MODEL BUILDER

SEPTEMBER 1975

volume 5, number 45

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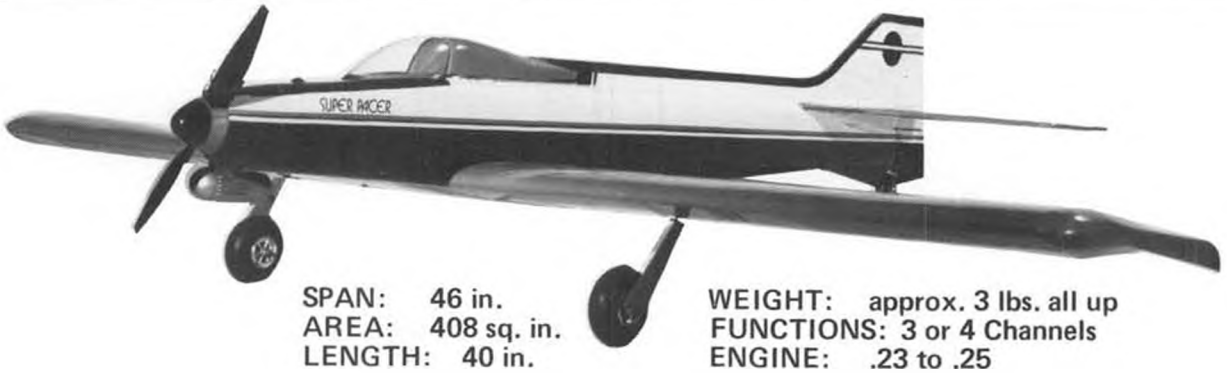

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UNWANTED TURNS BY AUTOMATICALLY
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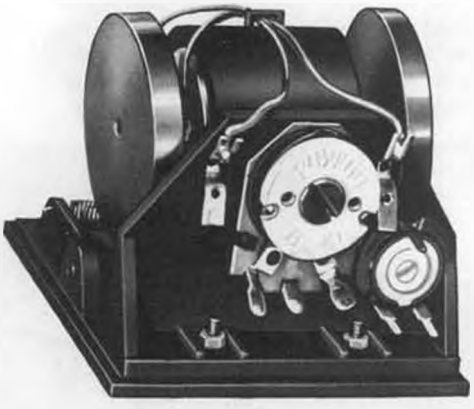

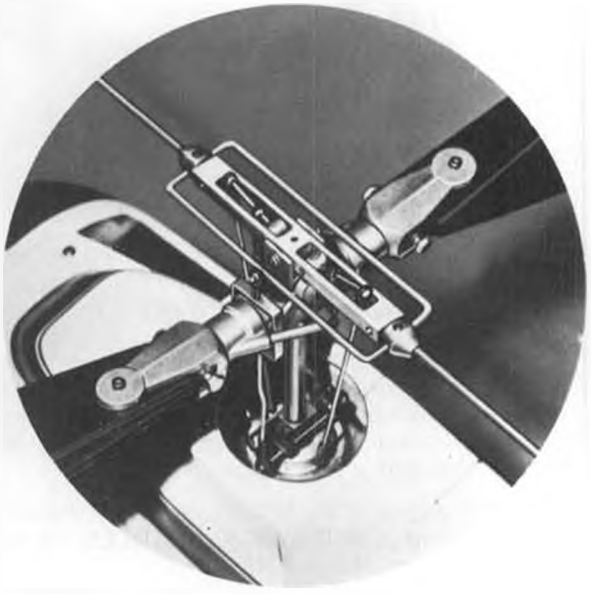

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MODEL BUILDER AND PANAVISE®

presents the

MASTER MODEL BUILDER of the month CONTEST

Send all entries to:

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

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

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

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

Requirements for entries:

1. Any type model may be entered (aircraft, cars, boats, etc.). Kits may be entered if significant modifications have been made to the stock kit.

2. Do not send the actual model. Send only black and white photos, showing at least three views of the model. Include some familiar object in at least one photo to indicate the size of the model. Try to include photos of any significant details.

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

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

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

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

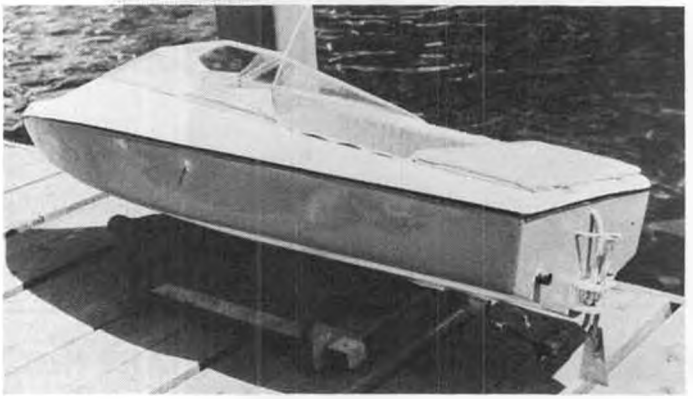
7. Postage must be furnished if return of submitted entries is desired.

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

Our first winner of the MODEL BUILDER/Pana-Vise monthly contest is **MURRAY V. CHARLES**, 14 Coolidge St., Soneham, Mass. 02184.

The model is an R/C, fiberglass replica of his own full size X-246 IMP! Scale of the model is 1-1/2 inch to the foot. The real boat is a deep-V powered by a Chrysler 340 Super Bee with a Volvo 270 outdrive. The model is powered by a water and air cooled O.S. Max 30, with a straight inboard drive train. Control is by Kraft radio.

The finish is hand rubbed lacquer, orange hull and ivory top and bottom. Upholstery is hand sewn, rolled and pleated in orange vinyl. To duplicate the orange carpet which is flecked with light green, Murray wove orange and green polyester yarn into fiberglass cloth, then soaked it in resin, so it all looks real, but is fuel proof.



MODEL BUILDER

SEPTEMBER

1975

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1105 SPURGEON, BOX 4336, SANTA ANA, CALIFORNIA 92702 (714) 547-3963

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Change of address notices must be received one month before date of issue that new address takes effect. Send old address with new; old label preferred. Post Office will not forward copies unless you pay extra postage. Duplicate issues cannot be sent.

Second Class postage paid at Santa Ana, Ca.

CONTENTS

CONSTRUCTION

SCALE VIEWS

FEATURES

Cover: The epoxy-covered rocks (When modelers need to make quick repairs, they'll use whatever is at hand!) of the La Paz Road R/C slope soaring site in Laguna Niguel, California, provide a foreboding background for the first test flight of Col. Bob Thacker's beautiful Baby Albatross. Bob checks the controls as MB's editor prepares to heave the eight pound model into a light wind. A complete construction article for the Bowlus begins on page 8 of this issue. Photo by Taylor Collins.

from Bill Northrop's workbench

The first few issues of MB carried a photo of the Editor/Publisher and the General Manager, so it seemed appropriate that we should appear again on the fourth anniversary of the magazine. The photo was taken by Jerry Doyle, during the outdoor banquet following the B.I.R.D. Club Vacation Fun Fly. Joe Zingali, B.I.R.D. president, did the darkroom work.

• FOUR YEARS AGO, Jack Stafford was the first person to respond to our announcement that we were going to start a model magazine. The phone conversation went like this:

"Hello."

"Hello. Is this Bill Northrop?"

". . . Yup."

"Bill, this is Jack Stafford . . . You're NUTS!"

Looking back, we wonder who really took first prize . . . before the conversation ended, Jack took out an ad in the first issue . . . and has been with us ever since.

Anyhow, what we're trying to say is, that with this issue, MODEL BUILDER has completed four years, and is starting on its fifth. We wish to thank all of our readers and advertisers for the moral and financial support that has helped us over some rough times.

