Junior winner in practically every indoor event, Marnie Meuser with plane that did it all.



Don Srull, McLean, Va., placed 3rd Indoor, 1st Outdoor with this Heinkel He 100D. It "shot down" several indoor sticks.

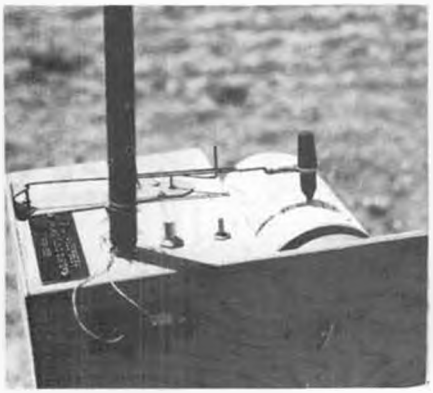


Bill Warner's Bleriot on the judging box. Excellent detail, but it only placed 8th. Bill's a Flightmaster member.

Virgil Coker, with updated "Coker's Cooker", for C Gas. Winner of longest landing skid cup.

C Gas winner, Cliff Tanaka. His Satellite has extended fuselage, smaller stab, rear fin, OS .

Gary Schneider with GYSOB (MB July '76) OS 40R, rear fin, V.I.T.



Exotic recording thermal detector, built and operated by Bill Vanderbeek.

Vic Cunnyngham, Jr., with his Cox 40 Conquest powered Scirocco. Good enough for second place in C Gas with 1498 seconds.

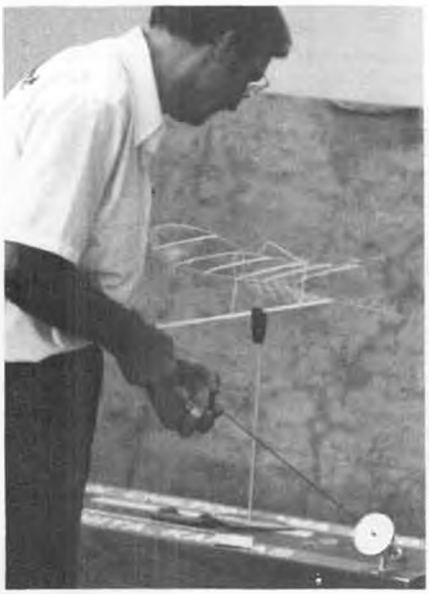
most double the number held in 1967. Times have changed.

One thing which hadn't changed was the weather. You could nearly set your watch by it. Dry and smoggy all day. Overcast mornings and no wind. Temperatures in the mid-nineties each day. Calm as a whisper until around 11 a.m. then the winds came up . . . strong and hot. If you were still trying to get in your flights by noon, you had problems . . . chasing. "No bikes allowed" rankled some of the SoCal regulars, so they decided not to compete. However, the wise fliers were putting in flyoff flights at 8 a.m. . . . after their first 3 maxes. Most contenders were through flying by 9 or 10, and by noon they were soaking up sunlight by a pool. As long as you flew when the weather was calm, you could catch your model when it DT'ed after the 3 minute max. A short brisk walk might be necessary, but the drift was neglible.

But the story of the 1977 Nats Free Flight events is getting ahead of itself. The real first day of the meet was held at Norton AFB, in a large hangar. Norton was a few miles from Riverside, and provided an excellent location for an indoor contest. The scene inside the hangar was like this: Picture a 90 foot ceiling, steel covered and steel framed; beams and girders at the top, concrete floor on the bottom. Hanging down to around 60 feet were lights on cords and cables. The story was that they would be raised for the competition.

That's the story. Seems a change in the Base Engineer happened a month before the Nats, and the lights all of a sudden couldn't be raised.

It was a good indoor site. Large floor area and plenty of height, provided you missed the lights and didn't get all the way to the ceiling where the girders were just waiting to reach out and have a model for lunch. As the days warmed up outside, the inside became hot and



Stan Chilton watches torque meter, as he winds rubber for AMA stick entry.

Bud Romak repairs rip in microfilm. Managed a 2nd in spite of several model hang-ups.

Carl Whatsisname from Goldberg Models. Our annual "What would a Nats be without" photo.

Tom Hutchinson and his Maverick 1/2A gas, now available in kit form. Very good flier.

Clean launch by Toshi Matsuda (remember the Zero?). This is a Sundancer 1/2A.

Bill Warner and his Airspeed AS 4, powered by no less than three electric motors. Electric power sure gets you away from that old multi-engine starting and tuning problem.

steamy. Buoyancy and gentle lift was there, and precious little drift to affect the models or the modelers. In a change from previous Nats schedules, the "mike" and paper duration models were flown on Saturday. The lights claimed a few. Bob Randolph claimed the times, as he did last year. Bud Romak pushed Randolph in AMA Stick, but no one else came close. Dan Domina came out from New Jersey and did the trick in Paper Stick, but Randolph came back in Cabin, besting second place Domina by almost 8 minutes.

Marnie Meuser (Bob's granddaughter) showed the under-14 crowd how to win Paper Stick, AMA Stick and on the next day, EZB and Penny Plane. And she used the same model each time . . . with different wings, props, and rubber.

The Oakland Cloud Dusters were responsible for running the indoor events and they were well up to the task. A nice job by Steve Geraghty and the gang.

Sunday arrived and the hand launch glider crew was there early. The floor was covered by fliers and the ceiling, air and rafters were covered by models. Bill Blanchard, whose Polly is a force to be reckoned with in Outdoor H.L.G., built some Hines Sweepette 18's and proceeded to throw up one flight of 69.4 seconds and followed it with a good second flight to sweep first in the event with a total of 138. In doing so, he beat Lee Hines, flying a Sweepette 19-1/2, to a flight time of 127.8.

Al Bissonette, U.S. Team member, launches his Strutter-influenced model.

Bob Haight, Las Vegas, placed 4th in Scale Gas with this Taifun diesel powered "Miss Columbia" Bellanca.

Ron Roberti launches his Bob White Wakefield ship. He ended up in 8th spot in this hotly contested event.

Don Monson had most original plane at meet. Cargo ship lifted 28.4 ounces to win. Winglet theory seemed to work!

Very clean and fast FAI Power model, by Ed Carroll. Sixth place.

Stephanie Perryman flew Joe Ott Sunspot to 4th place in Open Coupe. A 1940 design.

Irv Aker and the AMA record holding "Lucka Linda" Rocket. Placed 2nd.

Kathy McDaniels, La Mesa, California, launching her Coupe DeVille.

In talking to Lee afterwards, he was disappointed at not winning first place, but pleased to have his design dominate the meet. There were some not flying Sweepettes, but they were few. One was flying a glider with wings made from a foam meat carton (see your local butcher for this latest hobby material) and it was flying well. Pennyplane, EZB and the scale folks took the floor at 2 p.m.

The scalers were greeted by an appreciative audience, which applauded the successful flights and groaned appropriately at the not too successful ones. Don Srull was flying a very nice Heinkel 100 that was entered in AMA Scale. This model flew as steady as a rock and fast as a greased owl. Don tested his model amongst the EZB's and Pennyplanes, claiming several kills.

Probably several bees and pennies should be painted under the cockpit in commemoration. Don flew well enough to win third in AMA Scale.

Bob Randolph continued his winning ways in Open Peanut. He flew a ghostlike Nesmith Cougar to flights in excess of 3 minutes. Because of the current rules, this kind of ship has a definite (and unfortunate) edge over the more scalelike creations. As a result, Bob was nearly 300 points ahead of the second place finisher.

Clarence Mather and Stan Chilton

The winner, Bob Isaacson, smiling, and holding his NFFS Model of The Year, the "Wishbone".

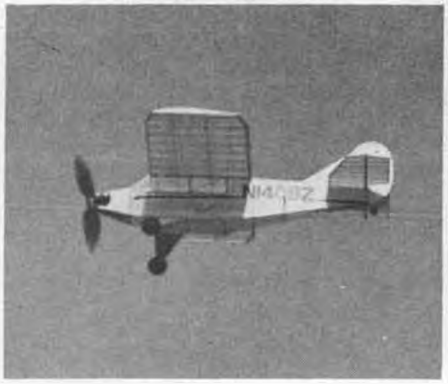
Toshi Matsuda, back to modeling after a few years off, also brings back good looking airplanes. Maybe it will catch on.

Glenn Lee and his winning helicopter model. Yes, it has been called the "Glenn Lee Event".

Marisol Chavez, Livingston, Ca., launches her Itoh in Outdoor Junior Peanut. Placed 7th.

Del Adam, Visalia, Ca., in A Gas. A Vela influenced original.

Greg Richardson, Fullerton, Ca., launches his "Long Shot" unlimited. Placed 3rd in Senior.



Ken Hannan's Fike placed 1st in Outdoor Peanut Jr/Sr Combined.

Joey Foster has his father's winning ways. Won or placed in numerous events. Unlimited here.

fought it out in EZB (once considered a beginner's event), with Stan setting the high time of 16:42 . . . Clarence was a mere 8.4 seconds behind, but still almost 4 minutes ahead of Bob DeShields, who placed third.

Monday was a day of rest for the free flighters. No events to fly. Sights to see in SoCal are plentiful, however, and there were a couple of familiar faces in the crowd at Disneyland that afternoon. Tuesday began the outdoor events and the weather was as the previous days had been. The site was located about 9 miles from March AFB, or about 15 miles from Riverside . . . a large basin-like piece of ground that was covered by small and hardy bushes. A part of the landscape had been graded off to allow for a launching site and a parking lot existed for the contestants to put their vehicles. Between the two places, the official tents and tables were put up. From this writer's perspective, it was an excellent, if dusty site. The terrain was walkable and the 3-minute maximum installed at the last minute made the flights very pleasurable to make.

The site was almost not available for use, because the week before the Nats, not all of the owners had given their permission. Sandy Norton, F/F C.D., ended up visiting some of the upper government types in Sacramento in those hectic last days to get the bureaucratic machinery in operation just in time to assure use of the site.

The first day of outdoor flying featured C Gas, A/1 Towline and AMA Rubber Scale. There is no doubt in my mind that the SoCal fliers prefer the larger models. C Gas featured 1000 sq. inch ships at every turn. Mexi-Boys, Satellite and GYSOBs prevailed. Cox 40 prototypes powered Vic Cunnyngham to second place. OS 40's helped Cliff Tanaka and Glen Schneider to first and third. The Cox 40 is apparently not going to go beyond the prototype stage, as production of this engine is currently shelved. Those who have them will have collector's items for future

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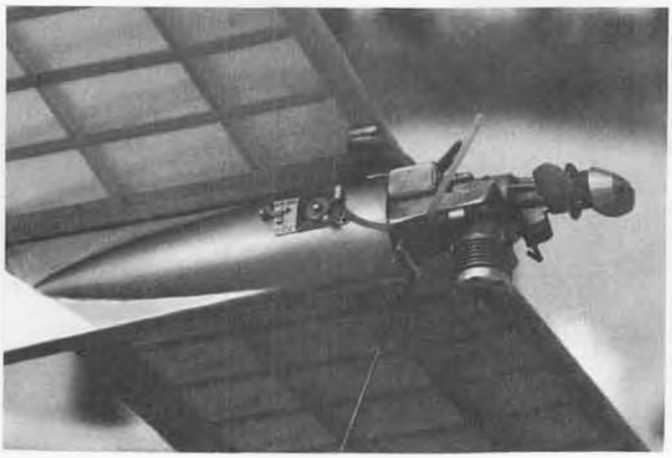


Front end of Virgil Coker's "Cooker". Entry in A Gas had 650 sq. in. wing, and ST .19. Placed second.

John Lueken stops the engine on his Cox Golden Bee powered Open Helicopter in a way not recommended for safety. Bill Hannan looks.

PHOTOS BY THE AUTHOR

The 1977 FREE FLIGHT WORLD CHAMPIONSHIPS

By BILL HARTILL . . . A fine analysis of top free flight competition, as it happened in Roskilde, Denmark, during the 1977 World Championships. Complete set of results is in the November "Model Aviation".

• Back in 1976, the CIAM Bureau Officers of the FAI moved to curtail the frequency of World Championship competition to a 3-year cycle. The proposed 50% reduction in activity fell like a bombshell amidst the rank and file free flighters around the world. The resulting grass roots plea for sanity and reason saved the day and the proposal was squelched. At a time when there are more sportsmen competing internationally in Free Flight than at any previous time in the history of the sport, it appeared quite desirable for encouragement of activity, not reductions.

A number of potential hosts for the 1977 World Championships surfaced, with the "prize" going to Denmark. Thomas Koster led his hard-working, enthusiastic Danish group in organizing and conducting this exceptional meeting. This remarkable man then proceeded to put in an incredible performance in FIC Power to take the World Champion title. Thomas is now the only person to become World Champion in two events. It was in 1965 that Thomas, a mere wisp of a lad at 18 years, became the Wakefield World Champion in Kauhava, Finland.

To win Wakefield now, you have to outfly the North Koreans. Their expertise is now firmly established, having won Wakefield again this time, plus taking first place team in Wakefield and Nordic, and third place team in Power.

The "easy" skill of the Nordic super stars was great to watch. They divided up the top spots to Abadjiev (Bulgaria), first; Lepp (USSR), second; and Kraus (Austria), third. Literally thousands of training flights (not "trimming" flights) do make a difference.

The USA efforts were disappointing, with no one placing higher than fifteenth. Although the team flew rea-

Koster needles the Rossi. Clean layout, 6% flat bottom wing on his "Speed Cream".

Computor tabulation gave instant results. These are the Power winners.

North Korea did it again. Wakefield winner Kim Dong Sik. Team also won first place.

The U.S. Team members (l to r) Top: Charlie Martin, Willard Smitz, Chuck Markos, Walt Ghio, Bob Piserchio. Bottom: Al Bissonnette, Tom McLaughlan, Bob Sifleet, Jim Walters, and the Team Manager John Lenderman.

Tom McLaughlan made flyoff, but then had his worst flight. Has folding prop hub.

Typical Koster launching style. Climb trim requires vertical launch. It must work!

sonably well, the skill level of the current world super stars has given us a challenge as yet unmatched in this country.

The 1977 F/F Championships were held July 6-12 at the Roskilde Airport, about 40 km from Copenhagen. The airport is a general aviation field, constructed recently to relieve congestion at Copenhagen Airport. It has paved runways, modern control towers, etc.

The Royal Danish Aeroclub and the Danish Model Flying Union, under the directorship of Thomas Koster and Karsten Kongstad, provided the meet organization. Peter Buchwald was the competition director. The expected weather conditions, together with the airport use restrictions, dictated an unusual competition round schedule. It started at 3:30 a.m., with a midday break from 8:10 a.m. to 5:05 p.m., and ending at 7:00 p.m., with flyoffs scheduled after that. The long hours of daylight made this schedule practical, but the sleeping and eating schedules were, if anything, quite bizarre.

Chuck Markos looks for lift, in a very "flat" sky. He placed 20th.

Second place winner in Wakefield was Sergey Samokish, USSR. Neat timer installation at top front of fuselage.

Nordic winner Kostadin Abadjiev, Bulgaria, really came to fly power. Entered Nordic at request of teammates. Good decision!

Nordic winners (l to r): Lepp, USSR (2nd); Abadjiev, Bulgaria (1st); and Krauss, Austria (3rd).

Russian power models had .03 dural wing skin. Mozyrsky's landed on high-tension lines, burned holes through skin.

All sheet covered Nordic readied by Lensi Valdemero, Italy, placed 33rd.

Dave Simons, Australia. Interest and skill is rapidly building down-under.

H. Mikhaih holding an Egyptian team Nordic. Had full teams in Nordic and Wakefield.

Competitors were quartered in the Peter Syv school, 10 km from the airport, which also served as the meet headquarters. An entry fee of $150 covered seven days for housing, box breakfasts, one hot meal (lunch) at the Skalstrup Air Base adjacent to the Roskilde Airport, and a box dinner. It also included the final banquet, bus service, etc. Timekeepers only had to pay $42.

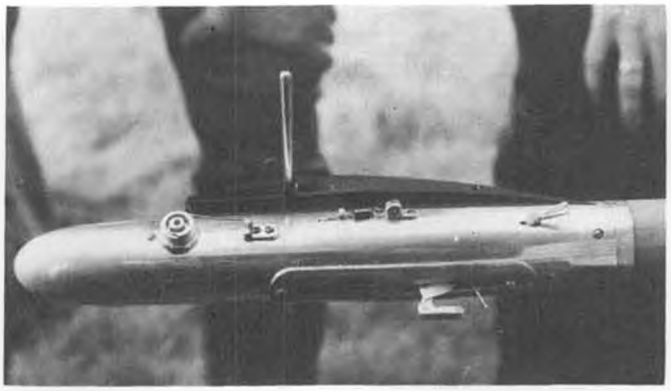
Although the fee seemed high, there were two factors that led to this: prices in Denmark are very high, and also, most of the miscellaneous costs of such things as signs, insurance, buses, etc., had to come out of the entry fees.

WAKEFIELD (F1B) —
93 contestants, 31 countries

Friday, July 8, found us grouping about in the pre-dawn murk at 2 a.m., collecting our box breakfast and then driving through the clean, pleasant, Danish farmland to the airport. The weather looked downright poor, with light rain and a cold, gusty, light breeze. Raincoats, boots, umbrellas and plastic sheets were pressed into service. Flying line was positioned upwind in the grass at the head of the long runway. Weather conditions did not improve much through the day, with the result that no one maxed out, although the weather didn't really

Popular Urs Schaller, Switzerland, placed 4th in power. He is a leader in the streamliner design trend.

Igor Ziljberg, proxy flyer for Verbitsky, shows off the dural-skinned wing on Verbitsky's power model. Wonder if this will start a trend?



Winning Nordic of Abadjiev had Russian type hook, with circle and zoom functions.

Tail assembly of winning Nordic displays some interesting mechanical goodies. Dial-a-trim on rudder!

Gian Barbabella made the power flyoff, as did all of his Italian teammates. All had clean ships like this one. Team placed first.

Steen Agner, of the Danish team, had clean Koster style model. Made the flyoff and placed 13th.

look that bad. Lift was very weak and difficult to find. The air was turbulent enough to easily throw off-trim those models that were expecting smoother conditions. The number of maxes progressively increased from 12 in the first round to 36 in the seventh.

The North Koreans dominated Wakefield with models similar to their ships of two years ago; aluminum motor tubes, lightweight tail booms (some were built up diamond sections) moderate pylon, moderate stab size, thin wing section (MVA 123), and relatively small prop blades. Korean rubber was 28 strands, 3mm light brown non-vintage Pirelli. Turns were 360, and climbs were fast and stable, even in the gusty breeze. Air picking by the N. Korean team manager seemed uncanny. He watched his thermister and etc., then gave the signal to launch. Many of the other teams soon decided to look for his signal also. The N. Koreans also used a team strategy in Wakefield that was very effective, making most other teams look like bumbling beginners. They would have their first man wind with the opening green flare. He would wait for a launch signal from the manager. If this was not forthcoming in a few minutes, the second man wound and the timekeepers were transferred to the second man. The first man unwound his motor and stuck in a fresh one. This rotation continued until all three flights were in . . . all made with relatively fresh motors. N. Korean models were well built, but had no flashy trim or unusual structure. Many of their features were similar to the Russian models. The winner, Kim Dong Sik, missed a full house by seven seconds, having

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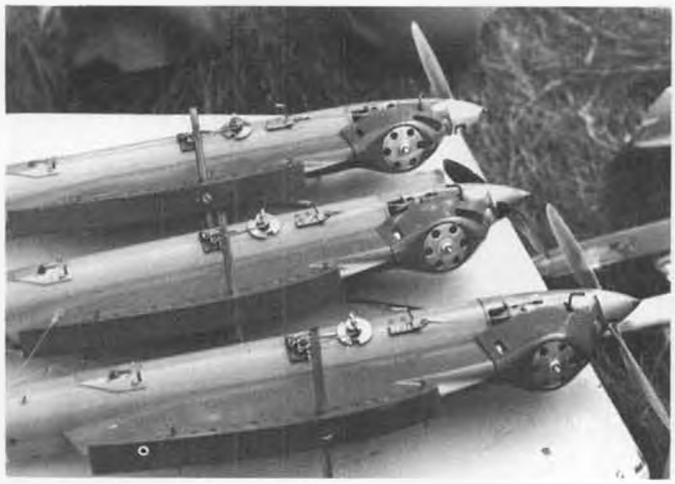
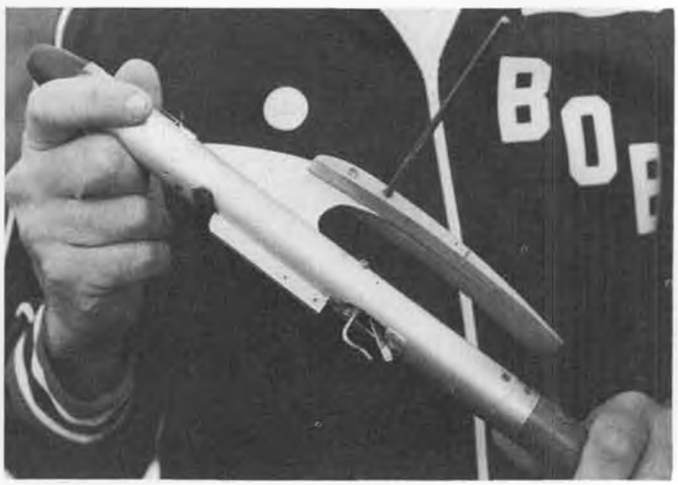
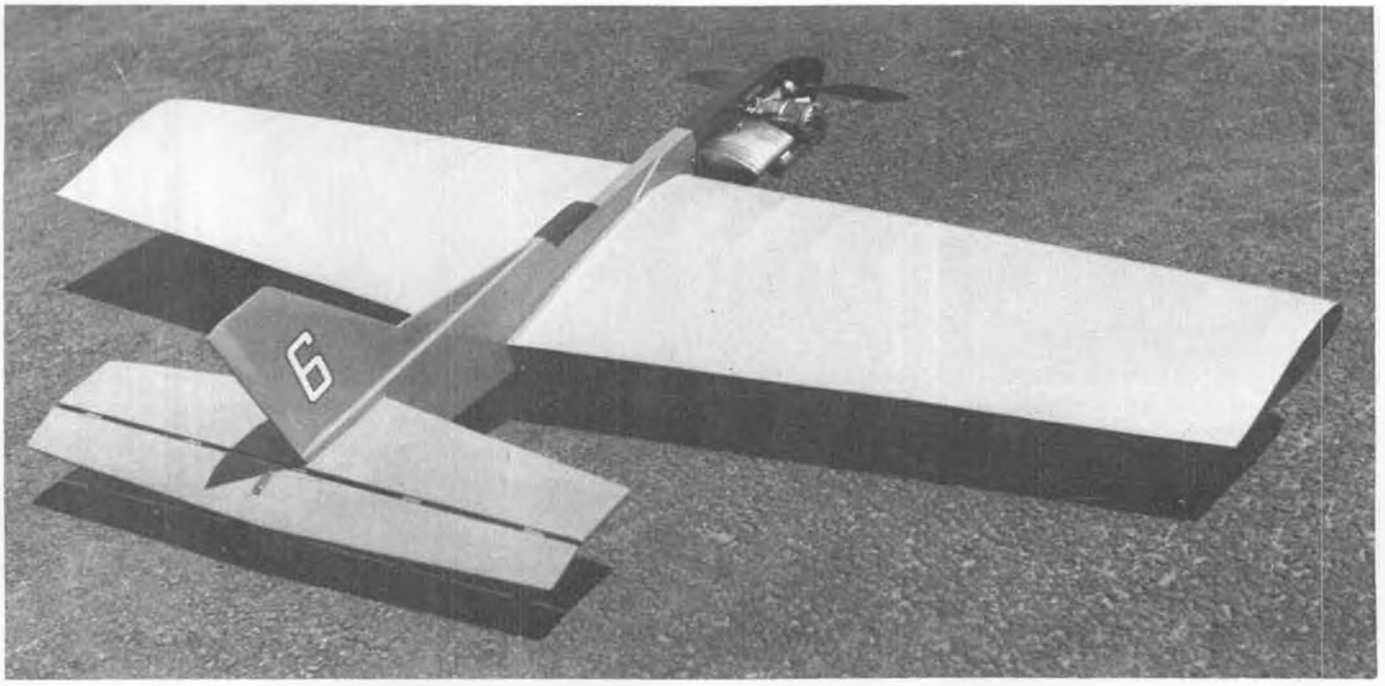


Russian models, Sharin's here, are marvels of precision engineering and workmanship. Airbrushed trim a nice and surprising touch.



Bob Sifleet's Happy Hooker circle-tow set-up. He placed 26th for U.S.A.



PLUTO

By DAVE HORVATH . . . Here's an easy-to-build stunt trainer/sport control line model for .35 engines. Landing gear is optional or removable, for a variety of field situations.

• A few years ago, I got the desire to design my own stunt plane. I wanted to build one that would be clean, simple, and perform well. The result was "Pluto," which I would recommend for those who fly for fun and have built a profile stunter.

The first step in any scratch-built plane is the selection of the material. This is part of the beauty of scratch-building. You can select the lightest, straightest balsa for your model. I used aliphatic resin glue for general construction, and epoxy where extra strength is required. I used Elmer's clear epoxy, although most slow-set epoxies will do a good job.

WING

Cut, mark, and notch the pre-shaped leading and trailing edges. Notching is important, because it increases the strength of the wing.

Epoxy plywood gusset "A" into its slot. Also use epoxy to install plywood parts "B," "C," and "D."

Cut the 1/4 x 1/2 inch balsa spars and glue them together. Make sure that the spar is straight.

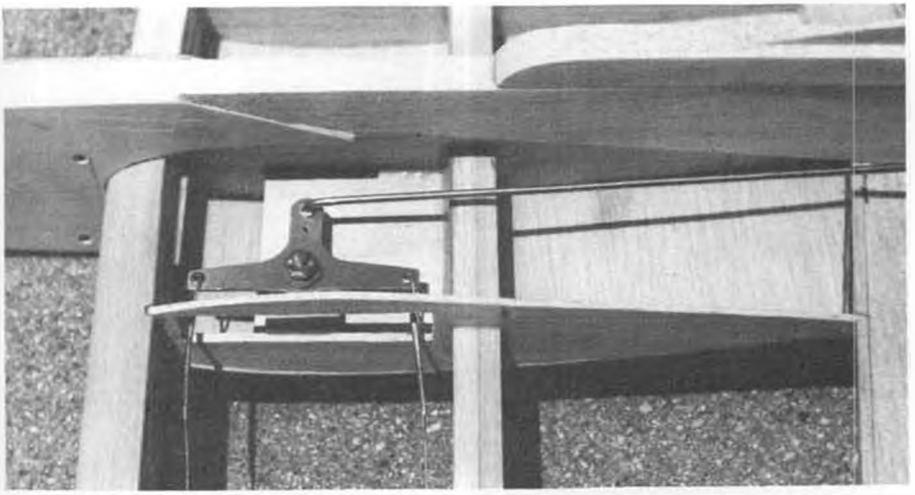
Cut out the ribs. Note that ribs 1 to 6 are from 3/32 balsa sheet, and ribs 7 to 10 are from 1/16 sheet. If you start with a 1/16 x 4 x 36 sheet, there should be enough material left over for wing planking.

Assemble the wing on a good, flat surface. Be sure that the wing is free of warps. Cut the arms of the bellcrank as shown on the plans. Make the pushrod from 3/32 music wire.

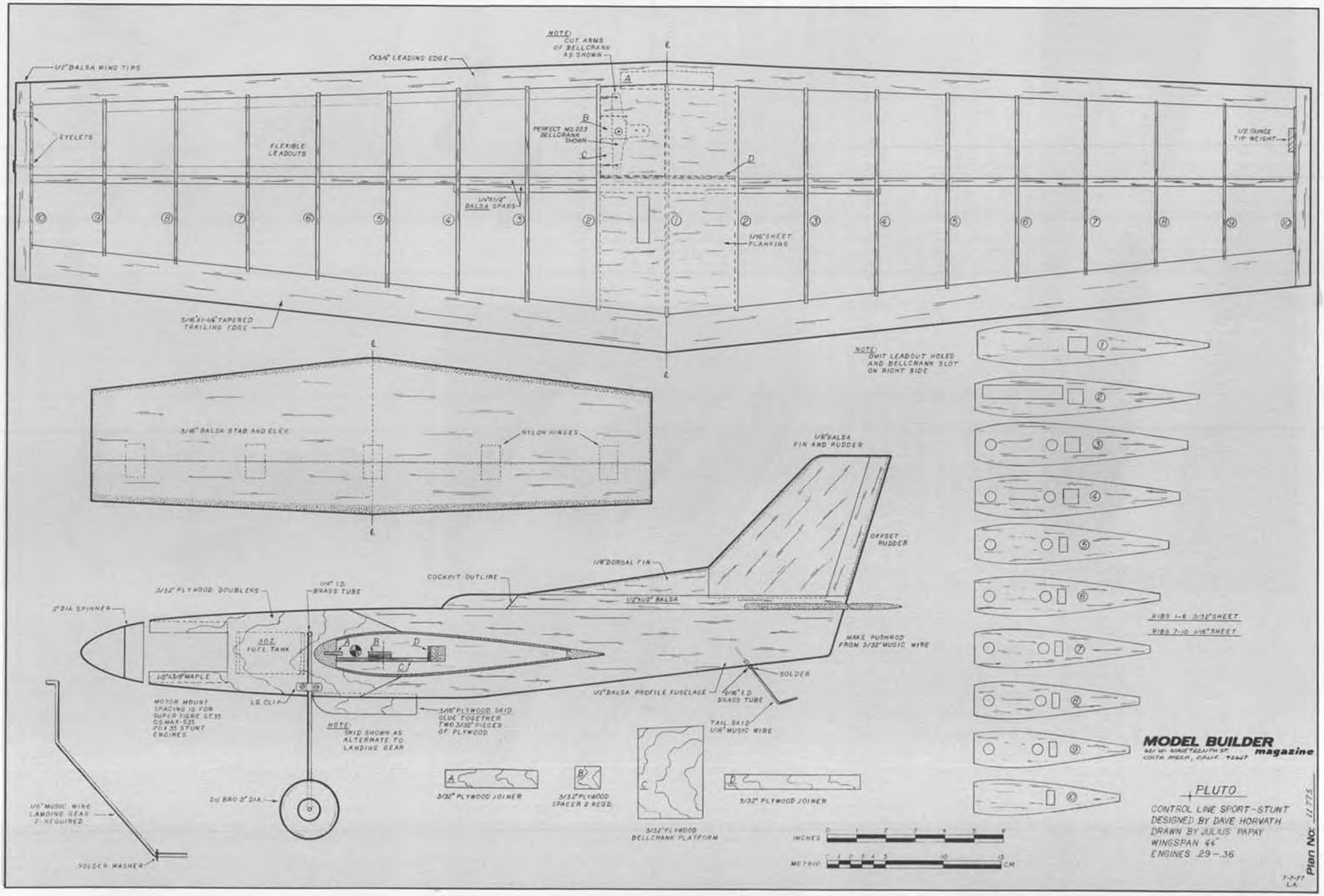
FUSELAGE

Start by cutting the fuselage from 1/2 x 3 x 36 balsa. Cut out the engine mounting section and epoxy the 1/2 x 3/8 inch maple piece. Then cut out the wing slot. Shape the nose section, place the fuselage over 3/32 plywood, mark, and cut out the nose doublers. Use epoxy to install the nose doublers. Drill the landing gear holes and motor mount holes. Epoxy the 1/8 I.D. brass tube for the landing

"PLUTO" doing its thing. Landing gear removed for flying on a grass site.



Bellcrank mounting was changed to increase strength after this photo was taken. Plywood platform now extends from front of spar to leading edge, as shown on plans.



FULL SIZE PLANS AVAILABLE – SEE PAGE 112

gear.

Cut the cockpit from 1/2 inch square balsa stick. Make a slot for the rudder and stabilizer.

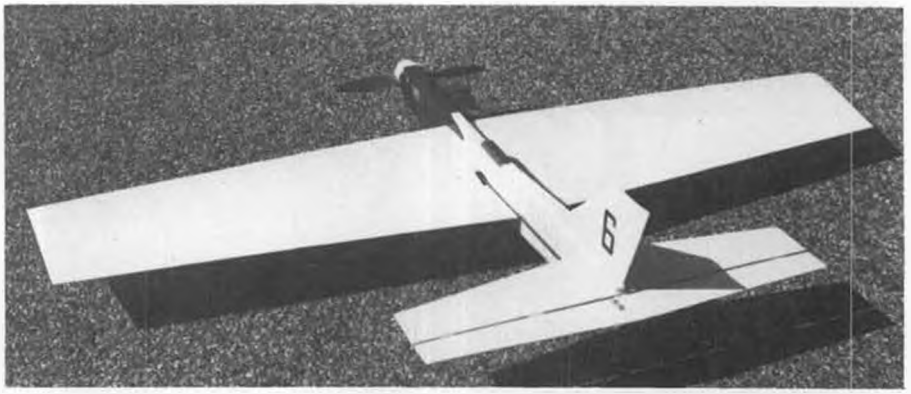
Cut the stabilizer and elevator from 3/16 balsa sheet. Use nylon hinges. Use 1/8 balsa sheet to make the dorsal fin and rudder.

FUEL TANK AND ENGINE

The fuel tank shown on the plans is a World Engines profile stunt 3 oz. If this tank is not available, you can order a 3-1/2 oz. tank from C & L Engineering, 12943 Winthrope Ave., Granada Hills, CA 91344.

Check the fuel tank for leaks before you install it. If its O.K., roughen the side of the tank with sandpaper, and epoxy it into position. The conventional method of fuel tank installation is with rubber bands or metal straps.

The engines I use are the Super Tigre .35 with a 9 x 7 prop or the O.S. Max .35 with a 10 x 6 prop. You can use whatever engine and prop combination you think is best.



The prototype PLUTO is white with red trim. Wing is Monokoted, while the remainder is painted with epoxy or butyrate dope.

LANDING GEAR

Bend the landing gear from 1/8 dia. music wire.

The field where I do my flying has fairly tall grass, which would render the landing gear useless. Therefore, I fly most of the time using only a skid. This has the added benefit of saving more than two ounces of weight, and gain on performance.

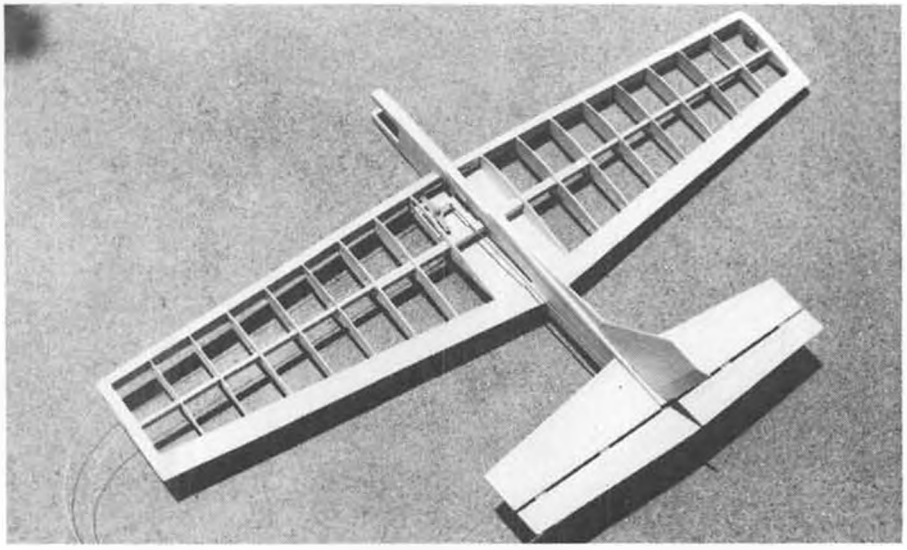
The tail skid is formed from 1/6 dia. music wire soldered to a 1/16 I.D. brass tube, as shown on the plans. Install the assembly with epoxy.

FINISHING UP

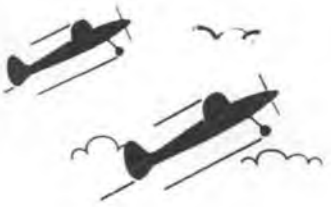
Fit the wing as accurately as possible, and attach it with epoxy. Be sure that the controls work smoothly. Before painting, sand the entire model with 320 paper. Use your favorite finishing technique.

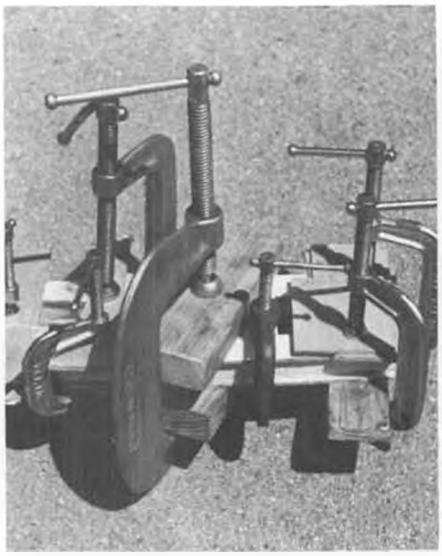
For my models, I chose to cover the wing with MonoKote and use epoxy or butyrate paint for the rest. The prototype is white with red trim, and the second "Pluto" is light blue with dark blue (navy) trim. They each weigh 26 ounces without landing gear. Flying is done on 60 foot, .015 dia. lines.

I hope you will enjoy this model as much as I do, and try not to fly more than 5 feet below eye level. ●

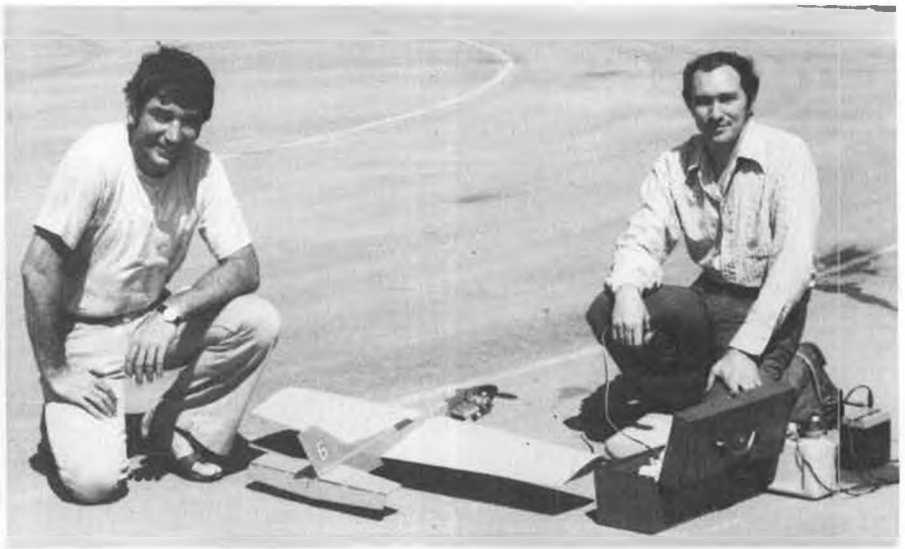


The completed structure, all ready for covering and finish. Model goes together quickly.





"All right . . I'll talk, I'll talk!!" Plywood nose doublers clamped in place while glue drys.



Photographer/draftsman Julius Papay (left) and the author, out for an afternoon of flying at Sepulveda Basin. Landing gear has been added for flying off of concrete.

Li'l Gem . . . . . *Continued from page 19*

complished either on a flat building board or a wing jig. Although the original does not have it, it is suggested that a balsa false rib be placed at the center front beneath the wing bolt plate. It is also suggested that 1/16 thick webbing be placed between the spars at the center of the wing for additional strength and rigidity. The wing should be completely finished and sanded prior to cutting out the single aileron.

Tail Surfaces: The tail surfaces should be cut from soft 1/8 by 6 sheet balsa. In order to have sharp edges when the airfoil is sanded in, I rout a 1/32 square groove around the entire perimeter of the stab, elevator and fin, then epoxy a 1/32 square basswood strip into the grooves. The basswood outline makes a perfect guide while sanding and then serves as an anti-knick strip for the thin tail surfaces.

Fuselage: Begin fuselage construction by preparing the four plywood formers. Formers F-3 and F-4 should be scored at the break line and cracked to form the angle as shown in the plan side-view. The angle should be permanently set by sealing the crack with epoxy. Next, cut out the soft 3/32 sheet sides and laminate the 1/64 plywood doublers, being careful to make the doubled sides mirror images of each other. The balsa sides should then be cut at the "break line", then over the sharp edge of the workbench the plywood doubler should be cracked in the same fashion as F-3 and F-4. Next, by using the formers to establish the angle needed, set the angle by running a light bead of epoxy down the "break line" slit. Then join the sides at the rudder post, using enough bevel at the aft end so the finished width is 1/8 inch, to match the fin thickness. Epoxy in the formers in the usual fashion. At this point, the triangular corner stock should be epoxied into place, allowing the corner pieces to extend beyond the edges of the fuse sides. This is necessary, since the corners are not right angles, and enough corner piece overhang must be allowed so that subsequent sanding with a flat sanding block will provide a complete corner fill when the bottom and top sheets are added. The remainder of the fuselage construction is straightforward and needs no explanation.

Finishing: The fuselage, from the wing trailing edge forward, should be given two coats epoxy or finishing resin inside and out, in order to fuelproof it. Since it is extremely difficult to keep the total weight down to the minimum using conventional silk and dope techniques, I recommend Super Monokote for finishing the entire model. Nyrods or Golden Rods are recommended for use as push rods for the elevator and steerable tail wheel. The nylon sheath for the tail wheel push rod should be anchored only where it exits at the rear of the fuselage. The unattached front end thus allows enough flexibility to make the connection at the aileron servo when attaching or removing the wing.

Flying: The only critical flight adjustment is the center of gravity. If the CG is placed aft of the point shown on the plans, your Lil' Gem III will probably be too sensitive on elevator control and will require frequent elevator corrections on the straightaways. If the CG is too much forward of the point shown, the No. 1 pylon turns cannot be made tight enough. Control surface movements should be as follows: elevator ±12°. aileron ±15°. To compensate for torque on takeoff, the steerable tail wheel should be set for a slight right turn with aileron in neutral.

To those of you who are already addicted to Quarter Midget racing, I suggest that you stick to the designs which you are currently flying, since I'd like not to have to compete with you on a head-to-head basis. To those of you not yet in the expert class, or perhaps just beginning, I believe you will find Lil' Gem III to be the easiest, quickest and surest way to be a winner in QM racing. •

C/L Nats . . . . *Continued from page 42*

The evening comes to a close with a group of Combat fliers thrashing to get streamers tied for Slow Combat the next day. I help for awhile, go get something to eat and then go to bed. My favorite dream comes to me, but I break my plane on huge, plane-smashing rocks that say "March AFB, Combat Circle, NATS '77" on their bottoms where the sun never shines. Consequently I do not place in any of the events I previously dreamed of winning.

MONDAY, AUGUST 8

A decent motel is located and we check in. For $94.00 we have two double beds, our own tub/shower, a private you-know-what, a pool close by, convenient parking, free ice (?), a liquor store across the street, a restaurant even closer, and this price is for a week. Even if you are counting on your fingers, by now you have probably realized that the commercial motel, which was in every way superior to the dorms provided by AMA, was *cheaper* than the dorms! I am still having a lot of difficulty in figuring that one out. You would think that dorm prices would be unbeatable.