We especially want to thank those

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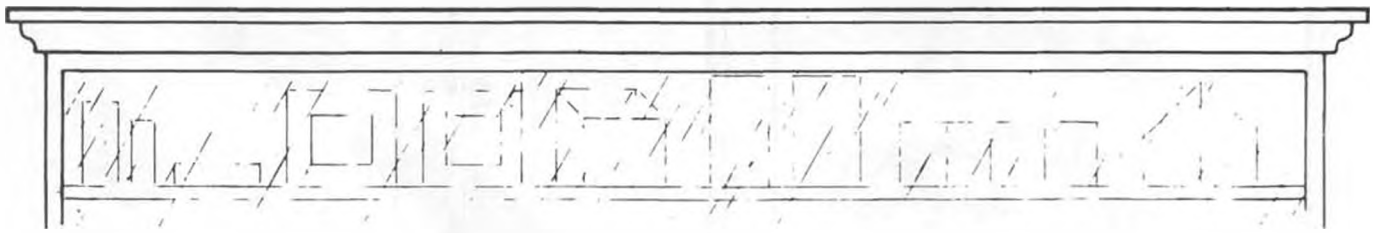
I'M SORRY BOYS, THAT'S JUST THE WAY IT TURNED OUT!

OVER THE COUNTER



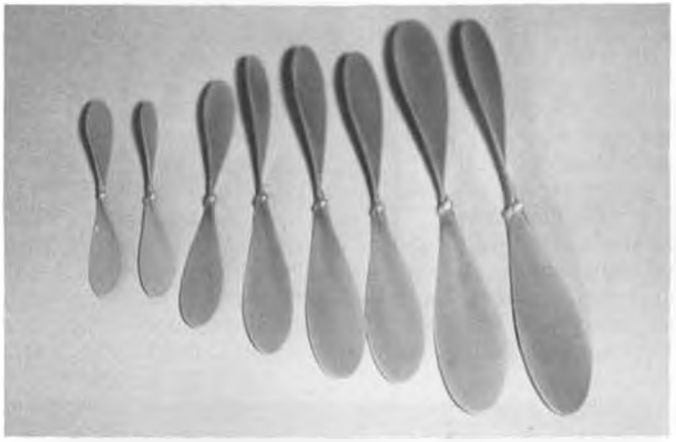
• Peck Polymers, P.O. Box 2498, La Mesa, Calif. 92041, has come to the rescue of rubber modelers with a new series of plastic props ranging from 4-3/4 to 10 inches in diameter. They are molded of rugged plastic, with a free-wheeling cam in each hub. The smaller sizes are molded in a satin-finish brown tone, making them ideal for use on Peanut scale and other small scale models.

* * *

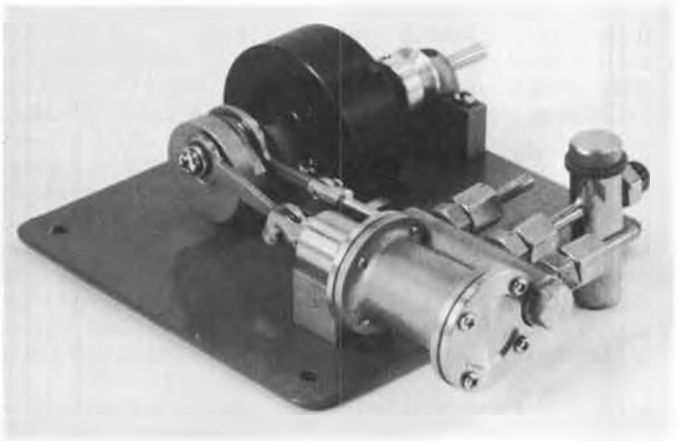
The White Co., 19372 Worchester Lane, Huntington Beach, Calif. 92646, has added customized high-start and winch parachutes to its line of soaring accessories. These hand made parachutes are made of nearly indestructible 'rip-stop' nylon (the same material that high quality sleeping bags and back-packers tents are made of). Jim White will make them in your choice of color, and then decorate them (in permanent ink) with the L.S.F. Emblem, N.S.S. emblem, your L.S.F. number, your name, or whatever else you may desire. The shroud lines are high quality nylon line, sewn up through the top of the chute canopy. The attach point for the winch line is braided for extra strength. In the near future, the White Co. will have a club winch kit available, which will contain two parachutes, and two return line flags. Incidentally, the parachutes are specifically designed for winch use. Their smaller size allows them to be hauled down to the turnaround pulley under full power when launching in crosswind conditions.

* * *

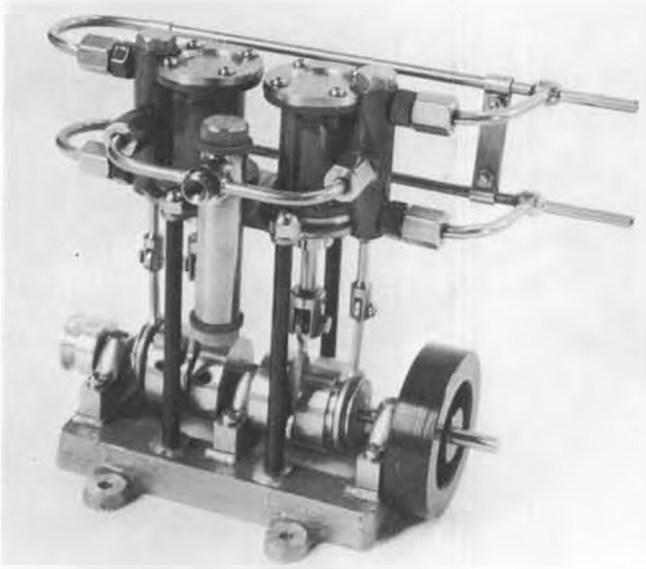
Live steam power can now be a practical reality for your boat! Polk's Model Craft Hobbies, 346 Bergen Ave., Jersey



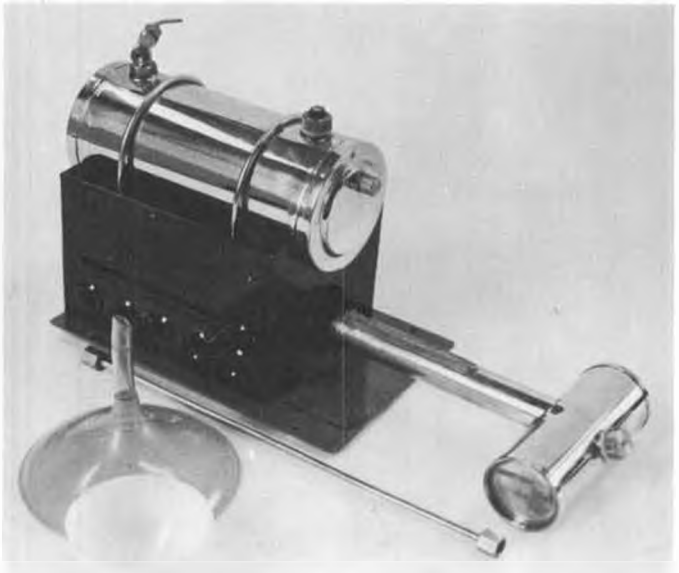
Plastic rubber-powered props by Peck-Polymers.



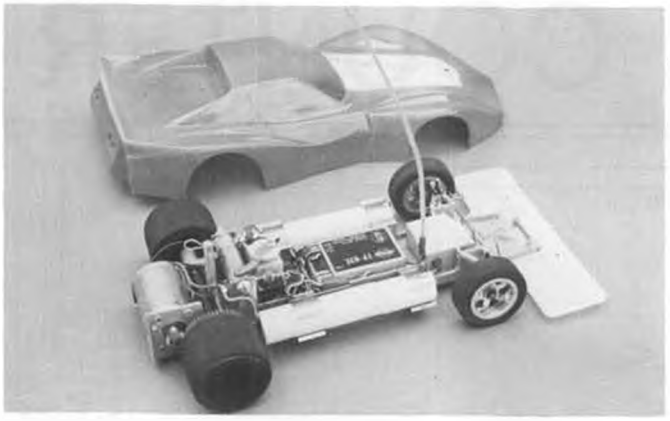
Single cylinder live steam engine from Polk's.



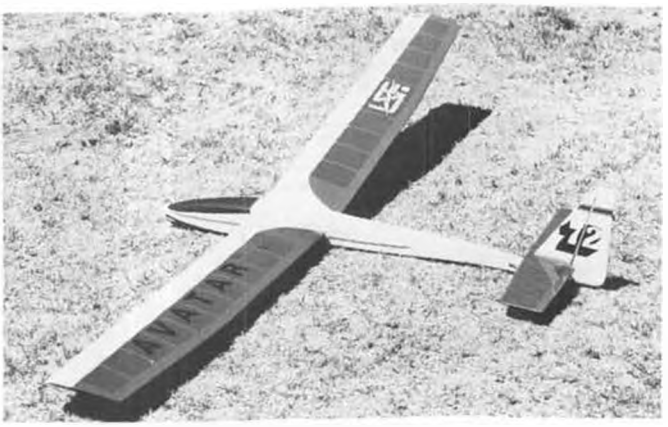
Two cylinder vertical steam engine from Polk's.