As it turns out, they weren't even competitive with a motel that was not the very best, but quite acceptable by anyone's standards. The family starts talking to me now that I've found them a decent place to stay.

Back to the dorms, we check out and pack all the stuff back into the truck. To the motel, get everything re-unpacked, then to March AFB. Back to the dorm sign-up booth, we ask for a refund.

"Certainly, just fill out this form."

"OK, (write, write, write) here it is."

"We can't give you your money right now, as the accountant is out to lunch."

"That's OK, I'll just come back later. But I would like to have those forms back."

"We'll have to keep them."

"As it stands right now, I don't have a thing that shows the AMA owes me money. Either give me the forms back or write me a receipt showing how much I am owed."

"We can't do that."

"Of course you can."

From here on out the conversation deteriorated rapidly with them saying there was no problem and me saying that I had dealt with the AMA enough to know that things can get screwed-up and that I didn't particularly want to be out almost $100.00. I got my receipt. And later on I got my money, thank you, Darlene.

With the Combat circles being pure junk, I didn't much feel like spending any time there, so went to watch FAI Team Race. Found out that my friends Jed Kusik and Larry Jolly had just barely made it onto the next U.S. team for the C/L World Champs. This was good news, yet a bit surprising, because the previous day Jed and Larry were really thrashing to put together a good combination.

As on Sunday, Henry Nelson and Carl Dodge had the event dialed, and were doing nothing but look good. In the Team selections, Dodge/Nelson easily took the No. 1 position for the Team. And on Monday they came through to wn the Nats FAI TR event for a back-up. In fact, the final of Nats TR was made up of the same teams that will represent us at the next W/C's.

TR is always a neat event to watch, if you're into Racing or not. The event is such a contrast to AMA Racing. The planes are fairly quiet, yet a check of the stopwatch shows they are also fast. Rules concerning flying, pitting, etc., are really tight and strictly enforced. Refueling is done so quickly it is easy to miss the whole operation, the planes appear to be rather difficult to fly, demanding almost constant attention. If you ever get the chance to watch TR at the Nats level, by all means do so, I think you'll like it.

Down to the Two-Bits (1/4 Midget . . . it appears to be an R/C event) flight line we went looking for WCN. Parked right where a rent-a-cop type on a foof Honda 90 told me not to. Sent the guy into fits when I wouldn't move the van, which wasn't in anybody's way in the first place.

Finally couldn't stand not being at the Combat circles, so it was up there to see the last few matches of Open Slow Combat. Until this time, I hadn't actually stepped foot into the Combat area. It was even worse than expected, and that is *bad*. The field was dirt, rocks, animal holes, and some kind of brown, dried-up weed. No scorpions, but two kind of ants, one kind that was big, yet didn't bite, and a small version that did bite. The *only* good thing about the field was that the big ants didn't bite. The many grasshoppers seemed almost friendly, but how many times have you flown on a field so bad that the grasshoppers looked good?

The final match in Slow was yet another win for the Texans, with Mike Guthamson doing it to my fellow Jive Combat Team member Gary Stevens. Actually, the match was kind of a bummer, as Gary lost due to his string leader breaking. It was scored

as a kill, but anybody who was watching closely and took a look at the planes after the match knows that a kill was not scored. The problem was in the string leader which was not strong enough and frayed against the leading edge of Gary's stab. At the time, Gary just took the loss, as he knew that it could have happened to Mike just as easily. But it is still too bad that this match wasn't decided on pure flying skill instead of luck, especially when it is noted that later on in the week several matches were reflown, due to the string leaders breaking.

TUESDAY, AUGUST 9

Still tired from the trip down, we slept in late. The rest of the family decided to stay poolside while I go to March AFB to bake on the concrete. Badyear is run today, and Vic Garner seems to have everything well under control. He is this year's Racing Director and from what I saw, he did an outstanding job.

Ballard is walking around with an unlit cigarette hanging from his mouth, a plane has broken an upline, pounding a very fast Rossi into oblivion, there's talk of whipping going on, the megaphone equipped Rossis are making incredible amounts of noise, somebody's tying up a legal set of lines, somebody else is resoldering their tank, everybody is telling how "back home we were running a lot faster, plus our pits were better", once in awhile a landing plane snags another's lines, engines are burning down, others are too rich, and a few are honkin'. In short, it is the usual Nats Racing scene.

Sitting there casually watching heats, I'm waiting for the Final. The heats are over, now they are running two-up 160 lappers. Must be more eliminations, I wait for the big one. All of a sudden, everybody acts as if it is all over. Because it is. Turns out that Vic ran several Finals, all of them two-up, best time wins. Boo, hiss, hiss. Anybody who can't handle 3 and 4-up Finals in Badyear ought to be flying R/C.

While waiting for measurement of the engines, 2/3 of the Harris family and I get into a discussion about two-up Goodyear racing. They want it and I say no, it's not exciting. They say three-up is too much, and recalling the way Kerry Turner kept Harris running (while Turner simply pivoted) in one of the Finals I can see their point. But why force boredom on pilots who can handle themselves properly out there, just because a few others can't?

One at a time, Vic puts the indicators on each Rossi. With all the talk lately about oversize Rossis, it is expected that somebody will have one of Ugo's big ones, but I don't think anybody in the top positions did. The Kelly/Willoughby Rossi was measured several times, and I understand that it was very close to being too big, but did squeak by. I wonder if the guys flying R/C Q-M know about the "big" Rossis that show up occasionally. They seem to be dyed-in-the-wool rule freaks, and ought to have a glorious time measuring engines along with seeing if they will idle, have a slot cut in the extractor, have a stock prop on the front, etc., etc. *(Control line and engine expert Bill Wisniewski checked the winning Q-M engines for legality. They all passed. wcn)*

With the Open Goodyear thing being over, I wander around a bit and then decide to go swimming, so it is off to the motel and on with the waterwings. The pool really felt great after roasting for most of the day.

Later that evening, a phone call comes in from an obviously deranged soul. Bob Root has built his Formula I plane a bit tight and wants a quick lesson in how to build a metal tank, as his Pylon Brand tank won't fit. I tell Bob that he better find a way to make the Pylon tank fit, because hard tanks are time-consuming to make and don't always work right besides. Plus I don't want to be blamed for telling him the wrong way to build his tank. Later I hear that Eloy Marez has used hot water to modify Bob's tank, which is just what I told Bob to do. Cheri and I agree that without Cathy Root and Eloy, Bob would be a real mess.

WEDNESDAY, AUGUST 10

I go out early to watch some Speed flights, but can't stay long, as I have to take care of some business. Drop Cheri off in Lakewood so she can visit one of the companies she reps for, and I make the long trip to Van

Nuys to do the same.

Back to Lakewood about 4:00, we go eat and then truck on over to good ol' Disneyland. This is one of the highlights of the whole trip, what with the Nats being what it is this year. I don't know if you have ever been to Disneyland, but this was about my 3rd time and I still can't get over that place. In the land of Mickey Mouse, it really isn't . . . Mickey Mouse, that is.

Goofy ushers us out at 1:00 in the morning, and the kids still haven't seen a lot of it. Spending the rest of the week here sounds pretty good to all of us, and that is exactly what we should have done.

THURSDAY, AUGUST 11

I haven't gone over all of the hassles concerning the trashy Combat circles we were expected to fly on, and I haven't told you all of the unbelievable excuses concerning the Combat field handed to us by AMA officials. But for me, it all added up to this being an appropriate time to proudly wear the W.A.M. T-shirt that Rich Lopez had given me earlier in the week. You can disagree with certain W.A.M. policies all you want, but you can also be dead sure of the fact that they wouldn't have slapped C/F fliers in general, Combat fliers in particular, in the face with a field like we had for the '77 Nats. Do you know that we didn't even have a damn sani-can at the Combat circles? Or maybe we did, but the ants and grasshoppers banded together and ate it. There were enough of them there to do it.

At any rate, I made sure that everybody saw the shirt and knew why I was wearing it. Even made my point twice to some who seemed to need remedial work.

On the way to the Speed circle, I bump into Harry Roe and Luke Roy. Luke is one of the few people who catch on immediately as I introduce myself to him as being Rich Lopez. Evidently it's tough to outsmart Luke, and I didn't push my luck as he is one rough looking guy. Harry comes up with a couple of prototype GloBee plugs for Cox .049 engines. They look good and I walk off with a couple.

Jeff Perez comes by with his entry for Sport Scale, a P-61 Black Widow. Looks good and he gets sidelined while I take pictures. On over to the Speed circle, Glenn Lee gives it his all trying to get his FAI Speed ship whipped up onto the pipe. No luck. A voice asks if I'm Dirty Dan and I prepare to deny it, but it's Rick Westbrook. Fairly close is John Westbrook, and it is really a surprise to see them, as the last time we met was in Seattle at the '77 ROAR R/C Car Nationals. They are helping time Speed, quite a change of pace from R/C cars.

Over at the Rat circle, things are going along OK. One of my favorite Rat fliers, Tim Gillott, appears to have everything under control for once. His equipment is working right and his pilot has flown down just to fly the Rat. Tim has worked hard to win this event in past years, and this year looks good for him. In fact, Tim ended up winning Rat, which was good news.

Out of the Speed circle comes a plane on very long lines, or is it a fly-away? It's a fly-away as Bill Wisniewski's 60-powered hummer goes arcing across the sky and THWAPPO into the concrete. Looks as if Bill won't set that FAI Unlimited Speed record this year. One generally doesn't feel very safe at the Rat circles, but having just left the Speed circle minutes before, I feel quite safe in Rat-Land, U.S.A.

As I prepare to head back to the pool, somebody tells me that Gary Stevens came up short once again the day before with a 2nd in FBI Combat. Whiz-kid Greg Hill got to him in the final match. The sobering news is that Gary completely destroyed two Cox 15's on his way up the pyramid, both motors ruined as a direct result of the condition of the Combat bad-lands. I know for sure that Gary is using at least one of my Cox 15's, possibly two of them. On my way out I offer AMA HQ a one-finger salute in appreciation. One of those motors was built from hand-selected parts by Bruce Tunberg, designer of the Cox 15.

Out of the pool and back to the base about 7:00 p.m. Open Combat entrants are signing up with Neal White. I refuse to fly on a field like we have this year, so don't bother with sign-in. Many others agree, but have more invested in preparation, travel time, etc., and so are almost forced to knuckle under and fly on the worst Combat site imaginable.

Gary Frost starts off the MACA meeting and many things are discussed. The Combat site, rules, the Combat site, the FAI Combat Team, the Combat site, a membership drive, the Combat site, the latest MACA questionnaire, the Combat site, are all hashed out one at a time and/or simultaneously. Feelings are very high concerning the Combat site, but the lynching party motion fails to pass . . . unfortunately.

Neal White and Ron McNally draw up the pyramid, everybody checks to see when they fly and we're done for the night.

Due to staying around talking with various people, I am one of the last to leave the hangar that night. As I walk to the front of the hangar I encounter a group of adults building and flying AMA Delta Darts. They are obviously not modelers. A string hanging from

the ceiling has a ball of foam on the end of it. These people are going crazy trying to be the first to hit the ball of foam with a Delta Dart.

After spending most of the week complaining about various things and having to put up with stupidity in differing degrees, plus just having been through a MACA meeting, it is overwhelmingly refreshing to see a group of people building and flying models for the pure fun of it and without any constraints like rules, CD's, specified flying areas, politics, etc. involved. Fortunately, none of them ask what I am doing at March AFB in August. After watching them and thinking back over the past week, I couldn't possibly come up with a sensible answer to the question.

FRIDAY, AUGUST 12

Although I won't fly in this, my favorite event, I do come out (late) to help pit for the other members of the Jive Combat Team. Added to our basic pit paraphenalia are three-foot square pieces of carpeting. These are used in the pull-test area and in the circles to lay the planes on when getting ready for a match. To simply lay the plane on this field is to ask for a ruined engine, due to the dirt and rocks. You can imagine what it was like to land a plane. Or maybe you can't. You kind of had to be there to believe it.

Dinner that night was courtesy of Duke Fox . . . my steak was just fine. I don't know what the problem was down at the end of the table. All around us were Texas Combat fliers, also dining on the Duke, but they seemed to be in a tolerant mood, and no "We's are better than you's" discussions came up. It was a most enjoyable evening. Thanks, Duke.

SATURDAY, AUGUST 13

Several members of the JCT are still in the Combat action, which is now down to the 16 finalists. So I'm out early to do pitting chores. The team seems to fall apart with me blowing two of the starts and the flying seeming to go the same way. The JCT is out of it in Fast Combat.

We come down to the final match between Bob Burch and Mike Guthamson. Nobody seems too concerned about who wins or loses, the Combat area is all but empty by now. After a week of this flying site and all of the negative happenings caused by said site, nobody seems too interested in hanging around to see who wins. Too bad, as both Mike and Bob are tops in Combat and deserve an appreciative audience for their show-down. Mike wins and Combat at the '77 Nats is over.

A few pictures of the flying site are taken, just to serve as a reminder of how bad it really was and we split without a single look back. Kind of like turning your back on an extremely bad car wreck . . . you see it, can't believe it, and never want to see it again.

Down to the Scale circle and I run into Joe Klause. We talk for awhile about the Scale entries, I take a few pics, and somebody wants us to move out of the pit area. I explain that I am trying to get a few pics and would just as soon stay. No dice. I then tell the guy that I do have a Press Badge which grants some freedom of movement in otherwise restricted areas, but that I don't care to wear it, so it is back in the van. He wants to see it, I go all the way to the van for it, and am allowed to stay. The price one occasionally has to pay for refusing to wear stickers and badges that proclaim to the world who you are.

I personally find dyed-in-the-wool badge wearers extremely amusing. If you do too, the AMA Nats is guaranteed to be the biggest giggle of your life.

Bill Hannan, Bill Stroman, and I get to talking about things in general, when John Burgess comes by in a real fit. Seems his lines are too long on his Fokker triplane. Bill Hannan goes over to help. He comes back soon and by the look on his face I figure I better

get out of the shade and help if I can. After awhile, I get John's plane figured out, and with lots of help from Hannan and Stroman, we get the lines tied to the right length. Hannan keeps telling me I've done John a big favor, but I wonder. The wind is up and I leave with the feeling that John's triplane is going to be demolished.

Although I didn't see John's flight, a note here on the desk from Bill Hannan says that John flew OK and placed with his plane. Bill does say that the loop on takeoff was unnerving, but that it all worked out fine.

I make the rounds of the general area, saying goodbye to my many friends. It doesn't take long, both of them are in a hurry to go someplace.

The '77 Nats are over. It hasn't been good, but I have only the '76 Nats to use for comparison, and the Bicentennial effort was outstanding.

ON TO SAN DIEGO

Sunday we make it to San Diego and to Charlie Johnson's place. He sets us up with freebie passes for the zoo and we spend several hours walkin' and gawkin'.

Back to Mission Bay and an informal flying session at what has to be one of the neatest C/L flying sites there is. I pull out a brand new Dirty Beaver and wring it out. Everybody seems convinced I'm completely out of control, but I keep from plugging the 1/2A Combat plane into the sod. Charlies flies it and doesn't crash. Rich Lopez flies it and does crash. Chuck Rudner tries it next and *almost* plugs it in, but only mows grass. A couple of matches of Combat are flown, we continue trading flights on each other's planes, and it ends up being a real pleasant, low-keyed afternoon. Fun . . . but I could have stayed home and done the same thing. We find it difficult to rationalize driving 3200 miles, plus spending a week in a motel, to do a bit of flying with friends.

Back to (ugh) Riverside, we pack the Dirty Van with piles of Dirty Clothes, camping equipment, coolers, unused Combat planes, fuel, etc. Packing is always a bummer, but we get it all in.

GOIN' HOME

Up I-5, then to Hwy. 99, it is hour after hour of driving. Toward the end of the day we pull into a rest area for a late lunch. As I am packing a cooler at the back of the van, I hear some jerk come roaring down through the rest area smoking the tires. I refuse to put up with stuff like that, especially when my kids are in the area. A very large cucumber is laying in the top tray of the cooler. I grab it, pivot and chuck it at the guy as he goes by. It hits smack in the middle of his door, directly below the open window. The cucumber spills its guts in a loud WHAAAPP, giving its all in the name of cucumber-enforced caution when driving in crowded, child-infested areas.

Our extremely shocked Rest Area Racer slides to a stop. I meet him halfway as he comes stomping back. Pleasantries are exchanged, I explain my intentions and perfect willingness to duke it out. He seems to sense that I am very serious about what I say and splits. Cucumber Law triumphs again.

Sacramento is a welcome sight, and we stay at our usual motel right next to Old Sacramento. Sleep comes quickly.

After an early start the next morning, we are ready for a break and more gas about Corning. As always on these trips to Cal, we stop in at the Glass Blower/Olive stand. As usual, no glass blower, but we are olive freaks and spend many bucks on huge tins of olives, plus picking up on garlic and onion-flavored almonds, again in huge tins. Olives, almonds and Coors for lunch. May not sound good to you, but it was delicious at the time.

Expecting it to get cooler as we worked our way north, we were shocked to see that it was 107 degrees in Grants Pass, Oregon. That is a bit much, so we hunted down the Rogue River and went swimming for a couple hours. While swimming, a river excursion boat came roaring down on us, its wake tossing everybody around

and completely drenching the clothes on the shore. Aggravating. And me without a cucumber close at hand.

Back on the road, follow that white line home. About 2:00 in the morning we finally pull in the driveway and we are finally back home. As always, it really feels good to be back.

Well, folks, that's what the '77 Nats was like for me and my family. Everything in the preceding story is true, except for the bit about the lock on Driskill's refrigerator and my dreams. Actually, I dreamed of winning 1/4 Midget with a GMA Rossi . . . and getting away with it. ●

R/C Auto . . . . *Continued from page 33*

came in 3rd, 4th and 5th, respectively. Filling in at 6th was Pete (RePete) Fusco with an MRP car.

Next up was Class D six-cell electric cars, run on the regular 1/12th road course. Lately I've done a lot of driving with the electric cars and have found that the best electric car racing takes place on a really tight course where the very smooth, controllable power of the electrics can be used to advantage. The course for the gas cars was a bit large for 1/12th gas and looked ridiculously large for electrics. But again the alternative was to tear up the course or run on what was already there. We ran the gas course. Changing that track is not fun, believe me.

It was in this event that I made my debut in R/C car racing. Nobody was impressed. What was impressive, however, were the prototype electrics fielded by Associated. Very smooth cars, they appeared to handle really well, with no skidding in the corners or other messiness. Even hitting Bott's Dots didn't upset these cars much, they'd just hang right in there. This, combined with a definite advantage in top-end speed, made the Associated cars the favorite for the 20 lap final.

Before the Class D main event could be run, darkness came. The names of those qualifying for the main was posted, and strangely enough, I was not invited to play. I was beginning to understand why Expert drivers are called Experts. I did mention that all electric events were run Amateur/Expert combined, didn't I. . . ?

Saturday morning came early for most, and especially early for Gary Kyes, who spent most of the night putting ball bearings on the rear axle of his MRP electric car. Associated had made an impression and the MRP crew was thrashin' to get at least even in the top-end department.

With 10 or 11 fully charged cars on the line,the outdoor electric main event was quietly off and running. Rather, there was little noise from the cars, but the racing action was really furious. Steve Betts pulled right out in front and looked as if he might stay there. Gene Husting was pushing hard, and Gary Kyes was getting bumped into the back of the field. As Kyes was pushed back a couple of times, and you just don't make up a lot of ground quickly in electric racing, all eyes were on the front runners, and we were treated to a super display of driving as Gene Husting kept after Betts and finally got by him, evidently for the duration. Still, the pack was close (very close) behind Gene, and one slip could dump him into the also-ran column. With the race quickly coming to a close, all of a sudden there was Kyes in third place and flat goin' for it. A super move put him into second, but Husting was still showing him taillights and chargin'. Down the chute, Gene had a slight advantage, but Kyes got him in the next to the last turn and smoked the last turn with a definite edge on Gene. Across the finish, Kyes had the lead, but it was close. *Real close*, and a fantastic finish to what turned out to be (in my opinion) the best main event of the entire Nats.

From the established racers there were lots of comments about the electrics, the most common being "But they don't make any noise. How can ya drive something that doesn't talk to ya. Give me a screamin' engine, burning rubber and exhaust smoke."

But nobody could deny that the electrics do give close, exciting racing that the spectators can easily follow, plus being extremely trouble-free. The potential of electric R/C car racing is almost unlimited, and we are about to see it go from almost a novelty thing to the biggest thing yet to hit car racing in general. If you are not yet into R/C cars, but are considering it, there is probably an electric R/C car in your future.

ROAR rules require that the 05 motors be stock, and there was a lot of speculation about rewinds, bearings (in the motor itself), epoxied windings and balancing of the armature. Most everybody was anxious to peek inside the Associated motors at tear-down. As it turned out, Gene Husting was just as anxious to pop the end-bell of his motor, showing that it was indeed stock. Sure enough, it was stock, although it was *very* clean inside. Gary Kyes popped the top on his AFI 05, it was stock, so everybody quickly lost interest in tricked-out electric motors. But Steve Betts, who had one of the fastest (if not *the* fastest) cars made the day by tearing his motor down and having genuine Japanese dirt and crud fall out of it. Dirt was every place inside and the brushes were just about worn out. Steve's motor put an immediate end to any discussion concerning "cheater" motors.

The final results showed Gary Kyes and his MRP car winning, with Gene Husting second with his Associated car. Betts had a scratch-built car using Electro Craft speed control for third. Fourth went to Eric Hahn and his MRP car, Bill Jianas got fifth driving for Associated, and Joe Alves crossed the line in sixth position. My copy of the results don't show what car Joe was driving, sorry.

Trying to get back on schedule, we started practice and tech for Class B Road Amateur. In this class, you can run most anything you want, as long as it is an 049 with most using TD 049's and a few running their more reliable (but slower) reed-valve motors. Right here, I got an appreciation for how good many of these drivers are. Most of the Amateurs were just blowing me off with ease, and I was having difficulty getting dialed to one or two corners, let alone all eight.

Practice wound down, qualifying heats were run, and we had 11 cars on the line for the main. Again, I was not invited to play. Strange. . .

Little Jimmy Welch won here with his MRP car, Harold Harks, also driving an MRP car, was second. Rick Westbrook, Randy Swan, Ernie Hadman and Jeff Travelstad came home 3rd through 6th respectively, and I believe that all were driving Jerobee cars.

After a bunch more practice session, tech and qualifying, the Class B Road Expert main was up and again it was Gary Kyes leading them all home with his MRP car. Eric Hahn and Don McKay were 2nd and 3rd, driving MRP cars. John Westbrook was 4th with a Jerobee, Peter Fusco was 5th, driving for MRP, and Ron Hossack came in 6th.

Still a bit behind schedule, we packed up and headed for the Kent-West Mall for some Class D 4-cell electric Indoor racing. The track was *very* tight, plus being carpeted, which many were not used to running on. The track is normally used by JoMac as an experimental rental track where you can rent electric R/C cars. As such, it is usually a simple oval, as that is about all there is room for on a 70 x 24 foot piece of carpet. But somehow, McKay made it even tighter, with piles of Bott's Dots and barriers.

Initial reaction to the track seemed to be one of disbelief by many, but a little practice found most everybody getting around in pretty good shape, especially those smooth-handling Associated cars.

Tech and practice out of the way, heats were run, and it was obvious to all that just one mistake on this track could easily put you down 3 or 4 places, maybe even into last. And even the hard-chargers had difficulty in making up time on the short course.

I and a few others thought it would be neat to run 10 cars in the main all at once, but a vote was held, and it was decided to run two 5-car mains. No doubt more sensible doing it that way, but who says any hobby has to make sense?

In the final, Associated got the clean sweep they'd been hoping for by taking the top 4 places, with Bill Jianas, Curtis Husting, Mike Rowland and

Gene Husting placing 1st through 4th, respectively. Eric Hahn and Gary Kyes came in 5th and 6th with their MRP cars.

After 2 full days of outdoor racing, I was hoping that maybe Indoor racing would have a more laid-back mood, maybe even a party atmosphere, what with a State liquor store being only 40 feet away. Chuck August and I seemed to agree on this idea, but had only limited success at getting everybody else to join in. The presence of factory-sponsored teams dicing with each other has the tendency of keeping partying at a minimum while racing. I'm certainly not saying this is bad, but Indoor racing could have been a chance to let it all hang out, as with the electrics, there is little thrashing going on in the pits, all you have to do is charge the batteries and wait for your turn to race.

Sunday morning, it was time to go again, this time with Class A oval. Do I need to mention that Amateur and Expert are combined. . . ?

The track was set up to use the existing back straight and the north short straight. On the near side, turn barricades were removed to form another straight, and we had a pretty good tri-oval layout. The three straights were of good distance, turns 1 and 3 were tight enough to require some finesse with the throttle, while turn 2 was being swooped WFO by a few of the better drivers.

All cars in oval were required to run open-wheel, Indy-style bodies. Anybody familiar with open-wheel racing knows this means spectacular crashes whenever a car's tires hit most anything, especially another car. Some of the endos seen executed were of true championship caliber. Great crowd-pleaser, this oval racing.

Having already fallen into bad company with the Reed/Johnston/Guinn Tiresome Threesome Racing Team, I was picked to pit for Dick Reed in the 100 lap main. This turned out to be really easy, as Dick pulled into the lead soon after the start and drove that long 100 laps with very few mistakes. We had good, fast pits on laps 35 and 70, Dick flamed once on the back chute, but the restart was quick and at the end, Reed had about 14 laps on the second place car, to win his first national championship going away.

In my first experience at pitting an R/C car, I could not believe all of the useless yelling and running around going on. If yelling made the car go any faster, the pit-man work harder, or the turn marshal run faster to get your car, I could understand it. But, of course, screaming and hollering don't seem to help in any way, something I learned long ago in C/L competition. For the yellers, please note that I was the only pit-man not screaming at everybody and Reed was the only driver not yelling at his pit-man. A much more sensible way to go about things. Harold Harks please take note.

Back to results; it was a sweep for Jerobee, with Reed driving one, those in 2nd through 5th (Don McKay, Bob Van Zee, Gary Kyes and John Westbrook, respectively) were also driving Jerobees. Bringing it up with 6th was Tony Bellizi driving an MRP car.

Now to the Class B cars in oval. First up were the amateurs, and everybody seemed to either have too much or not enough power. Having blown my road motor earlier in spectacular fashion, a Joe Klause massaged (Kustom Kraftsmanship) TD with little bottom-end power, only fair mid-range power, but dynamic top-end, was in my car. Once in a great while I could cut a decent lap, but most of the time it was Endo-City, which can be lots of fun in itself. Harold Harks turned fastest qualifying time (one lap times) with myself having second best time, probably the only significant thing I accomplished during the Nats.

Experience came into play during qualifying heats. Most everybody was going fast while I crashed or waited for Reed to put on a new rear gear. My last chance to be invited to a main was gone, along with all 56 teeth on several gears.

In the main, Harold Harks had it dialed and came home in 1st place with his MRP car. Harold may yell a lot, but he sure can drive his car. Conrad Santos took 2nd, Rich Westbrook and William Shum used MRP cars to finish 3rd and 4th, Randy Swan ended up 5th and smooth-driving (but with some bad luck along for the ride) Jeff Travelstad brought it up in 6th with his Jerobee. My results do not show what Conrad and Randy drove, sorry again.

Class B Expert Oval looked to be a real battle with these guys pushing to the limit. A few pushed too far, of course, and usually with spectacular

results. Love that oval racing!!

Pete Fusco and his MRP car did it to them in the main, with John Westbrook and his Jerobee pushing in second. Gary Kyes placed 3rd with his MRP, fellow C/L flier Jerry Imboden got 4th with his TRA (Thunder Road Automotive) car, Greg Shehan was 5th with a Jerobee and Pete (RePete) Fusco, 10-year-old sensation of 1/8th and 1/12th car racing, blew a motor in the pits, but still got 6th. Until the motor popped, it looked as if RePete was going to beat his dad, Pete, but a heavy hand on the trigger did him in.

Monday morning, all that was left in 1/12th was Drag Racing in the Rail and Funny Car classes. Upon arriving at the track, I went to the Kyes pits and Gary was ready for Funr,, but had blown all of his good motors, so the one in the rail was basically a junker.

I quickly pulled the KK motor out of my oval car and a few practice passes showed it to be competitive. Given some more time to play with fuel, deck clearance and clutch slip, it would have been a real dynamite combination. As it turned out, it was *almost* good enough as-is, with the final in Rail seeing Carl Petri turn 3:08 to win against Kyes at 3:11. Three hundredths of a second in a 110 foot blast is really close, but still left Petri the winner, just as he had been predicting the past few days. Randy Swan took 3rd in the class, with Bob Van Zee in 4th.

In 1/12th Funny, Kyes had absolutely no competition. It was no surprise to see him take it all here, with Jimmy Welch in second, John Glaefke 3rd, Dave Blessel 4th, and Ivan Holt 5th.

With the final run in Funny Car, the 1/12th R/C Car Nats '77 was over, and the running of 1/8th was started. I really enjoyed it, so much so that the Dirty Family will definitely be campaigning some R/C cars in next year's local races. If you like cars and racing, why don't you check it for yourself and give it a try, although starting out at the Nats like I did is probably not the best way to go about it! ●

Weick . . . . . *Continued from page 51*

booms didn't lean. The fins therefore lean in with the dihedral angle. This is the true scale situation.

The stabilizer must be trimmed on its ends to match the angle of boom lean.

It's probably best to cover the model before assembling the various components, except for the area of the body which is above the wing, which must be done last. Cover the booms with tissue for reinforcement.

After covering, cement all the parts in place. The main landing gear wire, which becomes the axle, is made to be pressed into and cemented to the boom. It is inserted through the side braces as shown in the landing gear wire diagram.

Struts and fairings for landing gear wires on this model were made from plastic tubing taken from old plastic drapes. Veteran's thrift shops provided a second-hand source. The tubing is approximately 3/32 round on the landing gear side braces, about 1/16 x 3/16 oval for the wing strugs, and two sizes as shown for the vertical landing gear leg. If such plastic tubing is not easily available, carve the fairings and struts from balsa sticks.

The main wheels on the model in the photo were made from balsa, to help keep the center of gravity where it is.

OK!! So, how does the model fly? It has had flights of up to 42 seconds from an R.O.G., as an official flight at a contest. To do this required about 3/16 of up elevator and about 1/16 of left rudder . . . in the left rudder only. The flaps were mounted about 5 degrees down. I would not recommend more because they are effectively removing any washout in the wing, and more might make the model's flight characteristics a little twitchy.

The flight center of gravity is shown on the side-view. For early flight tests, make sure it's there. Ballast the model if necessary. Have fun with your Weick W1-A.

Now for some thoughts on CO_2 powerplants for this model. I believe this model is a little large for the single cylinder engines available now (there are three on the market). It would be ideal for a twin-cylinder, however, the model in the photograph flew on a single-cylinder engine.

Test your engine before you install it. It's going to be a pain to get it out if it doesn't work.

Don't expect a CO_2 engine to work well on a cold day. It requires heat to vaporize the gas. A couple of holes in the body covering, one at the front and another at the back, will provide fresh air to the tank area and help prevent the tank from refrigerating the inside so it never sees anything but cold air.

Personally, I'd recommend the Brown Twin-Cylinder CO_2 engine for this model. Next, I'd recommend the single cylinder Brown engine. I've had good luck with all my Brown engines . . . though they cost a little more, they've been worth it.

Although I've had a couple of good engines of each of the other types, I've also had bad luck. It appears that the engine in the model I

built suffers from a problem reported in Aero Modeller sometime back. It had a very short service life and will no longer put out enough power to fly the model. The CO_2 gas appears to leak past the piston.

In addition, the CO_2 cartridge holder for the Brown appears quite safe. I've never had a problem from a safety standpoint. A couple of the other loaders (not all of them) were loose enough to scare me, and one actually shot itself apart as I was screwing it together. •

Power Boats . . *Continued from page 21*

five Gold Cups, and he was the first to power a boat over the 100 mph barrier in 1931. His accomplishments go on and on.

Bill Muncey's "Atlas Van Lines" was the race favorite, as the new, sleek boat was undefeated, winning the Miami Championship, and the President's Cup in Washington, D.C. Also strong contenders were the team boats, Miss Budweiser and the silver/blue Anheuser Light Special. Miss North Tool and Miss Esquire were also good contenders, with good speed and acceleration that had to be reckoned with. Watch out for the consistent finishes of the Miss Madison, if the fast ones quit she'll be there at the line.

All of those who saw the new Atlas Van Lines for the first time, soon realized this boat's strengths. It's super fast, turning 125 mph plus laps easily in the choppy Detroit River. It rode the chop flat, and only got dangerously light at the end of the back stretch on the 3-mile, egg-shaped oval. Of course, the driving skill of a Bill Muncey doesn't hurt; especially his uncanny, deep-outside, full-bore, starts. This was Bill's day, as he won the preliminary heats and most importantly, the "Main Event". Not bad; 3 races and 3 victories for 1977 for Atlas Van Lines!

That's all for now. I hope I've convinced you to attend "Speed Week" in Detroit, in late June of next year, to run the models and watch the THUNDERBOATS! •

F/F W/C . . . . *Continued from page 69*

gone OOS in the mist in the second round. The team members were the same that flew in Bulgaria two years ago.

The Russian, Samokish, placed second with a model of the same general style as the N. Koreans. It had a number of elegant design and construction features that made it stand out. A Seelig type timer was housed in a streamlined spine on top of the aluminum motor tube, just aft of the nose.

The English team, which was expected to cope well with the damp turbulent conditions, never got things sorted out. The rubber seemed definitely down, and poor Peter Williams had to suffer a flight in which the model dragged along a snagged mylar streamer.

The USA didn't see any maxes until the fourth round. Power seemed to be lacking, as the models failed to climb up out of the chop. Those that did, managed a max, but with not much to spare. Thermal activity was weak all day, in fact, each of the USA Wakefield fliers made only two maxes. This sort of performance seemed typical of a large number of the contestants, with the depressing conditions cancelling out the chance that the models could demonstrate their "true" potential.

Design trends of the top ten or so Wakes was definitely toward relatively compact layouts. No extremes, no knife edge trim, just flog the rubber and pick air.

The winners were proclaimed around 7:30 p.m., and then the Nordic fliers were well into last-minute practice flying until around 9:00 p.m. The bar at the school, set up for the contestants, soon became a focal point for much socializing, and the night was oh too short.

NORDIC (F1A) —
96 contestants, 30 countries

At 2:00 a.m. we were all awakened by our fine organizers, announcing the time over the PA system, accompanied by loud recorded rock. "The bus will leave at quarter-to-three, and not a minute later." If we could only find out who was waking up the organizers!

The early morning trip through the mists served to wake us up, and at the airport, the start line was already set up. The weather was still cool, with a gusty breeze, but not as wet as the day before.

The Russian team manager had sent Viktor Isaenko up on a trial flight. The resulting full-force zoom launch in the gusts caused the ship to spiral in, causing some damage. All three team members then sat down and reduced their towhock's release setting by a predetermined amount and they were ready. Soon the green flare was in the air signaling the start. There was no waiting for most, as the circle towers ran their models up the line and then circled their way downwind. The real contest seemed to be taking place about 100 yards downwind, as the circlers jockeyed for position, searching for that extra bit of lift. Most were using heavy 50 lb. test monofilament line with no reel. The end was tied to their wrist and the line was played up and down, hand-over-hand, to control the slack. The most effective towing style was to let the model circle slowly with slack line and tower underneath. As the model loses altitude the tower takes in slack line. After a few turns, the tower then runs to get it back up, then repeats the operation. Circling with continuous line tension appeared to be less desirable. The extra pull made lift difficult to detect, and the speed made control more difficult as the model swooped around down wind.

No count was taken, but it was clear that straight towers were definitely in the minority. Air conditions were such that piggy-backing off the straight towers launching upwind was not a sure thing. Lift was not strong at all, and it was difficult to judge how well a model was doing until it had gone well past.

The first round saw the Russian team the only one with all maxes. The USA had none, and it was clear that the game was called catch-up to the East Europeans. In the third round, the Russian string was broken when Isaenko clanged with 130 seconds. At this point, there were eight contestants with all maxes, including two Czechs, Horejsi and Dvorak. The USA team members had one each.

The fourth round was disastrous for the Czech's hopes, as both Horejsi and Dvorak dropped time. Horejsi had a line cross that had gone unnoticed by the timekeepers. The premature release cost him 15 seconds. The intense pressure on the defending World Champion, Viktor Tchop of the USSR, was obvious. His dark moody look revealed the inner agony he must have been going through. Was he thinking back to that exhilarating afternoon in Bulgaria when he was circling on tow in a thermal upwind of Peter Allnutt? Would he have the opportunity to get into such a winning position this time? That opportunity slipped away from him in the fifth round as the fickle thermal gods plucked away a critical ten seconds, giving the shared lead to his teammate Andres Lepp and to Kostadin Abadjiev of Bulgaria.

Abadjiev was also flying F1C, and in fact, hadn't planned on flying F1A. At the last minute, he had been persuaded to bring along his Nordics and soldier on as the sole Bulgarian entry in F1A.

If one were to wander down the field and watch the technique of the various fliers, one would certainly be impressed with the superb virtuosity and coolness of Andres Lepp. He made the handling of that towline look so easy and effortless. His probing of this air patch and then that air patch went on and on, with no stumbling or dangerous moments. It looked like he would be the one to beat, particularly so since in the sixth round, Abadjiev dropped a very critical three seconds, putting Lepp in the lead.

The seventh and final round, starting at 6:05 p.m., had plenty of light but not much lift, in fact, there hadn't been any strong thermals all day. Only 10 out of 82 contestants were to max in that last round. Tchop fell by the wayside with an uncharacteristic 137 seconds. Lepp prepared his model and then became involved in an unsettling discussion with his timekeepers about the functioning of his towline flag release system. This may have been the straw that did it, for the air he eventually picked for his hoped-for seventh consecutive max failed him. His 164 seconds dropped him to second place behind Abadjiev, who hung in and found a max. All this last round sorting out brought Werner Kraus of Austria up to third place, as he had dropped only 26 seconds in the third round. Kraus was flying with straight tow, and was finding all of his own

air way upwind.

The North Koreans placed fourth, seventh, and tenth, and so took the team prize. USA efforts were not too bad, bringing us in at seventh in team, but still below the standard needed to place us in contention for the top spots.

The Bulgarian winner used a Russian type hook of the Isaenko version (built up from sheet metal bits). His wings were sheet covered and of moderate aspect ratio. The sheet was also covered with silk. A braided turbulator string was placed a 1/2 inch behind the leading edge. Stab was built up, and the tail boom was a rolled balsa tube. Fuselage was a rather large diameter aluminum tube. Seelig type timer was partially enclosed. Wing sat on top of the fuselage . . . no pylon. Kraus' model was similar in concept, with sheet covered wing, built-up stab, short nose (but with straight tow).

Lepp flew one of his well-proven models (AL29). It had a number of neat repairs visible, indicating one hell of a lot of flying. Wing and tail are built up, with a leading edge sheet box. Fuselage is a balsa box. Tow hook is the older style Russian, but with timer-controlled zoom rudder function. It holds the rudder at a smaller angle than for glide for 3 to 5 seconds during the zoom. This reduces the tendency to spiral out of the zoom and seems to work better than aileron or wing movement.

POWER (F1C) —
83 contestants, 25 countries

The night revelry was on the increase now that two events were settled. This only seemed to add to the excitement and enthusiasm as the dawn of the last competition day crept upon the assembled fliers and fans from all over the world. The weather seemed to be definitely improving, with more sun and less breeze.

We had already gotten some idea of what to expect from watching the F1C practice sessions. The neatly cowled, really streamlined models exemplified by Koster and team, Schaller, the Italians, and Russians, were finally showing their remarkable potential. And they seemed to be doing it consistently.

Koster in particular left the crowds gasping, as his model climbed with dazzling speed, getting well higher than the others. It seemed apparent that if Koster could keep his act together, he could go all the way. With the speed these models travel and with all their unforgiveness of mistakes, the outcome was far from certain.

The USA prospects appeared somewhat uncertain, as Charlie Martin struggled with his trim and sluggish sounding engines. He managed to max along except for dropping 39 seconds in the sixth round. "Big Al" Bissonette dropped 41 seconds in the second round, and then DT'd early in the sixth round. Tom McLaughlan looked good in the air, if not too pretty on the ground, with all his model's unusual iron-mongery hanging it all out. Tom maxed out and made the 22 man flyoff. His model featured a folding prop shaft and stainless steel sheet stuck on the wing inboard panels to reduce flutter.

The defending World Champion, Lars-G Olofsson, from Sweden, maxed through to the sixth round. In that round he had an overrun. On the second attempt, a D-T line broke under power. Al Vela, flying for Mexico, had some of the nicest looking models there. They sported the new look in streamlining and glassed construction technique. Unfortunately, he had more than his share of troubles, but he fought on in a valiant effort for his team.

The most interesting items of discussion outside Koster's spectacular performance, were the team and models of the USSR. In addition to the advanced, superbly engineered models that were used two years ago in Plovdiv, they now had even cleaner, more interesting ones. Inboard wing panels were covered with 0.03mm dural over the 1.5mm balsa sheet. Leading edge was backed up with a dural tube. There were few dents or wrinkles visible even though a few neat metal patches here and there attested to their hard use. One disadvantage of the dural became obvious. It conducts electricity! On D-T, a model hit power lines downwind. There was a flash and two great holes were burned through the wing.

Sergey Sharin of the USSR had what was considered the sharpest looking models of the lot. Trim was all airbrushed on, engine very neatly cowled, and all gadgets were machined to an ultimate of precision. The entire Russian fleet appeared to have the benefit of a very strong team effort in their design and manufacture.

An unusual development in the Russian camp was that their very popular Eugene Verbitsky was not present. The story was told that he had been bitten by a poisonous snake during a competition in the Ukraine. A considerable amount of skin grafting was required on his leg and his recuperation has taken some time. His models were brought to Roskilde and they were proxy flown by the Russian Wakefield flier Igor Ziljberg. Although he admitted to being a bit fearful of the engines, Igor did all right, making the flyoff, and eventually third place.

The first flyoff round going for the 4 minute max knocked out nine, in-

cluding Tom McLaughlan, who had his worst flight of the day. Italy had the distinction of having all three team members in the flyoff, thus leading to their deserving team win.

The air was certainly better this evening, as the flyoff continued with eight making it past the five-minute mark. Excitement mounted as preparations were made for what was obviously the deciding six minute round. Soon the ships were screaming skyward, with engines braked to a halt at seven seconds. Schaller, Meczner, Verbitsky, Sugden, Reda, Velunsek and Lustrati all looked good, but Koster's height looked greater. His transition was a roll-out over the top going downwind with no loss. The glide was good and it was up to the timekeepers to sort it all out.

The Danes went wild when it was announced that Thomas had the top time of 340 seconds, 39 seconds ahead of Andres Meczner of Hungary. It was certainly a popular win, if such a concept really makes any sense in considering all the other fine fliers who fought hard for that spot. But anyway, it appeared that Thomas had the performance, and he did get his act together, and he is one of the great movers and shakers behind this great sport.