One of several boilers for live steam engines from Polk's.



Electric powered conversion of Jerobee R/C race car by Leisure Electronics.



Updated AVATAR glider by M&S Limited.

City, New Jersey 07304, is importing a line of single and double cylinder steam engines. The single cylinder engines are available in either horizontal or vertical configuration. The twin cylinder engine is available in the horizontal version only. Polk's also has a line of boilers, which are sold separately, so the modeler can tailor the engine/boiler combination to suit his boat. They also have live steam accessories such as safety valves, regulators, universal joints, oilers, and last but certainly not least . . . whistles! For more information and a catalogue sheet contact Polk's. And tell 'em MODEL BUILDER sent ya!

* * *

Need a battery for your field box? Need a battery for your boat? For your electric plane charger? Geltronics, P.O. Box 59215, Norwalk, Calif. 90650 has got the battery you need. They distribute the Globe 'Gel/Cell' rechargeable batteries which feature a gelled electrolyte, encased in a sealed housing which eliminates the mess and headache of leaking lead acid batteries. Since the cases are completely sealed, there is no need (or way) to replenish the liquid level. The Gel/Cell batteries can be recharged for over 1000 cycles. Geltronics stocks eleven different styles and sizes that are adaptable to just about anything. For more information and prices, write directly to Geltronics. And don't forget to tell them where you heard about it . . .

* * *

Did you ever buy peanuts in an envelope? Vintage Aero, 1 The Glen, Tenafly, N.J. 07670, sells them that way. They are offering printwood and plan kits (you gotta supply your own strip wood and hardware) which are recreations of the Megow kits of the 30's. Presently available are the Megow Gulfhawk, Fleet Trainer, Curtiss Swift Pursuit, Spad, and V-100 Vought Corsair Bipe. The Fleet, Swift, and Corsair sell for $1.25. The Gulfhawk and Spad sell for $1.79. Each comes in a brown manila envelope, which is printed on the outside with a reproduction of the plan.

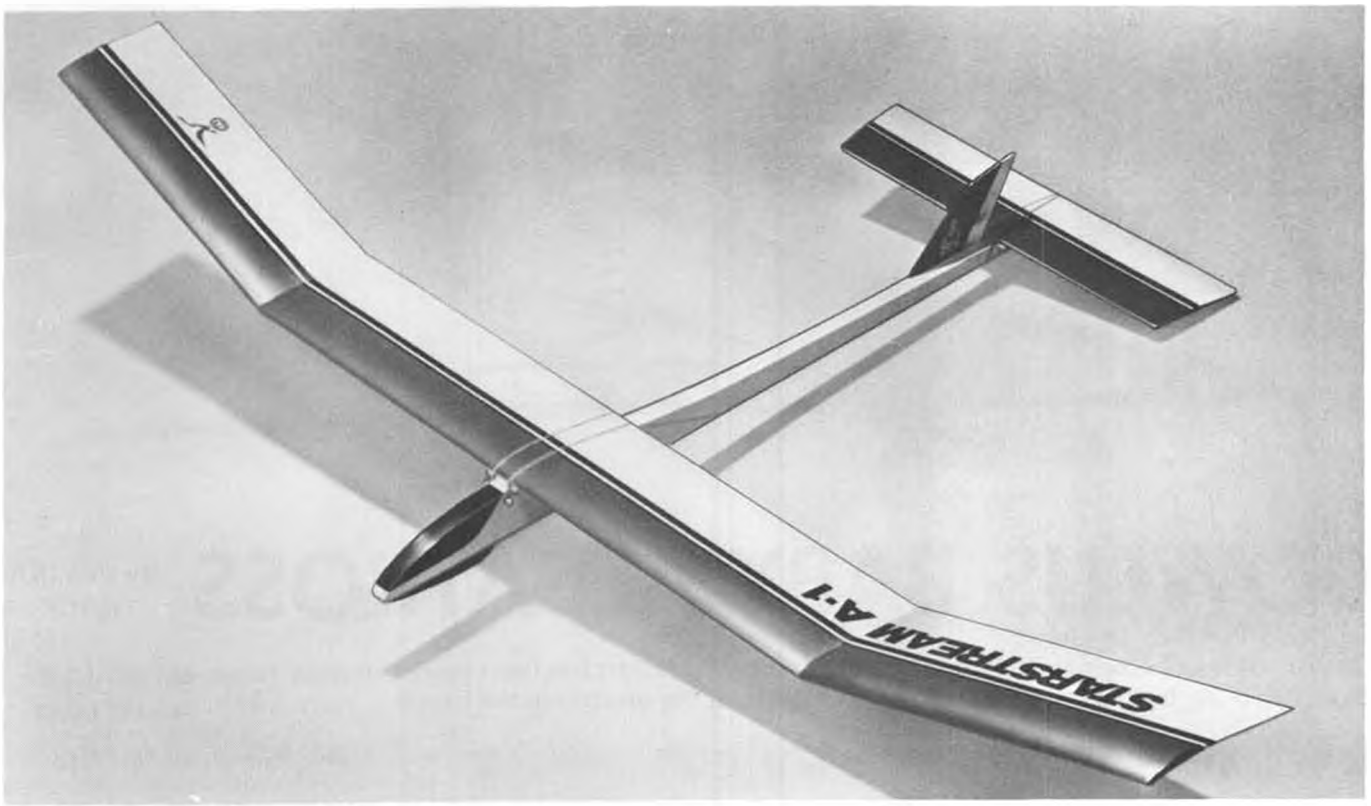
* * *

Dave Linstrum's F.A.I. award winning Starstream A/1 towline glider is being kitted by Midwest Products. The Starstream uses Jedelsky type all sheet wing construction, and a sheet balsa "semi-profile" fuselage construction to yield an easy-to-build yet competitive A/1 contest bird. Whatsistrum won the competition set by the C.I.A.M., modeling committee of the F.A.I., for this design, and it is easy to see why. Easy to build doesn't necessarily have to mean "flies like a tail heavy water bucket." The Starstream retails for an affordable $11.95.

Midwest has also introduced a "sensible motor mount." Their new one piece mount (available in four sizes) uses folded aluminum and glass filled nylon in the right places to produce a strong, and lightweight mount that is easy to install.

Mini-Glue Tips, by Applied Design Corporation.

The new HGK .15 engine from Japan, through Shamrock Competition Imports.



Starstream A/1 towline glider, by Midwest Products.

The nylon mounting blocks are interchangeable, to allow the use of different engines on the same model . . . or to cut down the cost when changing the mount from one model to another. The four sizes will accommodate any engine from .15 to .80. Prices range from $4.25 to $4.95. Both the engine mounts and the Starstream glider are available from Midwest Products Co., 400 South Indiana St., Hobart, Indiana 46342.

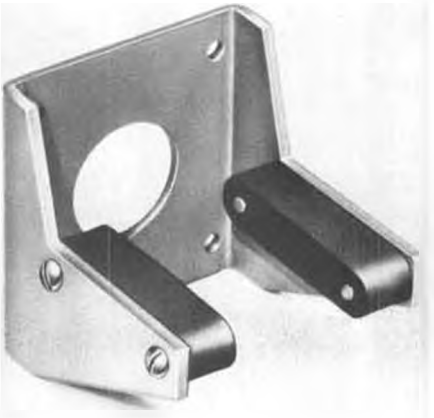
* * *

Polk's seems to have gone power mad. Not only do they have steam engines, they also have introduced a 1 horsepower industrial engine. Aimed at the helicopter and large boat market, the H.P. Fox Industrial gas engine features recoil pull starter, ball bearings, and a built in fuel pump. Like all two cycle engines, it depends on lubrication from oil mixed with the gasoline fuel. Total weight of the engine is 4.2 pounds. The manufacturer obviously has confidence in its product . . . the instruction booklet details the maintenance to be performed after 1000 hours of operation. The Fox Industrial engine is available for immediate delivery for $179.95.