His model, called "Speed Cream", is a derivative of the "Square Cream". It features a molded fiberglass fuselage front end with the engine completely faired in to its cowling. A half-pan holds the engine and fuel system in place with one 4mm bolt. Exhaust is carried out a megaphone duct to the right side. Engine brake is of the contracting wire strangler type. Tail boom is a rolled up 1.5mm balsa cone covered with 50 g/m² glassfiber. The boom is attached with a threaded joint and lock screw. Triple fins are carried, and the stab section has a high entry. Wing section is 6% flat bottom. Wing and tail surfaces are constructed conventionally, with 1mm sheet and light glass cloth. Auto stab mechanism uses a single hammer. The engine note was quite painful on the ears and any speculation as to the RPM would only antagonize the skeptics. Rossi usage was universal, as far as could be established, although the Americans were bombarded with questions about the Cox engine.

Koster's use of the thin, flat, unflapped wing section is only made possible by the very clean streamlined airframe. This section has a high L/D, but relatively low CL max. To get low sinking speed in the glide, it must glide very flat and fast. This is why the drag is so critical.

The rest of the night and the next day were taken up by one great party, in which the "secrets" of many of the models were freely given to all of us who had shared this great international meeting. Many of the bits and pieces, plans and ideas have crossed those politically motivated barriers and made their way, person-to-person, to the far reaches of the free flight world.

The following evening we gathered for the traditional banquet and award ceremony. The food was delicious, the spirits stimulating, and the great feeling of friendship shared, unforgettable. ●

Hannan . . . . . *Continued from page 54*

their skills in such diverse categories as indoor, flying scale, flying wing, and P-30. More power to 'em! We also met scores of gals who were serving as "mechs" for husbands, boyfriends and sons . . . and brightening up the decor in the process. Some, such as Diane Rohrstaff, were even kind enough to serve as models for us (aircraft models ALWAYS look better when displays by lovely ladies).

Then there were the Williams girls, adding charm and efficiency to the Trophy Cage operation. Mrs. Underwood and her daughters put in many long hours, both in the promotion of the new Scale Society, and in the massive Delta Dart building program. **Model Builder** Cover Girl, Debbie Ruff (April '76 issue) also graced the scene, as did Mrs. George Perryman and little Stephanie. John Worth's better half, Lillian, was providing plenty of assistance in smoothing out many of the small difficulties that result from conducting such an elaborate contest. We could go on and on . . . and probably will.

Last but FAR from least, were the patient girls on the home front, doubtless breathing sighs of relief that their husbands/sons were at last out of the house, so that they could get on with the never-finished business of

vacuuming up those pesky wood chips that cling to every rug in the place! This, while knowing full well that a fresh onslaught of tiny tissue scraps, bits of modeling clay and straight pins would descend, immediately upon the return of the male family members. Yet, they probably secretly hoped for a triumphant return, even if it meant more "dust-catchers" on the mantle! Hats off to ALL the girls!

A FEW NATS REFLECTIONS

We didn't play the reporter role this year; which allowed more time for visiting, and even a bit of competing. Our little band of "invaders" from Escondido included Jack Lueken, Jim Lueken, Ken Hanna, and yours truly. Our stated-in advance strategy was to put fun first, and competition next, although by the second day, Jack commented, "I don't think I can take five more days of this fun!" The difficulty, of course, was that there were so many friendly people and so many interesting activities, that one tended to ignore "unimportant" details, such as eating and sleeping. Which in turn, allowed the "body batteries" to run down.

One might assume that having well-trimmed models and practice in flying them would be the paramount requirements for successful campaigning at the Nats . . . but not so! No, the really important and tricky problem was being at the right location at the right time! However, a combination of persistence, patience, luck, and more than a little help from our friends, surmounted that portion of the obstacle course.

Our home-away-from-home was the University of California Riverside dorms, which were peopled with all manner of model aeroplane fans, as well as a convention of cheerleaders, a fact not ignored by the younger members of our team. The rooms were, appropriately enough, divided into various "wings", and it appeared as if some sort of hangar-flying sessions were going on somewhere, almost around-the-clock. The curious features of these conversations, was how quickly the subject (and participants) changed. People literally drifted in and out of the rooms, sometimes staying only a few moments, and at other times almost becoming residents! The beauty of this arrangement was that no one ever lacked for anything . . . advice . . . tools . . . materials, etc.

The first morning, we were waiting in line for the cafeteria to open, and were encouraged by the sight of what we assumed to be the commissary crew approaching. Turned out instead, to be the R/C Pattern Judges, resplendent in their white uniforms . . . and just as hungry as the rest of us!

Subsequently, on days when we needed to get going REALLY early, we used a different "drill". The idea was to buy a few doughnuts, avocado sandwiches, or whatever, the night before; these to be wolfed down with water from the hall drinking fountain . . . not too nutritious perhaps, but certainly helpful in getting a running start at the early morning action.

PARTICIPATION

Frankly, we would like to have seen more of it. Many really competent modelers were in the spectator ranks, who might better have been competitors. Many seemed to have been afraid of "all those experts", when actually their chances might have been quite favorable. Even the most experienced flyers have their off days, as a scanning of the overall results lists confirmed. This can be especially true when the contest sites are unfamiliar to ALL of the entrants. Take free flight, for instance. Seemingly, the Californians should have had a terrific advantage, being acquainted with the weather. But, in this case, virtually everyone was on equal terms, regardless of geographical origin, experience, or equipment, and "upsets" were the order of the day. Tactical flying, for once, was not the way to go, as even the top "names" were launching into "holes". Those who relied on their own methods came out way ahead of the game, as witness 17-year-old Jim Lueken, in his first-ever Nats, beating out even the top OPEN entrants, in the heavily-contested hand-launched glider class, by a margin of 90 points!

Similarly, the high winds encountered during some of the C/L and R/C Scale flying, was certainly an unexpected handicap which severely hampered many entrants, and doubtless contributed to the damage of some fine machinery. So next year, why not try YOUR luck?

THE PEOPLE

As indicated earlier, the greatest attraction of the Nats was the opportunity of talking with fellow model builders and their families. Some were old acquaintances from previous contests, while others had been known only through correspondence or as names in magazine articles. To single out a few is to risk slighting the many, but here goes, anyhow: R.F. "Bo" Watson seems to have attended EVERY Nats, and was kind enough to send us some fine candid photos. Reg Fleet and his wife traveled all the way from New Zealand to attend. Reg assured us that Peanuts were doing well in his country, with some 64 entries at the NZ Nationals! Also far from home was Icharo Yamada, of Japan, another fine designer/modeler being shown California attractions, by the Peck-Polymers team.

After years of featuring the fabulous photography of Bob and Chris Clemens, we were finally able to meet them, and the charming Mrs. Clemens, in person. Don Srull, formerly of San Diego, but now of Virginia, put on an amazing demonstration of efficiency by placing well in classes as diverse as F/F rubber and R/C scale. George Meyer, from Texas, brought some outstanding scale creations, some in two different sizes. Others kind enough to visit with us included Mr. and Mrs. Sherman Gillespie, the Rodney Norbergs, Mr. and Mrs. Frank Rogers, the Stan Fink party, and fellow columnists Dan Rutherford and Bob Stalick. And patient helpers Howard McLeod, Nick Bressi, and many others who took time to chat, thank you!

Two personal thrills for ye old hangar proprietor: AMA President Johnny Clemens saying some kind things about this column; and meeting Charles Werle, with over 50 years experience in flying all types of models, and who was kind enough to find and return my Stringless Fantomette, two days after it went o.o.s. over a mountain!

THE MEDIA

Sure, these are people too, but they attend the Nats under unusual circumstances. Imagine trying to cover such a 3-ring circus yourself! It may seem to be a fun way to earn a living . . . until you've tried it. So much to do, so much to remember . . . all the while wondering if your camera is functioning correctly, and if your hastily scribbled notes are complete enough (or even readable!). Hats off to the reporters and photogs! Some we personally watched in action were Bob Meuser (who also found time to help his granddaughter win a few prizes!), Carl Wheeley, Art Schroeder and Jim Sunday. Needless to say, our own Bill Northrop was not letting any moss grow on his Nikon, and he even attracted a few questionable comments about his day-glo socks!

France was well represented by the

Modele Magazine crew, headed up by Phillippe Loeillot.

THE UNOFFICIAL EVENTS

In addition to the many scheduled AMA categories, there were a number of events flown on an unofficial basis. These included Manhattan Formula, Northrop Flying Wing, Electric Power, Oldtimer, Thompson Trophy, Night Flying, P-30, Rubber Speed and Embryo Endurance.

We didn't see Manhattan Formula, Electric, or Night Flying, so can't comment, and doubtless "Daddy Warbucks" Pond will adequately treat Old Timer. It was our pleasure, however, to participate in the Northrop Flying Wing, Rubber Speed, Embryo Endurance, Thompson Trophy and P-30 events. The biggest "plus" of these unofficial classes is the "low pressure" attitude that prevails, as contrasted with the tensions of the more "serious" categories. Even casual spectators noticed the entirely different spirit involved, and commented upon it. There IS a message here! Congratulations to all the volunteers who administered these "added attractions" that left warm memories in the minds of all who attended. The thank you list would surely include Carl Hatrak and Marge Bernhardt, for the Northrop Flying Wing meet; Charles Sotich for the N.F.F.S. Speed meet; John Oldenkamp, Cynthia Sabransky, Harry Steinmetz (and, by remote control, Dave Linstrum) for the P-30 bash; Jack Lueken, who C.D'd Embryo Endurance; and to Russ Brown, The Cleveland Free Flight Society, OH 10 Escadrille, Flying Aces Club, Fernando Ramos, and Jack McCracken of the Flightmasters, who collectively were responsible for the SUPER awards for the Thompson Trophy, Speed, and Embryo events. And to the Bridgeport, Connecticut Flying Aces Club, who have originated so many of these fine concepts, including Peanut Scale, F.A.C., Thompson Trophy and Embryo Endurance. Gentlemen, we salute you! And we hope to elaborate on some of these unofficial meets in a future hangar, as space permits.

ALL SCALE SOCIETY

Another important development at the Nats was the formation of a National Scale organization, set up to serve all facets of aircraft scale modeling. Present were some 75 scale-oriented builders, who elected a staff of temporary officers, including Bob Underwood, President; Fernando Ramos (free flight), Bill Boss (control line), and Granger Williams (radio control), Vice Presidents. Noel Allison will serve as Secretary/Treasurer, while Jim Crummy will be the newsletter editor. Anyone interested in joining, should drop a stamped, pre-addressed envelope to: Mr. Robert Underwood, 4109 Concord Oaks Dr., St. Louis, MO 63128.

HUMOR AT THE NATS

Traditionally, we try to sign off with a bit of amusement, and the Nationals yielded a bumper crop, as witness the following:

Frank Ehling: "Look at the schedule and see if it is important to get up today."

Bill Stiles: "When you're having a good time, it seems to dilute the effects of the heat."

Anon: "All-in-all, it was a real test of one's deodorant!"

Overheard at the rubber speed meet: "Set it on the ground, so it can't fall off."

Jim McDermoth: "I came out here mainly to see if the (California free flighters) can really walk . . . they usually use their motorcycles even to go to the outhouse!"

Bert Pond: "The reason the rubber speed models went faster in the old days was because the courses were shorter!"

Lueken's Stringless Wonder landed tail-heavy. Turned out a large grasshopper was riding on the aft end!

Clarence Mather's car had so many trophies in the back, that it overheated and broke down.

Bill Warner, who entered an Airspeed Ferry transport in scale, decided to give the judges a little "bonus" by

including a racy picture of the "stewardess" in his proof-of-scale folder. The idea backfired, however as LADY JUDGE Patricia Groves was not impressed. ●

C/L Stunt . . . . . *Continued from page 45*

Baron, of Santa Monica, Calif., and Ted Fancher, of Foster City, Calif.

Bob's trike-gear plane uses a built-up wing and tail with Monokote covering, and K&B Super Poxy on the fuselage. His ST .46 always runs very well. Bob uses cooling vents from the engine compartment through the top block, which allows more cooling to the engine case. While that aspect of the idea is not by any means new, Bob says it makes for more even lap times throughout the flight. Nice idea Bob!

Ted Fancher's "Citation" flew very well, and also won the Concours d'elegance award for the most beautiful C/L Stunt model at the Nats. All the pilots took part in the voting. The ST 46 powered model uses an 11 x 5 prop. The wing is a built-up, highly modified "I" beam, covered with silkspan. The 60 inch span plane uses Sig Dope for the nice finish. Ted's plane has smaller control surfaces than found on most planes, and he also uses a home-made circular bellcrank.

Fifth place was captured by Wynn Paul, of Lexington, Kentucky. His "Pampa Wagon IV" is ST 46 powered and weighs 57 ounces. The Tigre 46 swings a 12 x 6 prop. The 58 inch span plane is nicely finished with Sig Dope. ●

Choppers . . . . *Continued from page 25*

his machine is now thoroughly docile and predictable. He cautions that it won't roll any more (at least with present rudder deflection), but the controls are less touchy at high speed. He claims it would make an excellent basic trainer . . . it can't be stalled, and if you throttle back, it will take up a stable attitude and land itself upright, without any further interference from the pilot. Such a vertical landing will be heavy, whereas a normal landing, flaring after a steep approach, should be light.

The only controls on this type of autogyro are elevator and rudder, so some airflow should be maintained over the surfaces to stay in command. This is instantly available by opening the throttle in a vertical descent, but, if you are "dead-stick," a normal glide angle should be used to keep up airspeed until the final flare.

In closing, Dave mentioned the only way to stop the rotors on the DB is to apply hard-down elevator, such as halfway through a roll. This will likely cause the rotors to reverse direction and a stable inverted descent begins. Sustained inverted flight is possible, but he hasn't tried it yet since he hasn't fitted a stunt fuel tank, ha!

Well, thanks a million for all those good words Dave, it makes me want to get my Helix Autogyro out of the mothballs and have another go at it! Unfortunately, I can't swap the rotor blades around like Dave did, so will still have to watch the air flow very carefully to prevent blade slow down and a repeat of my last year's crash.

KALT HUGHES 500 CONVERSION

I believe I mentioned in an earlier issue of **MB** that I had managed a swap with a local hobby dealer for the Kalt Hughes 500 Helicopter kit, including the beautiful 500 fiberglass body, the training box fuselage, and 2 mechanics assemblies. After much cussing and discussing with my boys, I managed to keep the 500 shell for myself, and they took immediate possession of the balance! Being a dyed-in-the-wool "collective pitcher," I figured to install a Kavan Jet Ranger main rotor shaft, rotor head and swash plate, and marry this collective pitch system to the standard Kalt transmission.

My first project was to select a suit-

able engine . . . the .45 was recommended on the plans, but I felt we would need more power for this big bird. Remembering the brand new H.B. Stamo 61 which I could never get to run properly in my Graupner 212 (inverted), I decided this was the way to go. I removed the rear blower assembly, replaced the rear case cover, and mounted it upright on the skids. Would you believe, that dern thing wouldn't run in that configuration either! In desperation, I mounted the raw engine on a test stand, installed a prop instead of the flywheel, and tried it again. Well, it ran fine . . . backwards! I could never get it to turn in the proper direction. My final action, just prior to throwing it in the trash can, was to install a Kavan carb . . . what a revelation that was! It started immediately, in the right direction, and was smooth as glass throughout the entire RPM range.

Now that the power problem was solved without having to buy another engine, I set about building the kit according to the instruction manual. Actually, it went together pretty fast, and the parts had a surprisingly good fit. The Kavan main rotor shaft and bearing went into the top cabin with minimum effort, and a small adapter was machined on my lathe to couple the shaft to the Kalt transmission. By referring to the photographs, you can see that I "borrowed" an Alouette II anti-rotate bracket to keep the swash-plate from turning.

Since the 500 shell is very wide, we were able to locate the radio and battery along the right side of the transmission assembly, in little plywood boxes to keep out the oil. Servo mounting was conventional, and illustrated in the photos. The only part where a bit of "Rube Goldberg" was involved, was the "walking-crank" which lifted the swash-plate to achieve collective pitch, and at the same time permit cyclic inputs to the swash-plate. Music wire, brass tubing and an assortment of set collars were soldered together to provide the required action.

Kavan blades were "chopped" about 3 inches, the fuselage painted a bright yellow with purple stripes and canopy PK'd in place, and we had a finished chopper. Although it hasn't been flown yet, I intend to make the first flights tomorrow, and will let you know how it works! Now, I've gotta close and drive to San Diego for a long weekend in the shop.

BCNU next month with more goodies. •

F/F Nats . . . . . *Continued from page 65*

MECA collectogethers. Hulan Mathies won fourth, flying a Satellite 788 with the 26% stab and an OPS 40.

When those large engines began to kick up the rpms, the dust on the graded launch area billowed out behind the models and onto just about everything in sight. One of the C ships managed to puncture the window of Ty Marcucci's brand new car, which was just sitting there minding its own business in the parking lot. In all, 13 people made the flyoff in C Gas. Tanaka took it all with 1569 seconds. Galbreath was flying his GYSOB and had the autostab fail to function on one flight (first time ever, sez Doug). The result was a steep glide angle and out.

A/1 glider was a thriller. Bill Vanderbeek and Paul Stober ended up nearly tied for first, except that Stover's Little Hooker squeaked by with one added second on the watch. With its third straight Nationals win in A/1, there is no reason to question the Little Hooker's being selected as NFFS A/1 glider of the year. Mike Fedor did the honors of designing this ship.

If there had been a Junior Free Flight Category Champion this year, it would have gone to Joey Foster. Joe won practically every event he entered. In fact, only two of his official flights were less than maximums. Few others can lay claim to that kind of record. Steve Geraghty was Joe's mentor throughout the Nats, and was usually seen running around tallying up Joe's wins. I guess I forget to say that Joe won A/1 Junior.

Tuesday evening was the 10th annual NFFS Symposium meeting. Bob Dodds, editor of the 1977 Symposium, was selling the books at the door for the current price of $8.00. The meeting was held at the University of California at Riverside campus, in a small lecture hall that didn't feature air conditioning (that worked). Approximately 80 people

attended while Henry Jex explained in humorously scientific language how come propellers are as they are. Amos Hades described his experiments with A/2 airfoils, and some of the Ten Models of the Year were presented. Jim Clem's gas ships were commented upon, as was the Wishbone A/2 by Bob Isaacson, Matherat's Coupe by Bob White, and Fedor's A/1. The session continued with a roast of Bob Meuser, which featured some excellent cartoons with humorous quotes by Will Nakashima, other appropriate comments by other guests such as George Perryman, John Worth and George Xenakis, as proxied by Lou Young.

The evening concluded with movies of the Indoor World Champs and a film on Rubber Speed. Symposium reports are available from NFFS Plans and Publications at a cost of $8.00 plus 75¢ postage. Send to Jack Brown, 20267 Northbrook Sq., Cupertino, CA 95014.The contents of this year's report is well worth the expense.

SEVEN ROUNDS IN WAKEFIELD MEANS A LONG WALK

Even though the rounds started early in the morning on Wednesday, it was early afternoon when the final flights were made for the Wakefield event. When the air had cleared and the feet had recovered, Chris Matsuno had emerged victorious. Bob White was in second place by 24 seconds. Half-A was also flown this day, and the largest F/F entry was reserved for this bunch of gas fliers. Satellites are a favorite in California, but there was a strong contingent of original designs as well as Stardusters and Jim Clem's designs. AMA Gas scale has certainly taken a back seat to the rubber event.

There were only 8 Open Fliers in gas, and only 2 in Junior/Senior. In contrast to the growth of rubber scale, it now appears that the gas event is nearing a terminal existence.

There is no need to repeat the weather conditions as they were to remain constant all week.

WINNING COUPE MEANS BEATING STEPHANIE PERRYMAN

You locate this cute little southern girl who is only 8 years old. If you listen closely, you can hear the drawl. If she is assisted by one of the nicest Southern Gentlemen you would care to meet, and if she is flying an old Joe Ott design, you have located Stephanie Perryman, who just happened to finish fifth in Coupe, flying with and against the big boys. Let me put it another way: she beat 32 others (including her grandfather)!. Nice to see the good performances of the kit Coupe models, such as the Coupe deVille and the Slats. Quite a bunch of them around. Jim Quinn took the event with his original in a two-way flyoff with Chuck Markos, who was just back fresh from his trip to Denmark as a member of the U.S. FAI A/2 Team.

Hand Launch Glider was fun to watch. Event Director, Ty Marcucci, had set up headquarters right on the field next to the launch area. There were thermal poles, sniffers, thermistors and streamers surrounding the area. Bill Blanchard was the man to watch, and watch him almost everyone did. From a distance, it looked

a bit like a bunch of drunken lemmings running to and fro on the field. Bill would sense a thermal and take off running toward it, followed by an entourage of other glider fliers. When Bill launched, so would the entourage. Didn't do much good, as Bill won out in Open, but didn't win the Tulsa Glue Dobbers High Time award in H.L.G. Jim Lueken, a Senior did that. Bill's score was 402, Jim's was 492. Thermals are the name of the game in H.L.G.

Doug Glabreath won second in FAI power in 1976, but this year he wasn't to be denied. Flying a design modified from one of Reid Simpson's and powered by a Cox Conquest, Doug did the full 900 seconds. Ron Young made it to second place flying a similar model with a Cox. The standard of flying in FAI Power was of the highest of the entire meet. By common consent, the Power boys decided that they were not going to fly in the wind, so they stopped at round 7. Smart move, considering what the Wake fliers had gone through the day before.

AFTER YEARS AND YEARS, THE MULVIHILL GOES TO GEORGIA

When you try time after time to win the Mulvihill Trophy, perhaps modelling's most prestigious and best looking piece of metal, it gets to be an obsession. George Perryman finally did it this year. It took 2062 seconds for him to do so, but he did. This was the only event which was flown to five minute maxes, but that only takes care of the first 900 seconds, then there's the six minute flight, the seven, and the attempt at the eight. George did that just about a minute better than second place finisher, Bud Romak. Needless to say, Joey Foster won Junior.

A/2 Glider was won by Bob Isaacson, after a 2-way flyoff with Dale Segle. Bob is a sight to watch as he thunders across the field with his glider in tow. He and Bill Blanchard both would run around together, talking to one another, trying to sense the air. Then, when it felt right, there was the circle and the 20 foot zoom into lift . . . carrying the model well up in the 3 minutes.

A Gas was a strongly entered event, won by Paul Stober in Open. Virgil Coker was back on the scene, flying an updated version of his Coker's Cooker . . . and flying this out-of-the rut model well enough for second place after a 13-way flyoff. Once again, Joey Foster won first in Junior.

ROCKET FLIERS DO IT IN THE PARKING LOT

There is something challenging about Rocket (read Jetex). It must be one of the most frustrating events on the docket. Yet, this year, 23 people gave it a go, even though engines are hard to find, fuel is nearly nonexistent, and the damnable things are as cantakerous as the neighbor's cat on the nighttime fence. With the advent of a promising import from Japan on the horizon, perhaps Rocket will come alive and be more enjoyable for more modelers. Richard Wood, followed by Irv Aker, made respectable scores for a first and second in Open (459 and 441 respectively), P. McQuown and Ted Stalick made less respectable scores in winning Junior and Steve Mounsey and Gary Stevens did about the same in Senior. Because of the high fire danger, Rocket was flown off the parking lot, and strictly enforced by C.D. Joe Norcross.

B Gas was flown this day, and Hulan Matthies had one of the hottest performing Satellites these eyes have ever seen. He won the event handily. Joey Foster and Fred Calhoun did it in Junior and Senior. Outdoor Peanut Scale was flown down the flight line and drew around 25 entries. The quality of the models was very high and even though the day was just a bit windier than some of the others, the ships handled the winds well.

Other things: Don Monson's really unusual Cargo Model with wings that became fins at the tips. The sounds of F.F. Helicopters; which might just as well be called the Glen Lee event, except this year, hobby shop owner par excellence, Tony Naccarato, gave Glen a push. There is the renewal of friendships, the meeting of those with whom you have corresponded over the past years. Those who say, "**Model Builder** is the best magazine". All kinds of good folks. Thank you's are not enough. To the AMA, to the Air Force, to the club members and contestants. It was fun, I was glad to be able to go, and to take my two sons and some close friends to make it more festive and enjoyable through the sharing. ●

Plug Sparks . . . *Continued from page 29*

Gallas nosing out hotshots Taibi and Wallock. Really tickled the columnist to see Abe come of age in this event, as he has been gradually placing higher every year. This is what happens in every Nationals competition; the gradual upward spiral of each contestant who wants to win. Check back in the results sometime, you'll be surprised!

Might mention before closing off that George Perryman again donated the Junior-Senior Rubber power trophies. Of course, the apple of his eye, granddaughter Stephanie Perryman, again won the event. However, competition is on its way as Mike Scuco came in a strong second. Next year may see even more Junior participation.

After all the dust had settled (really!) the 1977 Old Timer Events winners were as follows:

CLASS A GAS
1. Al Rasmussen (Zipper) 7:25
2. Jim Persson (Zipper) 6:31
3. Robt. Dittmer (Ranger) 5:45

CLASS B
1. Leon Nadolski (Zipper) 7:04
2. Al Rasmussen (Zipper) 6:53
3. Sal Taibi (Alert) 6:52

CLASS C
1. Bob Longstreet (Sailplane) 9:00
2. Nick Nicholau (Sailplane) 8:22
3. Al Heinrich (Sailplane) 7:46

30 SECOND ANTIQUE
1. Sal Taibi (Powerhouse) 8:18
2. Gene Wallock (Clipper) 7:24

.020 REPLICA
1. Abe Gallas (Stratostreak) 8:57
2. Gene Wallock (Ranger) 8:42
3. Sal Taibi (Playboy) 8:21

RUBBER CABIN
1. George Perryman (Dethermalizer) 10:51
2. Al McBaine (Toft) 9:00
3. Charles Sotich (Korda) 8:26

RUBBER STICK
1. George Perryman (Lanzo) 8:30
2. Jerry Vernon (Gollywock) 7:02
3. Ernie Johnson (Luckett) 6:45

JUNIOR RUBBER
1. Stephanie Perryman 3:05
2. Mike Scuro (Gollywock) 1:40

14th ANNUAL OLD TIMERS REUNION BANQUET

Originally intended as a general get-together in 1964, the O/T Reunion Banquet has evolved into a vehicle for awarding the trophies earned from the day's flying. In addition, the writer has always tried to have entertaining speakers, some high jinks, and films of past Nationals.

In a rather opulent setting in the Ramada Hotel, better than 60 modelers gathered to honor the winners. Carl Hatrak, the ever-present handyman, was the official to award all the trophies. Some fun was had when the Emcee tried to award a beat-up plaque to Carl Hatrak for his unselfish service. In the nick of timer, Tom Sutor (the trophy man for the Nats) jumped up with a brand new plaque that had not fallen off the back of the truck.

About the happiest guy in the room was Bob Longstreet, who by posting high time in Class C Ignition, won the special 1977 Commemorative Wahl-Brown Junior engine. This engine, so kindly donated by Herb Wahl, was one of the high points of the evening.

Of course, when Sal Taibi finally won the perpetual Antique Trophy as donated by Frank Ehling, he will now have to carve a miniature model of his winner to adorn the top of the trophy. Naturally, he gets to keep the Comet Clipper as made by last year's winner, Larry Bayer. This most interesting trophy is probably the most coveted perpetual in National Old Timer Events.

In many respects the O/T Banquet resembles the SAM Champs banquet in that trophies are awarded, but the similarity ends there. It was natural that the SAM Champ Banquet should pattern itself after the Old Timer Reunion Banquet, but time prevents any more fun as is had at the Reunion. This year's speaker, Irwin Ohlsson, displayed his original engine which had been given back to him by Clarence Lee. Irwin was greatly delighted as only two prototypes were ever built by him and Frank Bertelli. The talk was most interesting, as Irv had a considerable amount of background not generally known to the average modeler.

Directly after the showing of the 1963 Los Alamitos Nationals, the banquet broke up with the Emcee promising the 15th Annual O/T Reunion Banquet would be bigger and better in 1978.

SIDE NOTES

Although converted glow engines are allowed under present rules, the regular ignition engines still dominate the winners circle.

P & W (Gene Wallock) kits are becoming more popular all the time. Samll wonder, with the excellent saw work done by Wallock.

The guys who are prepared are the guys who are winning.

COMING EVENTS

During his "spare time", the writer had occasion to have a long talk with the AMA Technical Director, Frank Ehling (pronounced E-ling!). Frank is still hot to have this columnist stage a two-minute type free flight contest. Here, the object of the contest is to come as close to the two-minute mark as possible.

The advantage of this type contest is that any power can be used. No timers

for the motor run is required, as the contestant can power his model as long as he thinks is necessary to attain two minutes. Best part of all is that any type of gassie free flight can be used! We may consider this event for next year, so don't say we didn't tell you ahead of time!

Hard on the heels of this idea, Frank (who is great at getting other people to do things) suggested the possibility of an indoor old timer event. After some hashing of ideas, it was generally agreed the model design would have to be pre-microfilm (about 1932), where anyone could build a stick-and-tissue model. If enough interest is shown, the columnist will make available all those early AMLA indoor rubber designs that were fun to fly. You didn't need to walk around like the floor was covered with eggs!

Most of the early models flew only about three to four minutes, which should appeal to the average modeler. The only problem at the Nationals is trying to find a time slot to stage the event, hence, plenty of lead time is needed for this. Let's hear from you fellows if you think the idea has merit.

Again yakking with Bob Boucher of Astro Flite (doesn't Pond ever run down? NO!), the idea of holding old timer electric events at the Nats (similar to what was staged by Boucher at the Las Vegas SAM Champs), came up.

Boucher was suffering from the same trouble as the old timer events, lack of publicity. The writer offered to stage events, but felt perhaps another day would be required just for the electric types. If radio control electric was staged, this would pose a problem in locating far enough away to avoid interference with the R/C program at the Nats. Perhaps the best idea would be to run the electric O/T F/F R/C assist events on the same day as the gasoline powered counterparts.

The free flight portion of the electric events could be staged on Tuesday or Saturday for a half-day. After all, you don't want us working every day, do you? Of course, all trophies and prizes would be sponsored by Astro-Flite in the hopes of promoting more interest in this phase of flying. Again we repeat, let's hear from the reader on his choice of events suitable for fun.

THE WRAPUP

Well, we really laid one on George Perryman at the 14th Old Timer's Reunion Banquet. Here's how we (Pond and Hatrak) did it.

For those who are unaware of it, the Mulvihill Trophy, given for the best rubber time, is 51 years old, having been first awarded in 1923. Perryman has been chasing this trophy for over 35 years and finally . . . finally . . . he won it this year in Unlimited Rubber!

Several people mentioned that it would be most appropriate to award the bronze trophy at the Old Timers Banquet. The columnist promptly took himself over to the work hangar where Frank Ehling was holding forth at the hobby store.

Frank was most agreeable to the idea, but said we should have some fun with George. There had been some tentative plans to retire a few of the old perpetual trophies as they were getting beat up and were a first class nuisance to round up every Nationals. Hence, there was a credibility to the rumor that the Mulvihill Trophy might be retired.

That night at the banquet, after all other trophies had been awarded, the writer then explained that he had intended to award the Mulvihill Trophy to Perryman, who so richly deserved it. Adopting a most apologetic tone, the M.C. said he was sorry he was unable to award the trophy as it was already retired and was only on display for this year.

George's chin dropped to his lapel. The columnist only wished he could have had a picture of that dismay, disbelief, and disappointment mirrored on George's face. About this time, as planned, Carl Hatrak gave a loud blast on his whistle, saying he had discovered another unopened box! The writer and Carl then went into their Keystone Cop Comedy routine, with George ending up on the dais being awarded the trophy, to a resounding round of applause.

In retrospect, I guess it was kinda mean, George, but we simply couldn't let you get away that easy after winning all those other trophies. To say we are mighty proud of you, George, is the classic understatement of the year. We all wish you the best to come in years as you are the best sport of all. After all, that's what this Old Timer thing is all about. FUN! •

Rocketry . . . . *Continued from page 48*

failures and ditch-digging prangs that make you the hit of the party when among modelers. Don't restrain your enthusiasm, but be aware that you are addressing five thousand beginners.

When you plan a public event, appoint a press relations officer. This guy should be the one who the reporters talk to, and that means that no publicity hounds are allowed to horn in. Such things can make the reporter believe that you don't have control over the situation, or worse yet, confuse him.

Before the event, have your P.R.O. send around a press release or press advisory. A few minutes research in the Yellow Pages will give you the addresses of local newspapers and stations. Don't neglect any of them; you'd be surprised how many people read the small weeklies, especially in suburbs; and they are usually willing to give you more space and better coverage. Estes Industries and Centuri Engineering stand ready to send out lots of information that will save you the trouble of writing pages about introductory rocketry. Write to Centuri at P.O. Box 1988, Phoenix, AZ 85001, and Estes at Penrose, CO 81240; tell them what you are doing. You'll be pleased at the result.

DO NOT, however, let the manufacturer's goodies comprise your entire press package. They are an essen-

tial part, but local media want stories about local people. Write one or two pages, beginning with a terse paragraph naming and describing the event; continue by describing the club and its history, and close by mentioning some other activities that your club is planning. Read some newspaper articles first to get the "feel" of the way reporters write. Any professional writer (including me) will tell you how valuable it is to read some articles in a magazine you're trying to sell to, and believe it or not, you are trying to sell something to the man who sees your release; you want him to buy the idea of sending out a team to cover your event. Approach the problem with a positive attitude; remember, that editor needs news, and you're doing him a favor.

Meets are dandy events for press coverages. If you get good response to announcements of a meet, consider doing a demo just for the public. Fairs, conventions and open houses are ripe for suggestions of this type, and if there's enough room handy for you to fly, they'll love you for it. Furthermore, this will give you the chance to work up a static display. This is fun, since it gives you the chance to show off your best pictures and models to a dazzled crowd. There's no nicer feeling.

When you prepare your static display, prepare yourself, too. Be prepared to have a smile in place so long your face aches. Be prepared to be polite when you feel like homicide. Be prepared for questions like, "Are these like fireworks?" and "Can you make them blow up?" Be prepared to cope with people whose first impulse is to grab something in spite of the fact that you have tatooed "Do Not Touch" on their foreheads. Be prepared to take advantage of super glues and five-minute epoxy. Above all, be prepared with a cold six of Coors when it's all over. Write it off as a medical expense.

The last public demo I did was at the Open House at the local Air Force base. We were setting up for our flying demo at the end of one of the runways, when, honest to God, we observed an F14 Tomcat coming straight at us down a taxiway! It turned within a hundred feet of our startled faces, trundled to the end of the runway, and sat there bathing us in exhaust for forty-five long minutes. We were paid back for our patience when that beautiful thing took off; but it was unnerving, to say the least.

One of the finest public demos I have ever heard of is the series of Aerospace Fairs held by the Great Lakes Association of Rocketry, under the capable leadership of Harry Neuman and Vince Bonkowski. They opened the first Fair at the Farmington Library, and have since produced six of the fairs throughout the Detroit area. Now, that's effort! Their extensive visual displays were accompanied by several model rocket introductory films, the NAR slide show (which is available from NAR HQ, P.O. Box 725, New Providence, NJ 07974, for a very reasonable rental), and an hour-long flying session.

One of the neatest parts about the Fairs is the showing of photos, slides, and cuts from science fiction movies, including an episode of Star Trek. This grabbed the local science fiction freaks, just the type of people to get involved in rocketry. See what can be done with a little determination?

Vince tells me that the GLAR has volunteered to refurbish an out-of-date aerospace display in one of the Detroit civic buildings. Not only will this be a terrific method of getting models on permanent display, but think of the publicity for the club generated by a little card in the corner of the display! I'm sure that Harry would be glad to share secrets of his success; his address is 1507 Oakley Park Road, Walled Lake, MI 48088. We could use a dozen of his kind in this hobby.

Well, I'll be writing NARAM coverage soon. I really don't think that I should start on it until I get all of the *#¢$%$** finances straightened out; it would tend to jaundice my outlook. I'll gladly run the next five NARAMS if someone else will handle the checkbook! ●

Intercepter . . . *Continued from page 31*

former B on the outside of the sheet. Now take a pin and make small holes in the sheet on 3/16 inch centers along these lines. Now lay the sheeting in place and Hot Stuff it to the former and rib by placing the Hot Stuff in the pin holes. Sand the pylon to shape. Add the firewall, engine mounting blind nuts, timer mounting plate. Once you are happy with all of this, add the top sheeting and sand the finished fuselage.

After covering and adding the 1/16 plywood stab mount, reinforce the stab mount by adding 3/16 sheet gussets under both sides.

The wing and tail are very straightforward and no explanation is needed for them.

FLYING

Assemble your Interceptor and check the CG. It should balance 3-1/4 inches back from the leading edge of the wing.

Check for warps, and proper alignment of the wing and tail. My model has about 1/8 inch washin in the right

main panel. The stab *must* be keyed . . . With three fins mounted on it, a little bit of misalignment will go a long way.

My model flys with one washer of right thrust, right rudder tab, and very little stab tilt.

After the usual hand-glides-in-the-tall-grass routine is over, crank it up and let it go.

I hope you will be as happy with your Interceptor as I have been with mine. Happy thermals. •

F/F . . . . . *Continued from page 59*

to be a minimum of 40 feet in the normal zoom launch.) Time = 3 ro 4 seconds.

4. Just before catapult speed diminishes, the rudder clicks hard over to extreme position to cause model to bank sharply into glide attitude. Time = 4 seconds.

5. Immediately after this the rudder returns to the glide setting and the model settles into the glide, high above the line length.

"It is also interesting to note that the timer is activated during unlatch, which now eliminates the need for secondary timer start line, and thus permits the end of the line to be released (thrown) from the flyer's hand towards the model rather than having slack line available to pull the ring off (I've recently tried this method, and I feel my catapult altitude has definitely increased). I did not observe autostabs on the Russion A/2's, but at least one of the North Korean models had a 4-position rudder coupled with stab incidence change."

Bob Isaacson, commenting at the 1977 NFFS Symposium, stated that the Russian zoom launch was truly a sight to see, with 40 to 50 foot launches being usual. Of more interest to me was his observation that our gliders were at least equal to the Russians in performance once the model left the towline, in fact, he felt that our models were superior. However, our launching techniques and pre-towline disconnect skills still have a ways to go to catch up to the caliber of the USSR competitors.

1977 FREE FLIGHT WORLD CHAMPIONSHIPS IN ROSKILDE, DENMARK by Jim Walters

"To begin with, the overall trip was a breeze compared to the 1975 W/C in Bulgaria. The contest organization was basically good, with all officials and timers competent and well versed in the rules and procedures. The weather, on the other hand, was not as we had expected, but cold and windy with several small cold fronts moving through the area that gave us conditions ranging from rain, winds of 25 mph (shades of Blaine, Minnesota) to conditions of light winds of

8-12 mph and clear skies. Temperatures ranged from approximately high 40's to mid-70's.

"The three A/2 flyers; Chuck Markos, Bob Sifleet and myself, met in sweat-soaked, overcrowded, JFK Airport in New York, where we became part of the 'Team.' The trip over was relatively uneventful. John Lenderman, team manager, met us at the Copenhagen Airport as he had promised, and after procuring a station wagon, we drove to Roskilde and then to the school at Viby, 15 km away, which was to be our home for the next 2 weeks. Classrooms were set up with bunks, providing adequate, but crowded accommodations for up to 20 persons. Many countries shared rooms with other countries, with no apparent difficulties. As it turned out, we had enough 'supporters' from the States to fill our room with the friendly bodies.

"Our typical practice day was to awake at 2:30 a.m., drive out to the practice field by 3:30 (we practiced at Holbreak, approximately 40 km away), fly until about 8 a.m., come into town or the airfield cafeteria for breakfast at 9 a.m., back to the dorm, sleep from 11 a.m. until approximately 3 p.m., back for lunch at 4 p.m., then to the practice field by 5:00 and fly 'til dark . . . sleep by 11 p.m., and begin the whole operation over again. We were to become quite accustomed to these weird hours, as that is how the contest days would be organized. One thing is for certain in Denmark, the wind always blows and is constantly changing.

Only one evening did the wind subside enough to check out the full glide pattern without retrieving over a mile! During practice days, John Lenderman launched and watched all flights, and afterwards, we all talked and critiqued each other's flights.

"Opening ceremonies were brief but colorful, with a marching band and bevy of doves to signify the opening of VM 77 (Veden Mester-World Champion). Conditions for the ceremonies were sunny and windy. The next morning, Wakefield Day, was miserable, with winds of 20 mph and light rain. Wet grass and crops between runways were making retrieval difficult. Thermal activity was minimal, and only models with low pitched props were able to punch through the turbulent cold wind. The A/2 team provided the downwind retrieval, with Al Bissonnette and Tom McLaughlan ferrying the models back to the flying area via our Microbus. Charlie Martin aided timers, and team supporters manned the bubble machines and signal flag. Five rounds were flown before 8 a.m., and two rounds were flown from 5 p.m. to 7 p.m. No one maxed out. . .

"Nordic day began where Wakefield day left off . . . cold and windy. Many flyers straight-towed, with still quite a few circle towing in the 12-15 mph wind. Thermals were extremely small and infrequent. Very seldom did models climb in lift . . . just maintaining line length would indicate a fairly strong thermal. Likewise, downdrafts were not strong. I believe the margin of victory in several cases was a strong catapult launch. Lepp, of the USSR, and his fellow teammates, were particularly impressive with 30-50 feet altitude gain, which makes a max out of average air. On most flights, we ran escorts along with John Lenderman and the flyer to 'hold the real estate' (prevent other flyers from invading the circle tow air space) and on a couple of occasions, were able to successfully untangle our teammates lines from other flyers and send him on his way. By the afternoon flights, the skies cleared and wind dropped slightly, but still, thermals were difficult to detect. During A/2 day, the Wakefield team did the downwind retrieval.

"Power day started clear and windy, and improved as the day went on. During the early morning flight, models were going 1-1/2 to 2 miles downwind. The day gradually improved until near-perfect weather prevailed during the flyoff period and the home town lad, Tom Koster, made it all worthwhile . . . at least to the host country.

"In closing, I would like to express my thanks to AMA and others who made this a memorable experience, and many thanks to team manager, John Lenderman, who in my opinion, did an outstanding job in providing real team leadership and acting unselfishly as a servant to all the team members.

"For those who wonder how we might some day win a Team Championship, it is worth noting that the USSR A/2 team met for a 2-week period prior to the W/C and each member put in 1000 practice flights. Oh, yes . . . the North Koreans beat the Russians and 28 other countries for Team Championship in Nordic. Maybe they put in 2000 practice flights?!"

SOME OTHER WORLD CHAMPIONSHIPS COMMENTS from Peter LLoyd

Shortly after the World Championships, the editor had the opportunity to talk to Peter Lloyd, of Australia, who was covering the W/C for the Australian Model Press. Peter's comments dealt primarily with the organi-

zational perspective of the North Koreans. He was impressed with the organization and discipline of the Korean Wakefield team. There was an overall Team Manager, an interpreter, a weather-thermal specialist, and a person who acted as event manager for each of the 3 events. The flyer was instructed when to fly by the event manager, who took directions from the weather — thermal specialist, who sat at a thermal detector during the course of the contest. The Wakefield team member would wind a model up about halfway and wait. When the go signal was given, the flyer would wind the model the rest of the way and launch when told. All models were wound with the prop connected. In case of motor failure, a prop shield was used to protect this component, as well as the flyer. In case the motor broke, another modeler stood by with a second Wakefield, ready to be wound up.