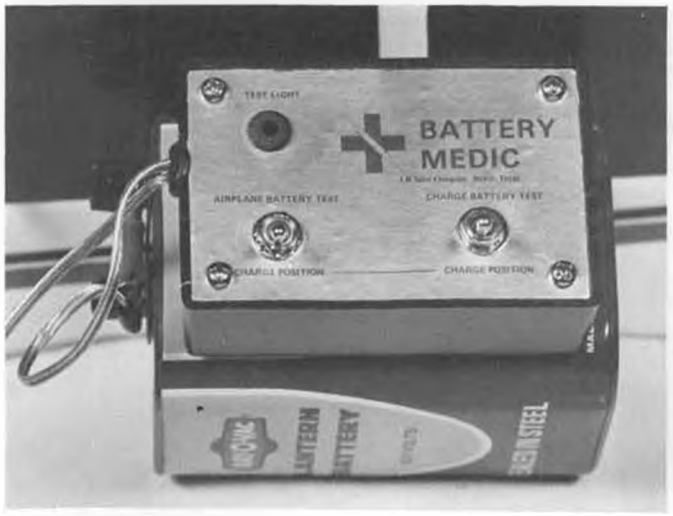
* * *

Top Flite Models, Inc. 2635 S. Wabash Ave., Chicago, Illinois, has added five new propellers to its already bountiful line of props. Pylon racers pay attention! The new Pylon Racing Speed props

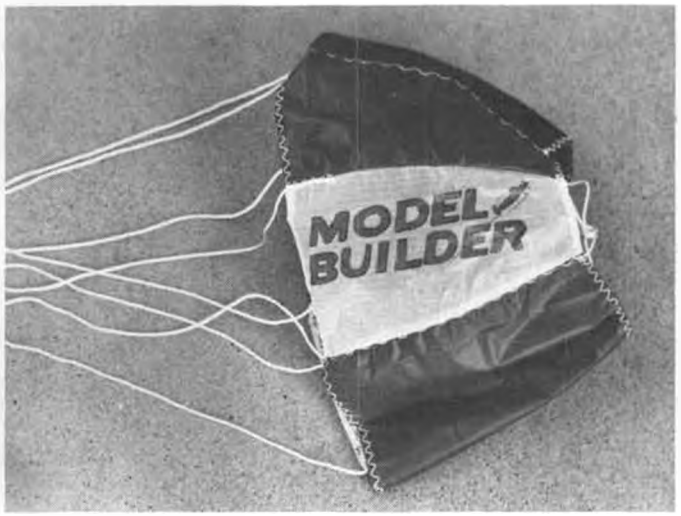
Continued on page 87



Bent aluminum and glass-filled nylon motor mounts by Midwest Products.



Battery Medic, by JR Sales Co.



Towline parachute by White Co.

BOWLUS BABY ALBATROSS

By Col. BOB THACKER

One of the best known aircraft of any era, the Baby Albatross has been modeled many times, but we'll bet there has never been a better scale reproduction than the one presented herein. PHOTOS BY TAYLOR COLLINS

Mission accomplished! Col. Bob Thacker, left, collects first place Scale trophy at the 1975 Soaring Nationals. CD Dan Pruss congratulates Bob while Linda Porter passes the hardware.

• *Col. Bob Thacker, USAF (Ret.), is a guy who exudes confidence. He walked into MODEL BUILDER's office one day last winter and announced in no uncertain terms that he was going to build an R/C Baby Bowlus and win scale at the 1975 Soaring Nationals. No doubt it was with the same assurance that he told his Air Force superiors in 1947 that he was going to overload a P-82 ("Twin Mustang") with enough fuel to fly it, non-stop, from Honolulu across the Pacific and across the USA, and land in New York, to establish 3 world records.*

In both cases, he proved himself correct.

Having dealt with the Col. in other matters, we didn't question his prediction on the Bowlus, but simply said, "Fine, we'll do a construction article on it and time it to come out within a few weeks after the SOAR Nats."

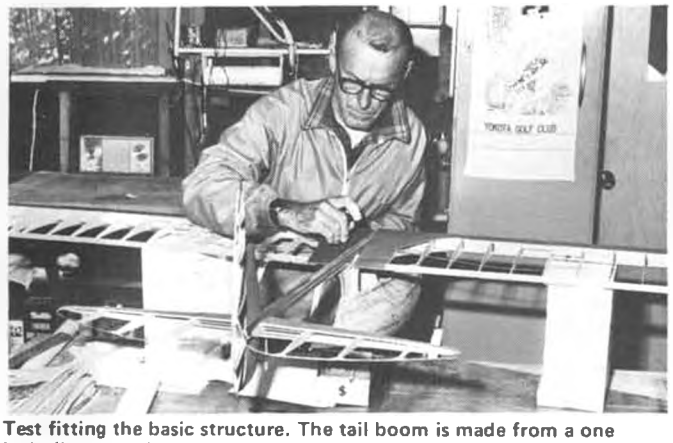
Easier said than done. We're sure Col. Bob had better plans for his non-stop hop than he did for the Bowlus . . . in fact, most anything *would have been better than the mutilated, hole punched,*

The practically non-existent dihedral presents no problems, since the model has rudder and aileron controls. By coupling them electronically, the turns come out beautifully coordinated.

All of the mahogany planking on the original Bowlus was duplicated by using mahogany-finished Contact paper. Struts are K&S streamline tubing, reinforced with music wire.

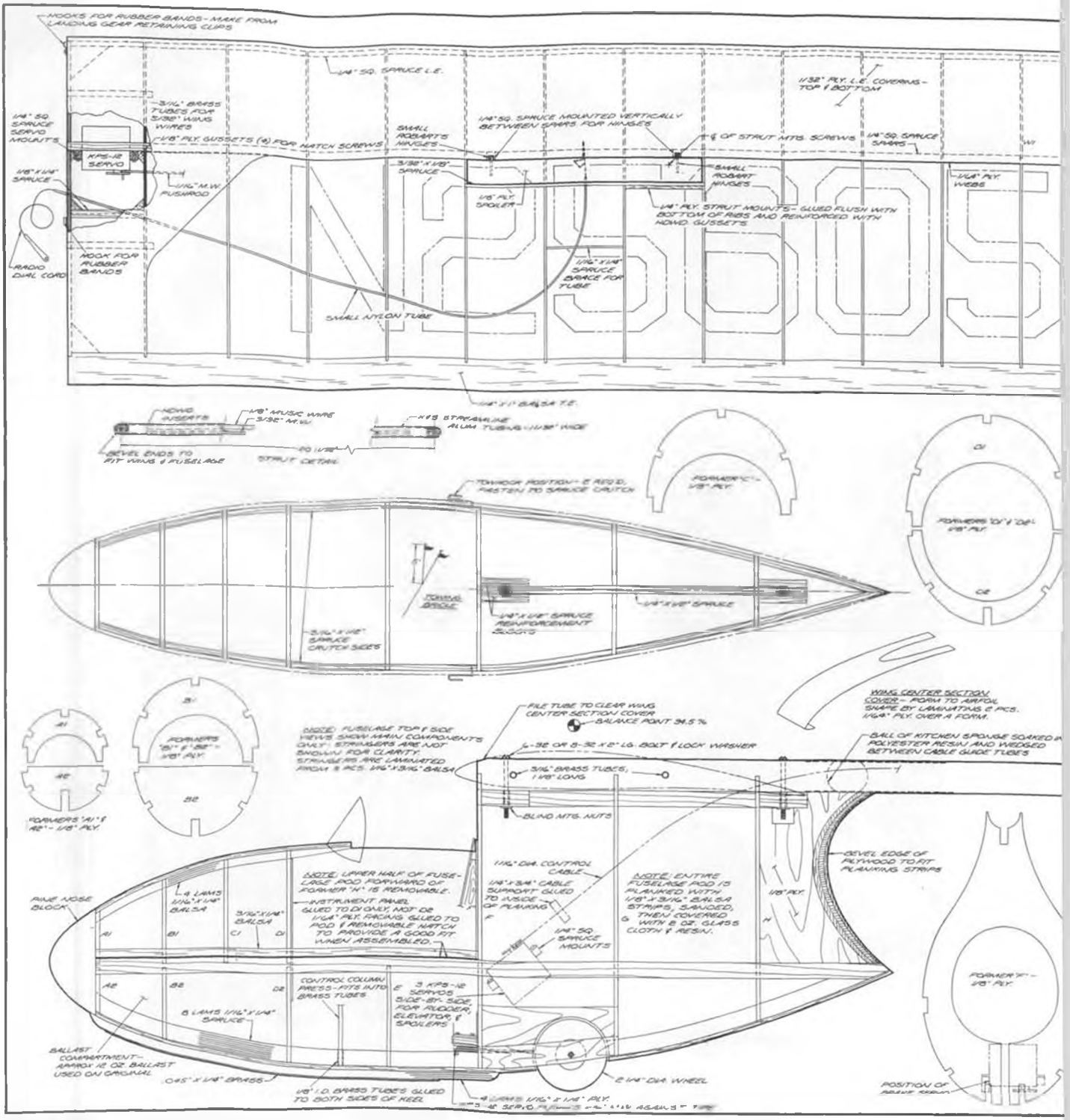
All curved trailing edges are formed from wire. Stab is all-moving, with horn in the sub-fin.

Taken the day of the first test flights, this photo proves that Bob was fairly pleased with th results. Actually, the only change required was to move the balance point aft a half inch. Ship has over 1400 square inches of wing area.



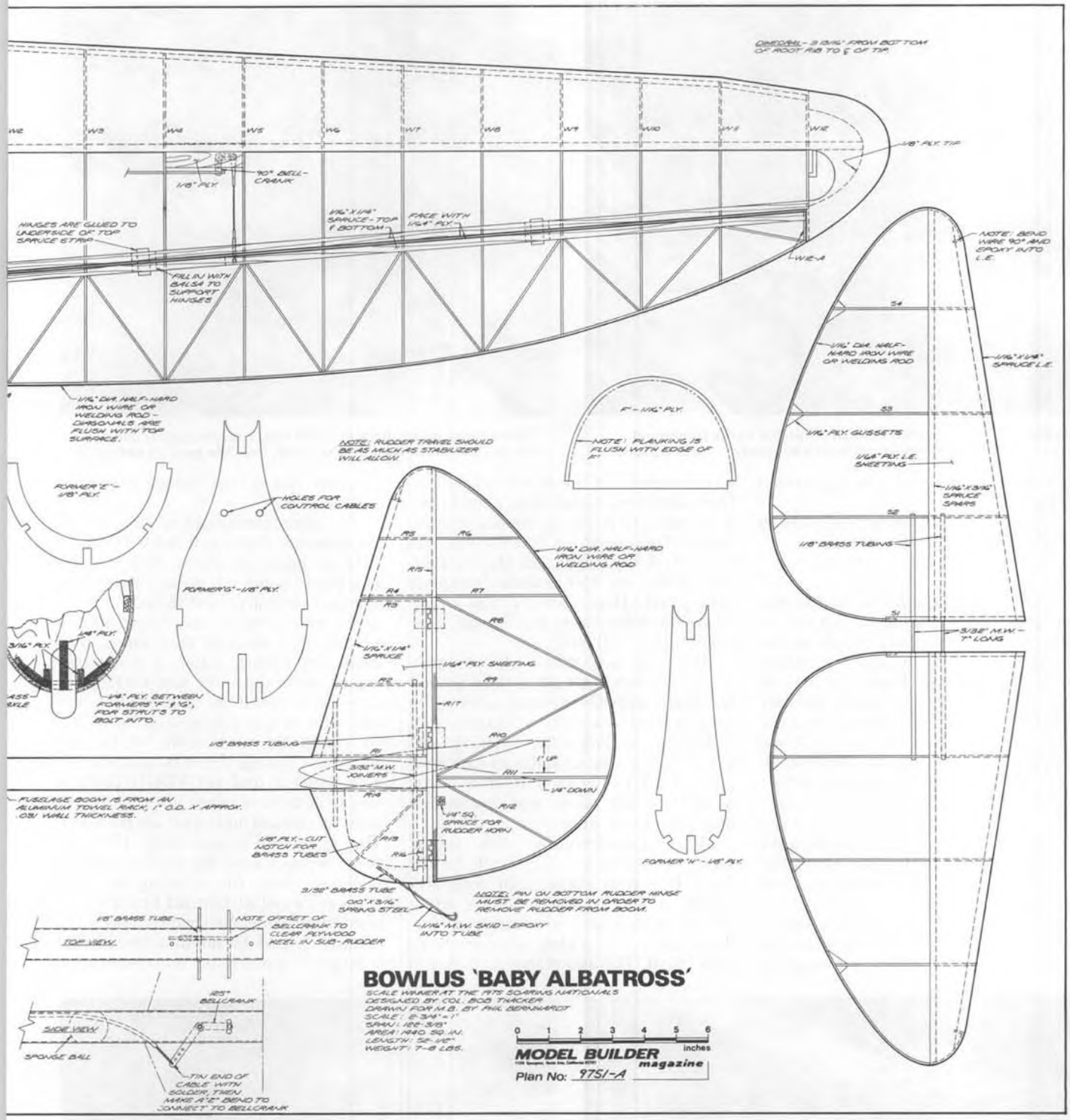
Test fitting the basic structure. The tail boom is made from a one inch diameter aluminum tube towel rack.

One of the most famous profiles in aviation, the epitome of pod-and-boom construction. Note the huge aileron area.



glue spattered, hen-scratched bits of tattered tracing paper that he brought to us when the Baby was completed. Our ace plans delineator, Phil Bernhardt, took one look at the shredded mess, let out a shriek, and started chewing all of his pencils into fine splinters!

Fortunately, Col. Bob also brought along the Bowlus, and it spent the better part of two months as an honored guest of MODEL BUILDER's drafting department. In fact, Phil was just putting the finishing touches on the plans when the Col. came by to take the Baby to Chicago.



FULL SIZE PLANS AVAILABLE — SEE PAGE 88

We knew Phil had done a good job on the plans when Col. Bob pronounced his endorsement, "Ch----, Phil, I wish I'd had these when I built the d---- thing!"

The rest of the introduction is mere routine. In Chicago, the Bowlus Baby Albatross not only acquired the highest scale points, but Col. Bob also managed to tow it up into a nice thermal and scored the highest scale flight points. Everyone stopped what they were doing to watch the Baby fly, and Bob reports that one thing happened that he hadn't expected . . . both the takeoff and land-

Fuselage planking is applied in small strips due to the compound curves involved. Note familiar modeler's equipment . . a Band-Aid!

"There I was, on my back at 5,000 feet, with the rudder jammed in full up . . ." Watch what you're doing, Bob, the epoxy's setting up!

ing were accompanied by a huge round of applause.

Except for that, it was all just as Col. Bob Thacker had expected.

Bill Northrop

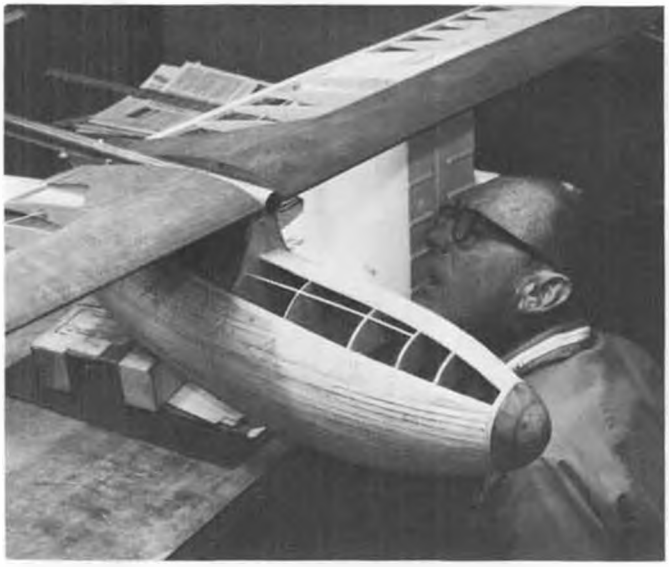
Hawley Bowlus was one of the premier glider designers and builders in the 20's and 30's. The Baby Albatross was introduced as a homebuilt kit, which could be purchased (and paid for) in ten installments. Bowlus, being not only a clever designer, but a clever businessman, saw to it that the most critical parts of the glider, namely the castings that held the structure together, were a part of the last of the parts packages. There was no cheating . . . you had to buy the whole shebang to get into the air. Approximately 50 were built prior to World War II, and there are seventeen still flying today.