Subsequent inspection of the models . . . which were all of similar, if not idential design . . . showed some interesting and baffling features: Extensive use of hardwoods in the structure, for example. The propeller was made of hardwood and featured washed-in tips (you read that correctly). The Koreans had some of the longest prop runs on the field, which might have been due in part to use of thin, many stranded Pirelli motors. The standard appeared to be 3mm motors in 28 or 30 strands.

There is no doubt that the North Koreans, who were not even in the World Championships until six years ago, have begun to take charge of the events they enter. Their teams won first in A/2 and Wakefield, and placed 7th in Power.

BLUE RIDGE P-30 KITS

Recent correspondence from Phil Hartman, proprietor of Blue Ridge Models, P.O. Box 9188, Asheville, NC 28805, indicates that the Square Eagle P-30 has been an unqualified hit. Right now, Phil is a bit behind schedule, but producing kits as fast as possible. As with his previously released kit, the Coupe de Ville, the Square Eagle is excellently appointed, with super wood selection, exactly cut parts, and the best sets of plans and instructions this editor has seen in many a year of model building. There is virtually nothing that is needed to complete these kits, since everything from rubber strip to d.t. fuse is included. Cost is $8.00 postpaid, and well worth it. Blue Ridge is also marketing a kit called the Blue Ridge Special, which reminds me of a big Jasco ROG, but with a qualitative difference. Cost is $3.50 postpaid. All kits include super Japanese tissue.

If you haven't joined the P-30 craze, do it. Harry Steinmetz, one of the event's originators, says that the challenge is still out for someone to make 3 consecutive maxes. Has yet to be done, sez Harry.

VTO MYSTERY SOLVED

Yessir! That's the headline. Right there in bold print, I read it in the CIA (Central Indiana Aeromodellers) Informer. (Harry Murphy, Ed., 3824 Oakwood Blvd., Anderson, Ind. 46011.) Anyhow, Harry lays the whole thing out in black and white.

"I have often questioned the apparent attraction that the 'model mag media' (I guess that means us) seems to hold for that vagabond modeler with the odd first name, VTO Linstrum. Each month his photo pops up in at least one rag as he holds onto a Starduster, a Dragmaster, or as in the latest issue of the NFFS Digest, a Satellite. The accompanying captions never make mention of any record breaking performances or even minor competitive accomplishments, and surely it could not be that he is extremely photogenic. I thought it feasible that he could be holding the mortgage on AMA Headquarters or be the sole owner of a balsawood forest in Equador, but these leads proved to be untruths. Therefore, his apparent claim to fame continued to puzzle me month after month . . . Then, like an errant 1/2A, it hit me . . . How could I have overlooked the obvious for so long a time? But of course, he should be recognized as he is the last remaining free flight modeler who still builds his models from a kit!!!"

Harry, I hate to add another possibility to the clever, humorous and appropriate comments you've made, but another one comes to mind . . . Linstrum is always sending in pictures of himself to all of the free flight editors in the world. Pictures and postcards and letters. Arriving week after week. Sooner or later, out of self-defense, we all succumb to the avalanche. We print his damned pictures. From my point of view, I wish more people would send more pictures of themselves and their models . . . it's a surefire way to get some publicity and keep VTO Linstrum in his place (wherever the heck that is!).

However, I think Linstrum's approach is at least more ethical than that used by Dirty Dan, who goes to contests and picks up other flyer's models and has some of his questionable friends take pictures of him holding those other folks' models. Tsk, Tsk, Dirty!

Time's up for now. More next month. •

Soaring . . . . . *Continued from page 37*

maintaining 20 winches, of finding sufficient manpower to control these and retrieve the lines from 7 a.m. to 7 p.m. during this three-day event, of devising the scoring procedure, printing the cards, mailing the instructions to all the contestants, and of course, conducting the actual fly-off. Those who made this a success deserve full credit: Rick Norwood, NSS Vice President for the district; Ray Marvin, who served as Contest Director; Rick Pearson, whose voice commanded the flight line; and many others. Dr. Stan Pfost became the new President of NSS at the Executive Board meeting. The other officers were duly installed. Let's wish them well in speaking for the RC soaring community before the AMA and the public at large.

By the way, you may recall that I mentioned Dr. Paul MacCready in a previous column. He was one of the speakers in our National Soaring Society Educational Lecture Series on Low Reynolds Number Flight, held last spring in San Diego. His prediction has now come true, and Paul can claim the $86,000 prize for man-powered flight. He described his "Gossamer Condor" at that meeting, and went through the design principles involved. It's our pleasure to wish him further success now that he's achieved this notable mark of distinction in an exotic area of aviation. •

Control Line . . *Continued from page 47*

(impossible?) idea. It has already been shown that AMA is willing to let MACA, PAMPA and FAI CLS handle their own team trials to select teams for the C/L World Champs. This was especially well proven when MACA held the FAI Combat trials (the first trials ever held, as Combat has not been a W/C's event until recently) and not a single AMA official showed up, with the exception of Ron Malcom, CD for the event, and a Canadian. Instead, they were in full force at the R/C Pattern W/C's (not the Masters as I previously stated). If the AMA chooses to place full emphasis on the hastily planned and thrown together Pattern W/C's, while totally ignoring a significant C/L happening, fine. At least we know where we stand.

AND WHERE DO WE STAND?

We are in limbo-land someplace, I suppose. Running our own show(s) on one hand, at the mercy of other considerations on the other hand. In one instance, our special interest groups do dynamite job for their respective events. From this extreme we go to the other, and it is not up to the standards we deserve.

The special interest groups are really going great, even though each

has its little problems from time-to-time. Whether or not these groups can be formed into a National Control Line Society remains to be seen, however.

We as C/L fliers need the NCLS. I know that Doc Jackson, Patty and Ben Sasnett, Wynn Paul, Russ Sandusky, Gary Frost, Ted Kraver, and others are considering it. Let's quit considering it, we are obviously in need of an NCLS, let's just do it.

STUNT NEWS

That's the name of the latest n/l to be dropped off by the guy in the funny little blue and white truck (car?). Opening it up, it is pretty obvious that Al Rabe won Precision Aerobatics at the '77 Nats,as his name is in very large letters on the top half of the n/l. Sprinkled around the name are little things that went into Al's placing at this Nats. I found them interesting in that they tell a story in their own way. These tidbits of info are: Mustang, red shirt, movable rudder, Linda, direct lift, gyroscopic precession, ST/Aloise 51, Irving, Texas, Bearcat, engine heat baffle, internal muffler, semi-scale forever, 13-5 props, Mustunt, white pants, dihedral, more horsepower, more horsepower, molded balsa fuselage, blunt leading edge, 2 Walker cups, spraybar height, more nitro-less heat, practice, practice, practice, Sea Barrel, Canon camera, P-effect, ground cushion, asymetric airfoil, Sea Fury, big flaps, removable wing stunter, Lava soap, shock landing gear, airline pilot, shark's teeth, Bearcat, altered Hot Rock handle, N-1117, Mustang, practice, practice. . .

If you didn't understand every word of that, don't worry. Some of it went right by me too.

In the back of the n/l is another very interesting item. "Statement of Editorial Policy: Effective Jan. 1, 1978, Stunt News will *not* run announcements of contests unless PAMPA stunt classes are utilized (except WAM, which has been ahead of the game for years). PAMPA members should get active and insist that their local contests begin to use at least three PAMPA classes. Arguments to this policy will be given equal time and space in the n/l, but not much consideration from the editor."

Right on, Wynn. I just know that Wynn is going to get some heat about this policy, but as last month's column should indicate, I am completely in favor of this attitude and policy. Another example of a special interest group seeing a problem and working to solve it. Now if the AMA can only see this, take the hint and dump this obsolete Jr./Sr./Open classification system

MORE OF ABOVE

The more I think about the AMA skill/age level classification system, the more ridiculous it becomes. Why it never hit before so solidly is absolutely amazing. I guess that when I first became involved in modeling, my desire to learn all about it, plus my very competitive nature, made me hang in there until I was able to take on some of the best and do them a number. But looking back, it is really hard to remember why I kept at it. Today I am ranked in the MACA Top Ten, but it was only after more than two years of Combat flying that I placed in a Combat meet! It's not real unusual to see a rookie flier luck into a placing at his first or second Combat meet, especially if it is a small, local contest. It happens all the time, even around here once in a great while, but it sure as hell never happened to me. I had to *work* for that 3rd place in Slow Combat several years ago. And even then, it was difficult to keep placing, but finally I got to the point where I am now, that of being regarded as a good Combat flier and able to back it up with flying ability.

I made it through those rough years somehow, as did many of you reading this column. But think of all the people you have seen come and go. Some

of them "went" when they discovered what it would take to break into whatever event they initially tried. Not everybody feels as I did when I started out, and we have lost these people forever, no doubt. Some people prefer to compete with others on their own level, you know.

In case you are still having problems getting the point of this whole bit about going to a novice/amateur/expert (or whatever) ranking system, try this on for size.

Man With VooDoo: "Hi there, I saw your contest flier in the hobby shop and want to enter Kawmbatt."

CD: "Sure thing, bitchen contest goin'on today, you'll enjoy watching."

MWV: "Watching is OK, but I want to fly. You see, I got this here long-boomed VooDoo, built it just like Carl said to, my Red Head runs real good. . ."

CD: "That's super, but your equipment is out of the Dark Ages, whether or not you realize it. You're going to fly one match today, my friend. Would you mind helping pull-test from the second round on?"

MWV: "I kinda thought maybe I could enter a beginner's class. I'm new to this, ya know."

CD: "Only thing resembling a beginner class that we can offer is Junior or Senior. How old are you?"

MWV: "Be 23 next month."

CD: "Then you'll have to fly in Open. That's the guys at this circle, the Juniors and Seniors are over there having a pilot's meeting."

MWV: "Gawd, these guys look good. How can I beat them?"

CD: "You're not expected to. The sanctioning body for this contest recognizes age levels and that's it. You fly in Open."

MWV: "Where do they get off saying that just because I happen to be 23 I'm supposed to be an expert? Can't people over 20 be newcomers, too? This is stupid."

Our CD doesn't have a good answer, but MWV has a solution. He goes away. Too many other leisure time activities to get involved in for him to make the mistake of getting mixed up with this crowd. ●

Peanut . . . . . *Continued from page 55*

to F3a and F6, checking alignment and incidence. When dry, cut short pieces of hard 1/16 square to fit between the spars and side longerons and glue securely in place. These transfer all the loads to the fuselage.

Now comes the hardest part of building the Rivets, the cheek cowls and fillets. The two front blocks are first pre-shaped, covered with wet tissue, and cemented exactly in place. The whole process is mainly trial-and-error, so take your time. The upper blocks of the cheek cowls are next. They should fit precisely for a neat job. While the glue dries, the bottom cheek cowl sheets and fillets can be cut from soft .020 and .015 sheet. Or, translated into English, about two-thirds and one-half the thickness of 1/32 inch sheet. Most modelers will have to sand down 1/32 inch sheet. For those of you already scoffing at the idea, you will change your mind when you try to make the necessary bends on a 1/32 fillet. Just get out the ole' sanding block and get to work. To avoid feathered edges, sand a piece of sheet first, and then cut the pattern. Bend the wood with a heavy breath and gentle pressure. The necessary 3-D surface in the fillets is obtained with the thin wedges as shown on the plan. When the cheek cowls and fillets are completed, apply tissue in the area between both W1's, F6, and the front cheek cowl blocks and water-shrink. The cowls and fillets are also covered with wet tissue on top. Make the bottom scoop from 3 pre-bent pieces of soft 3/32 balsa. Shape the outside surface and cover with wet tissue. Then, scoop away as much balsa from the inside as you dare and cement in place.

Every effort was made to keep the tail light, which resulted in the small wood sizes shown on the plan. Even 1/16 square or 1/20 square are really more than big enough for the small tail on the Rivets. However, these small sizes require special shrinking procedure. First of all, none of the gussets must be omitted. The type shown on the plan is lighter, easier to cut, and works just as well as the sheet variety. Use dope to attach the tissue . . . white glue softens with heat and moisture. Grain should run fore-and-aft on the stab, and up-and-down on the fin. The tissue should be on as tight as possible before steaming. Get a teakettle going, and pass each side *once* in the steam. Weight the part down on a flat surface and wait five minutes. Repeat if necessary. The sag from the steam takes time to dry out just as in water shrinking, so don't steam again immediately after the first operation, assuming the tissue didn't shrink enough. Overshrinking is the last thing you want, since there is no way to reverse it!

This method applies to the wings as well. To prevent sagging, run the tissue grain chordwise. This may be sacrilege to some modelers, but since tissue shrinks more across the grain than with it, the dip is minimized by the extra pull from the wingroot to the tip. This was confirmed by experimentation. The fuselage is just barely strong enough for water shrinking, and

the extra tissue tautness gives greater resistance to motor torsion. Run the grain up-and-down to prevent stringers from sagging between formers under the tight tissue. After shrinking, give everything one or two thin coats of dope.

The control surfaces and metal panel joints were outlined with black tissue strips. Compared to black chart tape, these weigh practically nothing, won't leave a sticky edge to grab dust and lint, and look just as good. The tissue strips can be sliced easily with two halves of a double-edged razor blade (must be sharp!), separated by a balsa spacer. Cut the strips on a soft board and bury the corners of the blades in the board when cutting. Strips of different widths are obtained by varying the thickness of the spacer. Attached to the model with clear dope, the black strips go a long way toward improving the looks of your model, and unlike felt-tip lines, do not have fuzzy edges. If you look hard enough, you will see riveting detail in one of the photos. These rivets were made with a felt-tip pen, and waterproofed with dope when dry. If you decide to attempt this, practice first on an old peanut to get the hang of it. Get a good 3-view for all extra scale work.

The secret of this model's performance is a good cruise, and a superb glide. With a loose freewheeler and proper adjustment, the ship has the glide of a sick HLG, which is better than most other peanuts, which as a rule, fall out of the sky when their power runs out. Mushing must be avoided, so bring the C.G. a little in front of F4. Just how much will vary with different airplanes. The stab incidence can be changed by sliding narrow balsa wedges under the leading or trailing edge. Whatever you do, remember to maintain a fast glide, and make sure the prop will freewheel with ease. My ship uses a 15 inch loop of 1/8 Sig rubber, which will be too thin if you tend to build heavy. With this particular airplane, a high climb is essential for good flight times. Switch to thicker rubber if your ship just cruises around at grass-cutting level. Properly adjusted, the peanut should easily climb past 50 feet every time.

So there you are, all ready to reap in that gleaming hardware. Good luck and watch the thermals! •

Westburg .... *Continued from page 39*

forward of the insignia. The canopied S1-A has a dark green fuselage above the lower longeron, fin and rudder and upper surfaces of the wing and horizontal tail. The remainder of the airplane was aluminum. The number "51" appeared in white on the engine cowling and rudder, the number "8" in black ahead of the fuselage insignia, which had a yellow border around the blue disc.

The Sparmann P-1 was a different airplane and it should be a welcome addition to the collection of modelers who like to fly inverted engines. But don't let anyone try to tell you that it's a done-over Ryan ST! •

Sailing ..... *Continued from page 23*

told me that he had produced a fiberglass hull for the boat, using carbon fibers for reinforcement. The whole hull weighed slightly over two-and-a-half pounds. Compare that with the 6 pound weight of the TRACER.

Oh yes, a number of you are probably mumbling and grumbling about the 7-channel gear that I reported as being aboard TRACER. I was not able to sail the boat as much as I liked before the ACCR, and had not gained sufficient familiarity with the jib trim and backstay functions to tell if they were a benefit. Two days before the event, I took both out, and sailed with only rudder and main winch. So you see, with two channel R/C you can become a champion (confidentially, there is probably something smart about not having too

many controls on your boat).

It's been a banner year for sailmakers as a group. We are generally somewhat misunderstood, and are often looked askance when we admit to actually sewing on a machine . . . "Isn't that women's work????" . . . But in the heat of the midwest, Charles Black, former AMYA Secretary, and the fellow responsible for introducing me to this sport, has pulled off the most amazing tour de force I've ever seen. He won, back-to-back, not one, not two, but THREE ACCR'S. And these were in the 1st, 2nd, and 4th largest population AMYA Classes; the 50/800, 36/600, and Santa Barbara. I wasn't there, but he was, and I'm most pleased to let him tell it in his own words. His account was sent to me directly, and was unsolicited. So in effect you are all looking over my shoulder and reading my mail:

"Dear Rod,

"Thanks a million for your congrats and your long letter of some time ago that I neglected to reply to . . . bad boy, but you should know me . . . I DON'T LIKE TO WRITE, but regret that I can't pass along a little of what I do best by the seat of my pants, and that is basically sailing.

"Now for a little background . . . My basic purpose in going back to the midwest was to give the new Doug Peterson 50/800 'ORION' some exposure in the big one, such as I did with the BINGO in '74 at Dulles. Since the MYC's planned to have other ACCR's within a reasonable time frame, Rich and Dick suggested that I also include the 36/600 and S/B ACCRs, so I entered each.

"I sailed a modified Equation 36/600 with a 56 inch luff mainsail and an equally large jib at the 36/600 ACCR. The hull, basic, was split in the bow and expanded to one inch at the deck line, and then one inch was added to the beam at amidships and at the stern. This really changed the basic Equation to where we really don't consider it to be the same model.

The keel was a fin similar to the Scampi, with a total fin and bulb weight of 6 lbs. The model displacement was 10 lbs., and sailed extremely well in all conditions. I, of course, maintained the same designers W.L., and changed rigs to meet wind conditions. Within a two-hour period on Saturday afternoon, I used three rigs with equal success . . . 56 inch, then 50, then lastly, when the wind began to really blow, I even shifted down to 40 inch luff, the original Equation rig. Anyway, the model moved quite nicely, and I lucked out and barely beat Ray Ozmun with his modified Scampi. I, of course, was on high.

"Then I rigged Rich's S/B 445 and went to the pond on Tuesday for the S/B ACCR. I asked Rich if the model looked as though it was rigged correctly, and he made a few adjustments he thought would help because he had sailed the model a lot more than I. Well, after the first race which I must have won by a country mile, I swore not to touch any adjustment on the S/B until after the completion of the regatta. After 6 consecutive 1sts, I made doubly sure no changes would be made. Well, I was on high again, and until my fatal dismasting, I could do no wrong, but what fun it was to sail against Steve Sansom, Rich Matt, Don Prough, Henry Morris and Max Barton, and do well. Well, again I lucked out after taking a DNF by dismasting, and finished in pretty good shape to retain the lead. As you can imagine, I was really on high again, and had really forgotten the basic purpose of my trip back to the midwest . . . give the ORION exposure and hopefully do well.

"After the short trip to Indianapolis to enter the 50/800 ACCR, setting up the 78 inch luff suit, which I had never sailed, and Andy Littlejohn saying to me as he sailed by, 'Chuck, those are the worst looking sails I've ever seen.' I couldn't have agreed with him more because they looked terrible and everyone was passing me with ease. Oh well, I brought the model in and made a thousand and one adjustments, but by that time I had discovered that my 'Little Brother' was at the motel, so I decided to put the model away and go see him. The regatta morn came with me in a dither, 'cause the ORION was slow, I could care less about nothing, and I was having a good time . . . what's this thing they call sailing model boats . . . something like watching grass grow. Well, after 3 or 4 premature starts and missing marks, I was fit to throw it into the nearest trash can. The only consulation I had all day was that the ORION seemed to do rather well catching up, for that is all I did all day. There was one race I recall in which I had gotten my typical last-over-the-starting-line start, and had decided to take a calculated risk and cut inside two wide models at the wind mark only to discover that I had missed the mark. Well, as is obvious, 5 or 6 models passed me as I frantically tried to round properly, but the stunning thing that followed was that the ORION got to the leeward mark first, having passed the fleet en route. That made my day. Anyway, at the end of the day . . . Saturday, someone told me I was in fourth place behind Rich, Ray, and Stan. I never look at the running tally, because looking at the standings doesn't do a thing in winning a regatta. I strive to do my best

in each race and hopefully do better in the next. It all comes out in the wash, and looking at the board doesn't help matters. So after being told that I was in 4th place, I thought to myself that I was letting Doug and his ORION down, so after a talk with myself and a Friend I hope I know upstairs, things improved immensely on Sunday. Just prior to my last race, Neil Bennell, my friend from Sydney, Australia, came over and said, 'If you win this race no one can catch you.' Rod, I thought I would have a heart attack, because I had not looked at the board all day and I didn't think I was in contention for the top spot. I, of course, did the best I could and took first, which gave me first by 1/4 point over Ray Ozmun.

"That in a nutshell, is what happened in the midwest. I enjoyed every minute, and give each Regatta Chairman and host MYC a hearty WELL DONE. You would have enjoyed each and every heat/race. Each had its own personality because of the different individuals who made up the heat. Your name was mentioned on a number of occasions in that you should have been there to get regatta info first hand. You missed, I confess, one of the best round of regattas in which I have had the pleasure to participate. Again thanks for the letter and note. I promise to do better next time . . . writing in return, that is."

Chuck

I hope you will all cut Chuck's letter out and paste it inside your tool box. I think he shows very positively that we can lose a lot for ourselves and others when winning becomes more important than having a good time, enjoying our friends and wallowing in the joy of sailing. His comments about not keeping track of the score as the day progresses, are food for thought. I'd welcome any thoughts you readers have on that. We might publish a series of letters giving your views on how the score affects performance, tempers and enjoyment.