The forty-four foot six inch floater would be no match for the super soarers of today. Its three pound wing loading was designed for the leisure pursuit of flight duration, rather than a mad dash from point to point, as the big birds do today. Top speed on the Bowlus was 65 mph. A Gottingen 525 Modified airfoil carried its 450 pounds (complete with pilot). Huge ailerons, and an all-flying fin, helped turn the Bowlus' shallow dihedral (3°) wing.

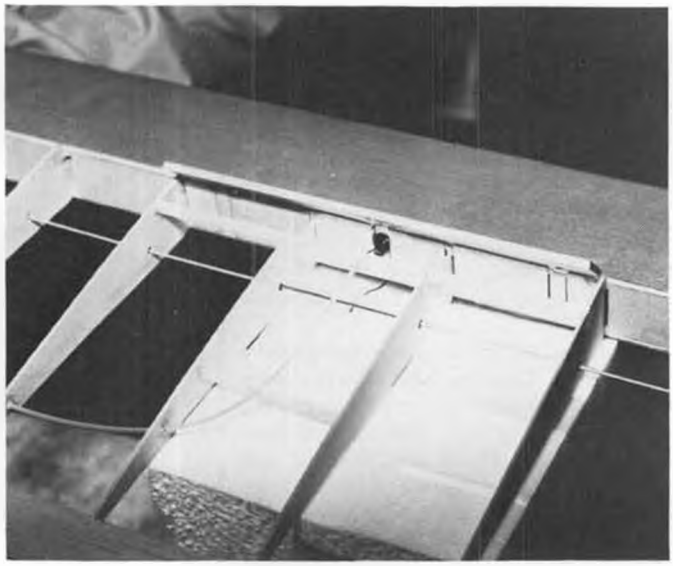
The pod was made of mahogany sheeting which was held to the plywood bulkheads with sheet metal screws. The wing was of a wooden structure, with mahogany leading edge sheeting, and wire trailing edges. Tail surfaces were constructed in the same manner as the wing. The tail boom was a constant diameter, 5 inch duraluminum tube.

After experimenting with several scales, I settled on 2-3/4 inch to the foot. This gives me enough wing area (1400 sq. in.) to carry the six servos that I felt necessary to control the bird. Wingspan is 122 inches, with an eleven inch chord. This is a manageable size to transport, yet is large enough to be very impressive.

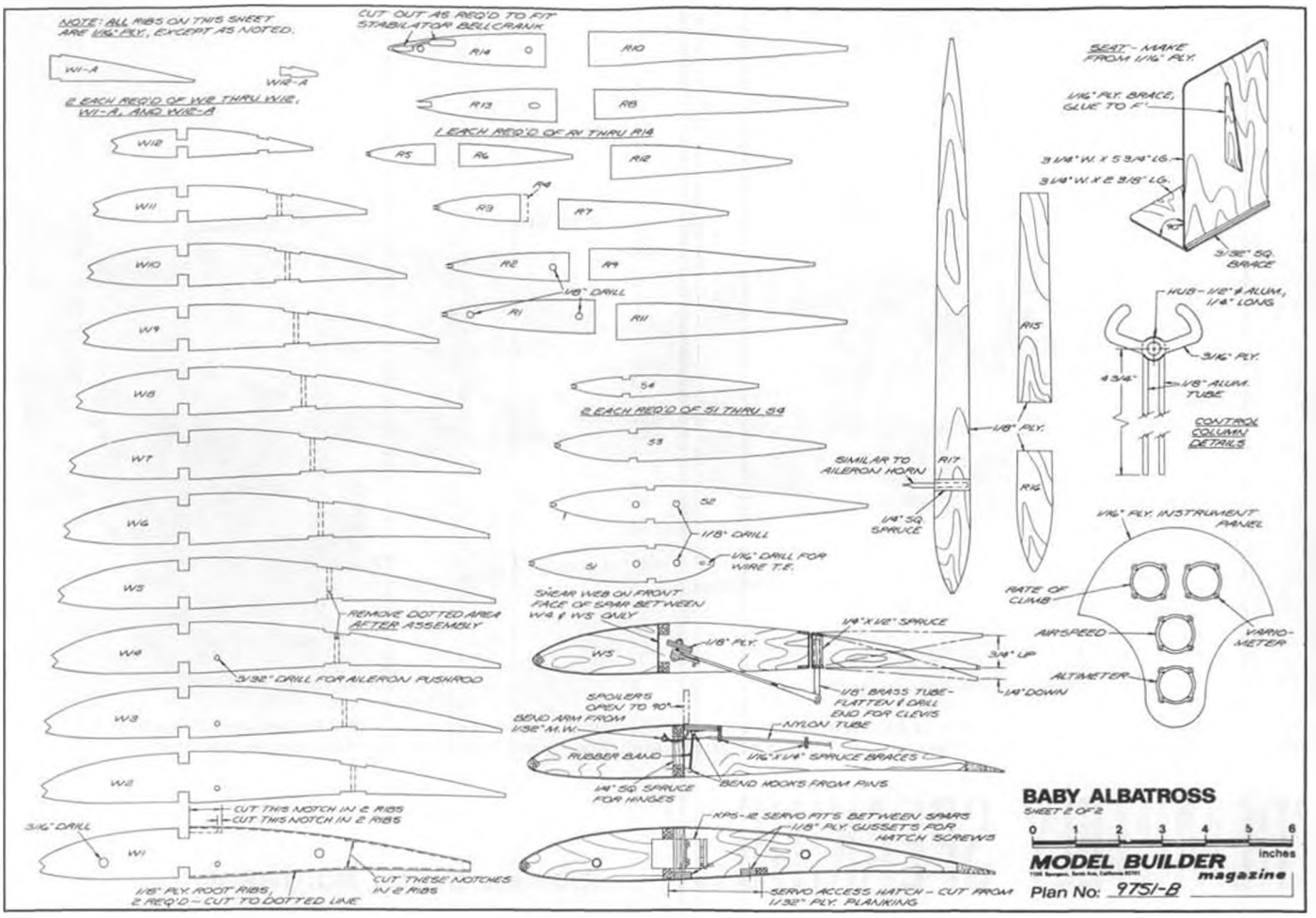
To begin construction, first gather the materials that you'll need. The most difficult thing for me to find was the aluminum boom. I miscalculated the diameter initially, and based on the wrong measurement, was forced to pay $22.00 for a piece of precision aircraft aluminum tubing. Later, I discovered that 1 inch diameter was correct for scale, and found an aluminum towel rack tube at a plumbing shop for $1.80. (Anyone who needs some 1-1/16 inch aluminum tubing, please contact me . . . have I got a deal for YOU!) There is very little balsa involved in the construction. All ribs and bulkheads are plywood. The spars are spruce, with 1/64 ply shear webs. I used Sig medium weight fiberglass cloth for covering the pod. Also, get a roll of Contact brand mahogany finish vinyl shelf paper. This is the material I used to simulate the scarfed mahogany sheeting on the monocoque



Planking almost completed. Radio hatch is cut out after pod has been sanded to shape. Real cockpit hatch was too small for accessibility.



Close-up of spoiler rigging. Spring tension keeps spoiler retracted, and servo pulls dial cord to extennd the spoiler doors.



FULL SIZE PLANS AVAILABLE – SEE PAGE 88

pod and flying surfaces.

Wing construction is fairly standard, except for the plywood ribs. Begin by cutting out all of the ribs. The bottom 1/4 square spruce spar is then pinned down and the root rib is pinned in place. Next, glue on the shear web for the first bay, and then the second rib. By proceeding towards the tip in this fashion, you are guaranteed of a good fit between the ribs and shear webs. After all ribs and shear webs are in place glue down the top spar, making sure that the spar is seated firmly in the rib notches. The Nyrod tubing for the spoilers can now be snaked through the holes in the ribs and epoxied at each rib. Glue the 1/4 inch square leading edge into the rib notches. The 1/32 mahogany veneer leading edges can now be glued in place, after the leading edge has been sanded to shape.

The tail surfaces are built in the same manner, except that 1/64 plywood is used.

The wire trailing edges are held in place with epoxy. Vinyl electricians tape can be used as a "mold" to get a "welded" appearance on the joints. The tape is wrapped around the joint after the epoxy is applied. When the epoxy cures, remove the tape and you should have a

Continued on page 83

Tail surfaces are entirely demountable. These wires hold the upper fin in place. Elevator horn is in the sub-fin.

Gussets are realistic, and also help to keep the outline wire epoxied to the stab and rudder ribs. Structure is rugged yet not too heavy.

Typical scene when it's a hot summer day at a contest. This one was the Houston Area Annual Pattern Contest held on June 7 and 8, at the Manned Spacecraft Center in Houston. We examined the original photo carefully and can't figure out what they were all looking at.

'REMOTELY SPEAKING...'

R/C News, by BILL NORTHROP

• This month, we must start our column with an apology. First there is the Lake Charles Nationals to attend, followed by the R/C Aerobatic World Championships in Bern, Switzerland, where we will be judging (and gathering photos and info for a complete report). And in between these two events (about one month apart) we will be house moving, as mentioned in our "Workbench" column.

It's just too much, and so we are relying heavily on reports from various sources around the country to fill out this month's column.

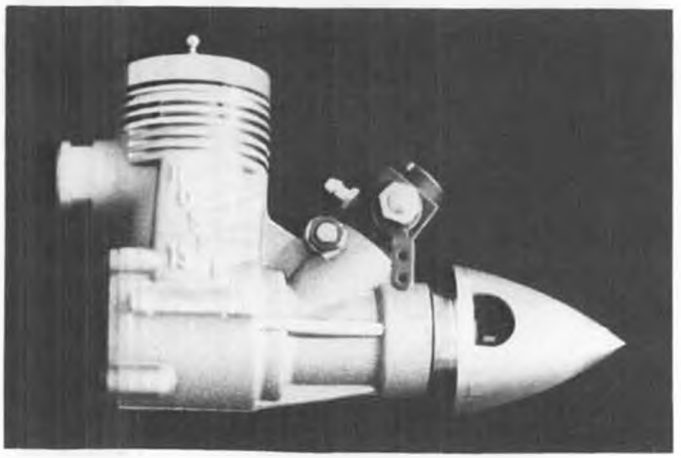
Before getting into these reports we'd like to acknowledge a phone call from George Killeen (Kraft Systems technician for the past 10 years) who indicates that he has opened an authorized Kraft repair station in Anaheim, California, called "Kraft, Orange County." He has joined forces with Andy's Electronic Repair, located at 2817 E. Lincoln Ave., Anaheim, CA. 92806. Andy's repairs all makes of digital radio systems. This facility will be open on Saturdays during the summer. The phone number is (714) 630-5061.

NORTHWEST DOINGS

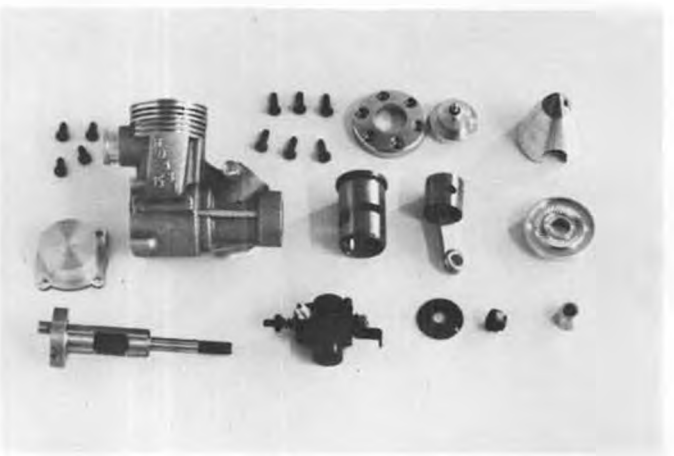
Our Northwest correspondent, Bob Petro, reports from Cedar Mountain Sky Ranch, Athol, Idaho.

"Just a little news from the Northwest. Now that winter has left (last week), things are really humming. The Spokane Internats was a huge success, with a lot of really beautiful birds competing in the Sport Biplane Pattern and Stand-off Scale events. Some of them doing double duty with great results.

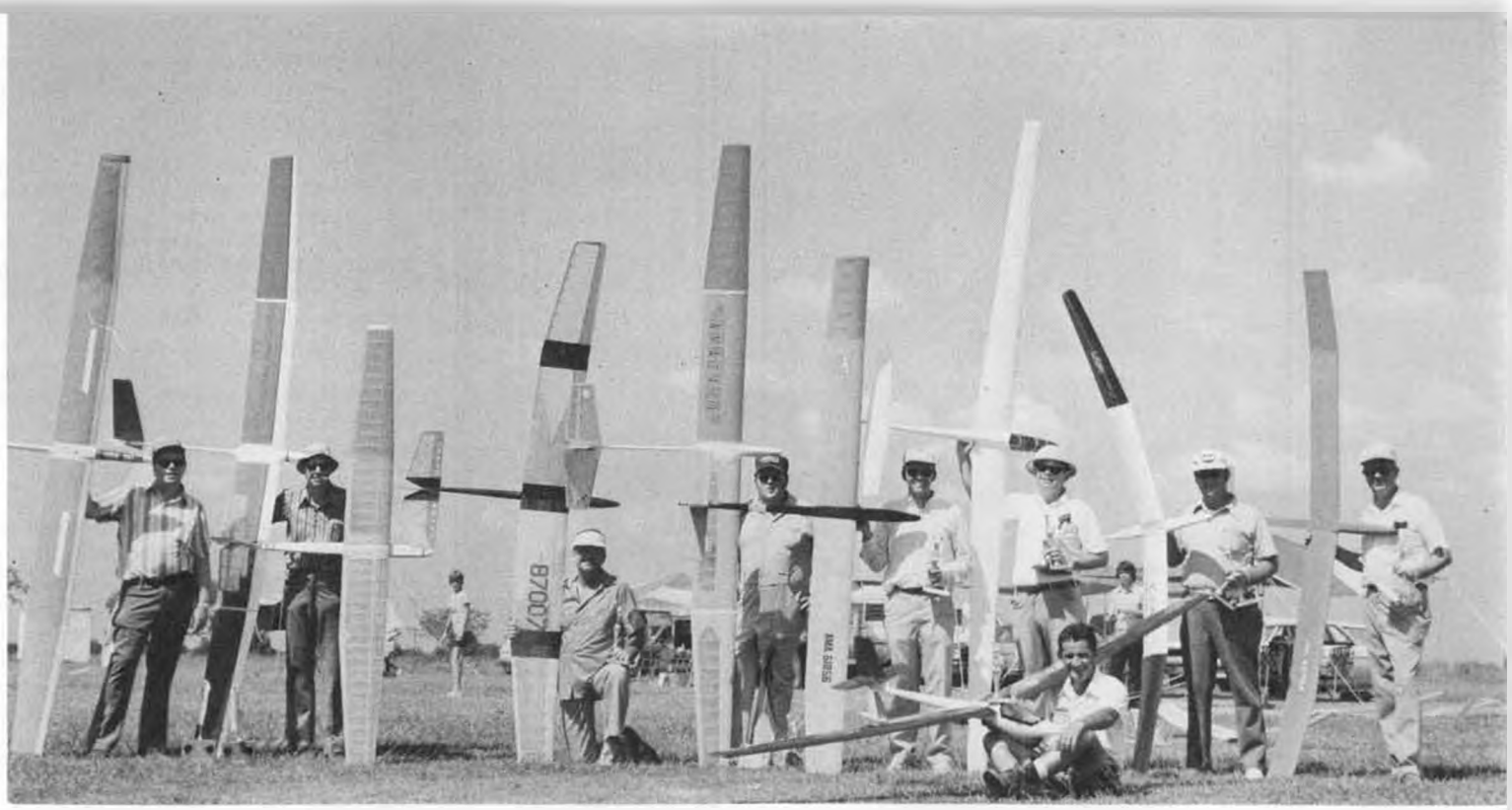
"The Coeur d'Alene Aeromodelers Society had their annual picnic at my ranch a couple of weeks ago. Can't understand why a club with only 10 active members can show up at a picnic with 65 people (32 flyers) and yet you mention a club contest or fun fly and two



The controversial Rossi .15 with Perry carburetor is available from Bill's Miniature Engines for $83.95. See ad in this issue.



The disassembled Rossi .15 R/C, showing all of the basic parts. Bob Reuther had 9 perfect heats (landed with engine running) at '75 Nats.



Gaggle of sailplanes . . and pilots at the June 21-22 Houston R/C Club Soaring meet (l to r): Tom Williams, Bob (Logictrol) Elliott, John Rimmer, Jim Simpson, Jack Lipscomb, Paul King, Arthur Cayer, Tom Boyette, and Al Dalnoki, seated. All were winners at the contest.

show up! Maybe we oughta lay a sneak contest on 'em at the next picnic!