We are still planning to get down into the construction of the EC/12 kit. By the way, the class has voted to call the boat the HERITAGE 12, but I'm afraid I'll slip now and then and use the old name. (But then, I still use cycles-per-second instead of Hertz, too!!!)

Remember to send in your 1978 AMYA dues to Bob Crysler, 2709 S. Federal Highway, Delray Beach, Florida 33444. And I'll answer inquiries if they are accompanied by a stamped, self-addressed envelope in care of **MODEL BUILDER**, or directly to: ROD CARR, 7608 Gresham St., Springfield, VA 22151. ●

Counter . . . . . *Continued from page 11*

second, interest you? How about a tubing bender or cutter for that fuel tank installation? Nutdrivers, metric or inch? Or how about some hardened steel hex wrenches?

These are only a few of the handy dandies found in the Fall Catalog, from Jensen Tools & Alloys, 1230 S. Priest Dr., Tempe, AZ 85181.

This company specializes in small hard-to-find tools for electronic assembly and precision mechanics, which is just the industrial way of saying: MODEL BUILDER. This 6 x 9 inches, 144 page catalog, is fully illustrated, contains many photographs, many in color, is definitely an asset in every modeler's library.

Whatever kind of engineer, technician, mechanic or hobbyist you are, you will find tools designed specially for you. And if you hurry, you can head off another Christmas tie. Send for your free copy and leave it laying around, properly marked, as a hint to the wise. It's free, just for telling them at Jensen that you read about it in **MB.**

* * *

Not for landlubbers . . . but the R/C power boater will find this one quite interesting. It is a Rolls Royce Dummy Engine Shell for .40 and .60 size hydros. It is approximately 1.5 inch-to-the-foot, and can be used as a cowling for your favorite boat mill. Priced at only $19.95, from your dealer, or direct from the manufacturer, Pinckert Custom Boats, P.O. Box 138, Coconut Grove, FL 33133.

* * *

World Engines is back in the hands of modelers!

John Maloney, who has been acting as President and Chief Executive Officer of World Engines Division during its ownership by Consolidated Foods, has announced that he has purchased all World Engines assets. It will now be known as World Engines, Inc., and will continue as a

distributor, importer and manufacturer.

It will handle OS Models and Supertigre engines, manufacture the Expert Series R/C systems, and will continue to produce a number of mid-size, semi-scale R/C kits: Mr. Mulligan, Aeronca Champ, Piper Cub, and the Miss World trainer.

We at **Model Builder** certainly wish John and all the gang at World Engines the best of luck in the future.

* * *

Even non-rocketeers will have to admit: present-day rocket models are certainly realistic.

And Centuri's latest addition to its Super Kit line, the S.S.V. (Satellite Service Vehicle) Scorpion, is no exception. It immediately brings mental pictures of Mr. Spock, Giant Steps, and 'Houston, we've got a problem'!

The Super Kits are designed for skill level 3 Rocketeers, and the Scorpion features a dramatically-detailed hull and fins, dual parachute recovery, patented baffle/chute ejection system, and a quick-change engine lock. A 6 x 12 inch four-color decal and a display stand are also included. The length of this new model is 29.7 inches, fin span is 8.6 inches, and diameter is 2 inches. Priced at $9.00, at your local rocket dealer.

Other Centuri models in this series are: USS America, a presidential command post; UFO Invader, alien space probe; and ESS Raven, flying laboratory.

For further information on the Scorpion, and a multitude of other rocket kits and accessories, contact Centuri Model Rockets, P.O. Box 1988, Phoenix, AZ 85001.

* * *

A Digital Readout Electronic Bathroom Scale? In **MB**? Seems out of place, doesn't it . . . until you think about it. Didn't you ever come up with the weight of your latest pride and joy by weighing yourself alone, then holding your model, and taking the difference?

Really no need to do so with Heath's latest, Model GD-1186 "Digi-Scale"; it has a zeroing adjustment for weighing small items. With a 300 pound max, it will even handle some of the Big Names of modeldom, with 2/10ths of a pound accuracy. A sneaky gift idea for your wife.

Another new useful item from Heath is a Self-Instructional Soldering Manual, intended to teach you all that is required to solder like a professional. A practice solder kit is included, as is everything required except an iron and small hand tools. Heath believes this new course should have value to the industrial as well and

the hobby user.

These are just some of the interesting items listed in the Fall 1977 Heathkit Catalog, listing over 400 electronic kits and products. Everything from color TV and personal computer systems to radio control systems and other R/C products, is included. You will drool over the high quality tools, and test equipment for the electronic and automotive hobbyist.

It is all described in great detail, including photos, in this FREE catalog, available for the asking (mention **MB**) from Heath Co., Dept. 350-420, Benton Harbor, MI 49022.

* * *

Davis Diesel Development, Box 141, Milford, CT 06460 has reported that user's of its .020 Engine D-Varnishing Brush have found it to be an excellent file-cleaning brush for small jeweler's files. A regular file brush will not do an effective cleaning job, as the bristles are too thick to get down into the narrow grooves. The .003 diameter bristles of the Davis brush will dig deep, cleaning the file of all filings, rust, and residue. Recommended method is to hold it against the file, using a sawing motion in the direction of the grooves.

At only $2.69, for a dual purpose tool, it should certainly go on your shopping list!

* * *

R/C boaters no longer have to take a back seat to their full-size boater friends. They too can now enjoy all the benefits of a waterjet propulsion system, so popular in man-carrying boats.

Hilbig Industries, located in a San Diego suburb, has been successful in the development of its Mark 1A MY-T-Jet, a propulsion system claimed to have a substantial increase in performance over the popular Mark 1.

Waterjets offer a number of advantages: greater safety, more maneuverability, shallow water operation, and equal or better performance than prop driven systems.

In addition, the Mark 1A has improved steering and reversing capabilities. This new unit sports a 5-blade impeller that is available in three pitch angles for proper pump/engine matching. A new 9-blade stator, as compared with a 3-blader in the Mark 1, provides the marked increase in performance that will be noted. Both stator and impeller are made of high-strength, impact-resistant epoxy.

Available with or without the reversing feature, the nozzle has been increased in size to accommodate the power increase. The actuator rod is now located out of the jet stream, and the engine cooling system is incorporated in the design.

Completely assembled, with a comprehensive installation manual, the Mark 1A MY-T-Jet, with steering nozzle is priced at $53. The model with reversing nozzle is $58, and nozzles only, for later changes are $5 and $8 for the steering and reverse-types, respectively. Impellers are $2.50, in the pitch of your choice.

Prices are postpaid in the U.S. and Canada. Californians must remember the 6%. Hilbig Industries, P.O. Box 245, Bonita, CA 92002.

* * *

A most interesting little (5 x 8½ inch) catalog has just arrived here at **MB**. It is Hobby Hideaway's "Catalog and Diesel Handbook", which is just full of unusual items as well as many of the more everyday variety of modeler's supplies.

As an example of the unusual goodies to be found, all under this one roof, are a lot of kit brands I am only familiar with through the English publications. Names like Wallingford, Veron, St. Leonards. Also M.E., Davies-Charlton, and King Cat engines. Even a Mills Replica Diesel, made in Calcutta, India, is listed. It includes the only listing for the world-famous "Kroker" electric boat motors that I remember seeing in a long while.

Scratch builders will find the list of a large selection of British "Aeromodeller" plans of all types a worthwhile addition to their reference library.

The Diesel Handbook section gives you the history, all the "why's" of diesel, many starting and operating hints, and prop recommendations for the various models and sizes in current production. Many diesels are in constant stock, as well as spare parts, props and fuel.

Other Hobby Hideaway's out-of-the-ordinary products include "Aerial Age Clocks" and engraved airplane plaques that make excellent gifts or trophies.

Everything is described in detail, with photos, in this $1.50 catalog, which we consider well worth the price. Order yours directly from Mary Ann, Hobby Hideaway, Delavan, IL 61734. Tell her **MB** sent you.

* * *

R/C boaters and flyers of R/C seaplanes will welcome this latest offering from Robart. It is a Water tight Output Bushing, to be used as a means of obtaining a watertight linear motion from your servo to the outside of your watertight radio box.

The moving part of this assembly is square in cross-section, and moves in a similarly shaped opening in a 5/8 inch long bushing. It cannot rotate, thus eliminating side thrust and misalignment. It is all precision-molded from gray plastic, which has a minimum of drag. The moving piece has three sealant reservoir grooves, which you fill with waterproof plumber's grease, thereby keeping water out.

These new Watertight Output Bushings come two to a card, enough for most boat installations and for some R/C plane systems. They are priced at $2.49 per pair, at your local hobby shop, or inquire from Robart, 203 E. Illinois Ave., St. Charles, IL 60174.

* * *

Need a good undercarriage for your Goodyear, Slow Rat, or Combat control-liner? No? Then how about a good landing gear for one of the above? You'll like the ones from Kustom Kraftmanship, which include everything you need in one neat package; aluminum strut or struts, shaped, bent, drilled and tapped, wheel or wheels, and all the bushings, screws, washers, etc. $5.95 for the dual set for Goodyear, $2.95 for the single for Slow Rat or Combat.

The Pressurized Backplate that is a must for 1/2A R/C racing and pattern flying, as well as for sport use, is now available with a ball check valve. It allows air pressure from the engine to pass to the tank, but prevents fuel from backing up into the engine crankcase, for a flood to end all floods.

This Ball Check Valve is also being made as a single unit to be used in the pressure line, to prevent engine flooding in the same manner. It looks like a 3/8 inch long piece of aluminum tubing with one end smaller than the other, fits in the line, and weighs next to nothing. The backplate is priced at $4.50, the in-line valve at $1.50.

A Universal Custom Needle Valve Assembly, at $4.50, is another new item from Kustom Kraftmanship. It features a special thread and taper that will enable you to obtain very fine needle adjustments even with high-pressure fuel systems. It will fit Cox and Rossi 15's, ST 15 to 46's, Enya and OS Max 35's, and other engines. It is complete with all necessary spacers, washers, seals, and nuts. Look for all these fine accessories at your nearest store, or check with the manufacturer at P.O. Box 2699, Laguna Hills, CA 92653.

* * *

Shocking news from Astro Flight? Not really, because all the voltages involved in electric flying are too low to harm you. Which is not to say that you can disregard all safety precautions, as you can burn wires and ruin batteries.

Nonetheless, a number of newsworthy items have been added to the already long list of goodies from the "Pioneers in Silent Flight". Two new motors have been added, an Astro-075 for those in-between models too large for an 05 and too small for a 10 at $12.95. And for the electric R/C car fan, a replacement motor for all Jerobee style cars is available for $9.95.

New accessories are those always-needed alligator clips, with insulating boots, 98¢ the pair; and banana plugs, male and female, for $1.98 a set of two each.

For that heavy vehicle now in your plans, Astro Flight has introduced a heavy-duty three-inch wheel, featuring a solid aluminum hub, and solid sponge rubber tire. It will take a nine pound load on a single wheel, and will fit a 5/32 axle. Sold singly, at $1.98, with 1-3/4 inch axle and spacers.

Look for all of these items at your favorite dealers, or write Astro-Flight Inc., 13377 Beach Ave., Venice, CA 90291. ●

Remotely . . . . *Continued from page 16*

The reaction to our Mammoth proposal has been tremendous. However, only a small portion of the enthusiasm has been toward the basic premise just described. Instead "Quarter Scale" has become the target, and the weights have gone up in proportion with the heavy, close-up detailed Sport and AMA scale models of modern times. With this comes a demand for larger engines . . . and with larger engines and heavier airplanes comes AMA limitations for competition . . . if competition is the bottom line of this whole thing.

AMA Sport and Precision (our name for AMA Scale) Scale both currently limit total engine displacement to 1.25 cu. in., and total weight to 15 pounds for single engine, and 20 pounds for multi-engine aircraft. There is no limit to the physical dimensions of the model. FAI Scale, a bit behind the times, still limits total displacement to .61 (10cc), weight to 11 pounds (5 kg), and also maintains a total surface area maximum of 2,325 sq. in. (150 dm²).

None of the above specs . . . except possibly those for FAI Scale, with which we are not concerned . . .

SOCIETY OF ANTIQUE MODELERS
MEMBERSHIP APPLICATION

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DO NOT WRITE IN THIS SPACE

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

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

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

Signed _____

would affect any of the requirements for Mammoth Classic Scale. However, there is some logic to considering larger engines . . . *within certain limitations.*

An 8 to 10 foot span Mammoth Classic will probably have a fuselage that is anywhere from 8 to 15 inches wide (our 10-year-old, and still under construction, quarter-scale Aeronca C-3, is 9 inches wide at the cockpit). Unless the real one had a skinny, in-line engine, chances are that the nose is also in that category (just think of a quarter-scale radial cowl!). For this type of aircraft, you must swing at least a 16 to 18 inch prop. Also consider that even if the weight is kept below 10 pounds, a lot of nose weight will be required for proper flight balance. Under these circumstances, a large, low RPM, high torque engine, *or* a reduction drive unit, would be just the ticket.

Now comes the problem . . . and at this point, we don our AMA R/C Contest Board hat. Whenever an aircraft or engine specification is established for the rule book, it requires the wording of a Philadelphia lawyer (Who the hell decided *they're* so smart?) to prevent the loophole seekers from taking advantage of it. Let's just imagine that we raised the displacement limit to 2 cu. in. to allow the Quadra engine, or any of its chain saw conversion contemporaries, to be used. Next thing you know, we'd have a 10 horsepower, Schneurle-ported, 2 cu. in. glow engine, pulling an 8 foot Span Lil' Tony through the sky and making a World War II Buzz Bomb look like a Half-A pylon racer. If the specifications were restrictive enough, however, an engine such as the Quadra would certainly be reasonable. Although the Sigma F (mass times velocity) of a 10 pound Mammoth Scale model flying at 20 to 30 mph might possibly equal that of an 8 pound pattern ship, or a 6 pound Formula I pylon racer, you'd at least have time to leisurely get on your feet and move out of its path!

There is no doubt that the big scale model is going to gain in popularity in the coming year, and modelers from all levels of flying capability are going to be piloting them. Let's start thinking about how to keep Mammoth and/or Quarter Scale a safe and sane facet of our hobby.

"COOL-HAND" BLICK

The following experience was related by Charlie Palermo, Houston, Texas, in the MSC-RCC (Manned Space Center R/C Club) newsletter, and speaking of big engines, the plane is Quadra powered. It demonstrates the value of having experienced fliers handling such big aircraft.

During a recent flying session, with my quarter-scale Great Lakes in the air, I asked Jim Blick (reminds me of the joke about the Chinese waiter and the guy ordering flied eggs. wcn) *to take the transmitter to explore the aerobatic capability of the model. He obliged and proceeded with his customary fine hand! The airplane seemed to be responding well; however, we both decided that a little extra airspeed would help to produce a more rounded-out loop. On the next pass, Jim put it in a dive and as he started to level out, the elevator control function failed! From this point on I witnessed a very fine demonstration of the use of throttle as an effective control function . . . indeed, as a substitute for elevator control. Jim controlled the rate of descent, flare-out and touchdown with the throttle. The model touched down in the grass about 30 feet out, and proceeded to roll right up and into the pit area, coming to a stop against a fellow club member's field box! Nothing damaged! Later on, the cause of the loss of elevator was found to be an opened clevis at the servo output arm. This should serve to illustrate the magnitude of the air loads that can be generated*

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J-BOAT, Vanguard, Sails, fully-rigged, Super Herc., Gel-Cell, will ship. Asking $275. Frank Siroky, 1622 Austin Way, Santa Rosa, CA 95404.

AERO ERA Peanut Plans now introduces new Grapenut Scale! Catalog for stamp. Aero Era, 11333 N. Lake Shore Dr., Mequon, WI 53092.

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"RUBBER POWER" T-Shirts, 100% cotton, small, medium, large. Orange/yellow. $5.00. Add $1.00 postage. "Che Hobbies," 10900 Eastwood Ave., Lennox, CA 90304.

WANTED FOR CASH: Old spark-ignition engines, parts and plane kits. Russell Stokes, Rt. 1, Box 73J, Keller, Texas 76248.

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CONTEST WINNERS. 1/2-A Country Boy Kits and 1/2-A Okie Bird Kits, $9.50 each. Postage paid two kits or more. Mix or match. Dealer inquiries invited. Clemcraft, P.O. Box 524, Sand Springs, Okla. 74063.

FLYING PAPER AIRCRAFT: New books each containing 18 cutout replica paper models that fly. No glue required. $2.73 each postpaid. Specify Volume I, II, or III. L.B.J. Enterprises, Dept. MB, P.O. Box 180, Getzville, New York 14068.

on control surfaces of the larger models. It also demonstrated to me that one doesn't necessarily have to have the transmitter in his hands to develop a case of white knuckles! My thanks and gratitude to Jim Blick. ●

Workbench . . . *Continued from page 8*

from the plane and drop to the foot of the tower. The plane then returned to the launch area and was recovered by parachute, where it would be relocated for the next leg. As you would expect, the 2mm line was then attached to a 9mm wire, and that in turn to the 28.5mm main cable, which was raised to the top of the towers by pulleys.

OK, so why the "Yeuch" award for this factual report which properly identified the 6 foot spanned, 8-1/2 pound pilot line puller as a "radio-controlled model airplane"? This otherwise fine article was identified by the following headline, "Toy Plane Eases Tough Cable Spanning Job."

Alright, gang, all together now, for good old Engineering News-Record . . . "Y E U C H ! !"

Thanks to John Santos, Louisville, Kentucky, for the clipping.

THAT C.G.

After all of our criticizing of the old magazine construction articles for not showing the balance point on the plans, we've gone and committed the same crime, recently.

Our very own Gipsy Moth plans (June '77) did not show the balance point as 1/3 of the chord back from the wing's leading edge. To obtain that balance, we carried a war-surplus wet-cell nickel-cadmium starting battery in the nose. As it was wired permanently to the glow-plug, a switch was mounted near the nose, under a spring-returned flip-up hatch cover. Sometimes we'd forget to cut the switch after getting the engine started. Great idle!

In the September '77 issue, the "Hi Dummy" (hmmm) Pay Load plans did not indicate the balance point,

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which should be 7/8 inch ahead of the wing's trailing edge. Designer Ed Eliot gave us this information just before the phone calls started coming in.

While we're on a true confessions kick, we also discovered that the front main spar notch in the wing rib pattern for the PB-2 Old Timer in the August '77 issue is a quarter-inch out of place. Our Al Patterson was given 20 lashes with a 2H pencil for this one. Incidentally, all of these additions or corrections have been added to the full-size drawings.

PERSPECTIVES

Did you happen to notice that neato perspective, cut-away drawing of the Curtiss Falcon in last month's issue? The artist, Nick Karstens, is from the same "school" as Pete Westburg, and in fact, will be creating similar drawings to go with some of Pete's future scale-view offerings.

Our first reaction to the finely detailed drawing was, and still is, "It should be hung like a painting, where everyone can see it." Now we'd like to know yours. Would you like a copy? Would you like to see more of them? The original size is 28 x 40 inches. Drop us a note.

RETARDED RADIALS

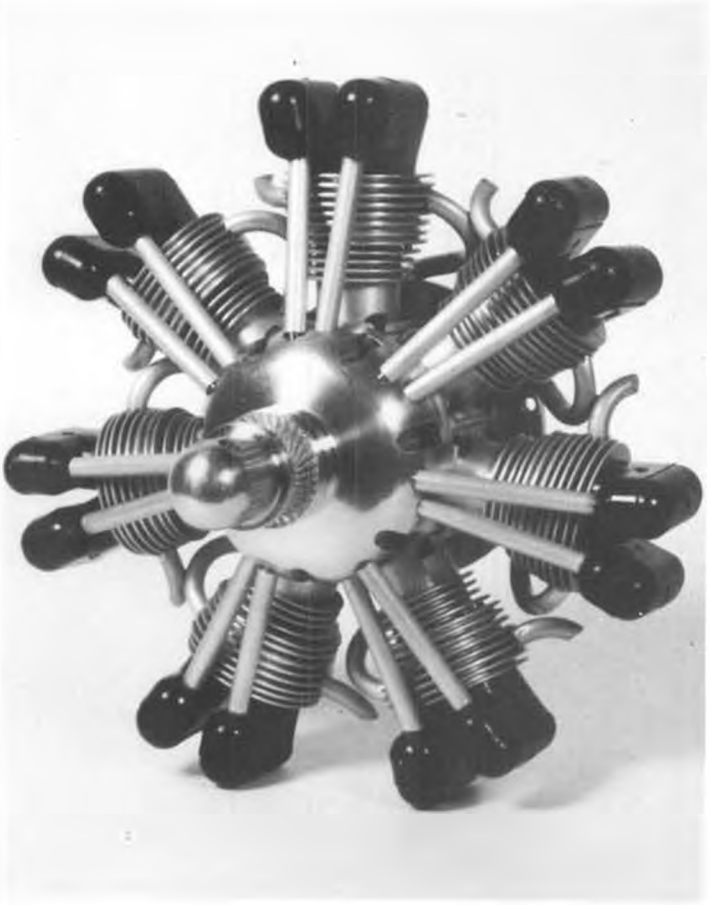
Word has just been received that the five and seven-cylinder radial engines, to be marketed by **Model Builder** Products, will not become available until January 1978, instead of September, as originally announced.

The engines, manufactured in Ireland by their English designer, Glenn Hargrave, will start coming through soon after New Years. The delay was not the result of any design or production problem related to the engine, but by a financial set-back that was brought upon the company in a rather unkindly manner. So much for that.

In a recent somewhat long distance phone conversation with Glenn, we have learned that his company has almost completely recovered from the difficulty, and that outside contractors will be shipping materials to him by the end of the year.

Oh well, they're worth the wait! •

THE RUNNING RADIALS ARE COMING!



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