"Thanks for the plug on our rally in your last issue, and using the photos. The guys up here really get a kick out of seeing that someone is willing to recognize that not all the nation's modelers live on the West Coast! We're not good . . . but we're getting better! Then you West Coasters better watch out."

Best Regards,
Bob Petro

BACK TO BASICS . . .
IT'S STRICTLY FOR FUN

Our first report is by Don Gutridge, Public Relations Manager for the well known B.I.R.D. Club (Beginners In Radio Drones), of Carson, California.

"A person or organization without goals is like a traveler without a road map, and the effectiveness of such goal setting and direction was recently illustrated when the BIRD Club of Carson, California had their Annual Vacation Fun Fly at their new field, June 28 through July 6.

"Mainland participants in the annual affair for '74 in Kona Hawaii were so impressed by the cordial hospitality they received, they decided to host the contest themselves for '75, so they would have a chance to return the gesture of their island friends. With the specific objective in mind of producing a smooth-running, relaxed, fun contest atmosphere, complemented by social activities typical of the California lifestyle, the planning was set in motion.

"A planning committee was formed, consisting of twelve club members and their wives. Each was given a specific assignment for which they were responsible, and everyone contributed ideas to the overall planning process.

"Social activities began June 29, with a welcome cocktail party hosted by Hal and Marilyn Gordon. As it turned out, we had an elaborate welcome for about 50 of our own club members, and Rodney Pate from Texas. Hiroshi and family arrived from Hawaii on time, but suffered extreme pressures from the younger generation to see Disneyland NOW, so they were unable to attend (Ah sweet

Big guys build little planes? Yes! Dick Carson, Spokane, Washington, and his R/C Tern Aero Super Starduster. TD .020, Ace pulse radio.

Big guys also build big planes! Gil Horstman, Spokane area, and his 9 foot J-3 Cub. Flies realistically without ailerons. Fox .78, EK 3 ch.

Winners at FORKS Club QM races, June 1 (l to r) back row: Fred Johnson, Bob Gademer, Bill Gademer, Bob Penko, Bob Mellen. Front: Billy Johanson, Don Love, Ed Weesner, Ed Nobora.

Senator "Babe" Schwartz presents trophy to Joel Taub during Texas City R/C Club hosted Summer Fun Fly, June 29, Galveston, Texas. Club president Duncan Atkinson looks on.

Bob Mellen holds on while Ed Nobora readies for takeoff. Ed finished third, Don Love was second, and Ed Weesner was first. His best single heat was 11.1 seconds.

youth). Other out-of-town guests were victims of the old work syndrome, and were scheduled to arrive later in the week.

"While the manufacturers tours took place during the week, word of the other social gatherings began to spread, and the lavish appointments provided at the Gordon's attracted many people to them. By Wednesday, July 2, participation had doubled for the party hosted by Joe and Gene Bridi, which marked the first of four consecutive gatherings. These toy plane pilots sure do a lot of partying. Phew! I wonder what they are consuming in their coffee mugs as they spend all those hours in the garage . . . 'building'?

"Thursday morning pattern flying activities began at a furious pace, if you are used to viewing things through a slow motion camera . . . flying began 'Hawaii time.' Judging was provided by the USPJA, and was rated tough but consistent, and that's just what it is supposed to be. Because of the FUN nature of this gathering, some liberties were allowed, but not without considerable discussion with the well disciplined USPJA judges.

"Have you ever seen the look of disappointment on a flyer's face when his engine dies just as his craft rotates off the runway? Or, have you noticed the look of panic when he has taxied half way to the end of the strip and gets a flame out? Immediately he grabs his battery or tool box and runs for all he's worth to restart before the clock runs out.

" 'Hold it John,' cried the judges, 'relax, take it easy, this is just a fun contest. Go get your plane and restart at your own pace, you're not being timed, just have FUN.' That was how such situations were handled here, and you should have seen the expressions on their faces when the judges told them to 'relax.' They were so aghast that they almost went into shock, but they did relax, and they did have fun, and that's what it was all about.

"Thursday night's party was hosted by Bill and Anita Northrop, and our following again increased as the kids enjoyed the swimming pool, and everyone took part in an outdoor bar-b-que style dinner.

"Pattern flying continued Friday, and about 10 contestants were added who were unable to escape work on Thursday. Everyone seemed to like the special pattern concept originated by CD Betty Stream, where required maneuvers were complemented by electives selected by the contestant. Selections could be altered on every flight, and everyone had a chance to show his own style.

"The Independence Day Celebration was hosted by Al and Lil Doag, and their home was sporting Bicentennial

Continued on page 63

John Baxter, first to earn Level V in the League of Silent Flight (L.S.F.) with his Soarcraft Magnum 12.

R/C SOARING

By TAYLOR COLLINS

PHOTOS BY AUTHOR

First-hand report on the 1975 R/C SOARING NATIONALS, with over 200 fliers in the competition.

• Don't make a single mistake . . . fly perfectly for eight rounds . . . always find lift when everyone around you is dropping out of the sky . . . nail the center of the circle on every landing with deadly precision . . . and be cool as a cucumber through it all. That's all that is really necessary to win the S.O.A.R. Nationals. Mark Smith, of Windfree and J.L. Seagull fame and fortune, and Frank Deis, of Huntsville, Alabama, mastered the execution of this formula and took home the big silver bowls and Schwinn bicycles from this 6th annual Chicago 'big 'un' of R/C Soaring.

For the first time this year there were separate awards for Grand Champion in Standard (under 100 inch wingspan) and Unlimited (anything within F.A.I. limits goes) categories. Total overall scores for the winners of the two classes of airplane were separated by a scant three points, 5260 to 5257! (Now who says those little airplanes can't compete?)

Mark (who hails from Escondido, California . . . home of the San Sagitta Sewer Slough Slope Soaring Society) had lots of company in standard class competition. Pete Rambo took second place honors, Rick Pearson was third, Rod Smith (Mark's dad!) was fourth, and Don Edberg took fifth. In case you hadn't noticed, all five are from Southern California.

Southern California is also the home of the winning Senior team, from the San Fernando Valley Silent Fliers (SFVSF). Winning team members were Terry Koplan, Bill Nibley, and Rick Pearson, The Junior team from the Rocket City Radio Controllers, of Huntsville, Alabama, won best Junior team honors. Led by Greg Smith (3rd overall, Unlimited) and his two team mates, Dick Kojako, and James Fitch, the young guys made life miserable for a lot of the "old pro's."

If one trend had to be picked out of the contest it would be a trend toward equality. Everyone and every plane had an equal chance. The 100 inch planes flew in Unlimited class (two were in the top five!). The big planes were very competitive in the precision task. In

Doc Hall's Schulgleiter SG-38 . . . the 50% larger version was destroyed one week before the Soar Nats, so this is last year's smaller model.

Cecil Haga, with the 12 foot span Legion-Air, which he designed. Note large spoilers, aluminum tube tail boom.

Don Edberg, Covina, Ca., launches Airtronics Aquila, with which he placed 5th in Standard. Jack Hiner mans the winch.

Gwen Collins with her errant Windfree. She's a member of W.I.N.G.S., the all-female soaring club. Ship took a mud bath. See text.

Otto Heithecker, the compleat soarer, listens to "rock" music while circling in sink. You can't win 'em all.

short, no piece of hardware, or airplane design showed any advantage over anything else. It is becoming more and more apparent that people, not airplanes, win contests.

While on the subject of equality, it should be pointed out that for the first time Women's Lib reared its lovely head at the S.O.A.R. Nats. The W.I.N.G.S. (Women in National Glider Soaring) club, which is the first all female A.M.A. chartered club in the country, fielded a three man . . . err . . . ahhh . . . person team which represented the twenty member club quite well. Barb Robinson (wife of Lansing, Michigan C.A.R.D.S. club member Bob Robinson); Marty Gill (club president and wife of St. Louis Eagles' Bob Gill); and Barbara Henon (winner of the 1973 L.S.F. Tournament) showed the male chauvinists that the femme fliers are a very real threat on the contest circuit. Incidentally, the husbands of the W.I.N.G.S. (of which this writer is one!) were presented with special identification pins in the form of the north end of a south bound horse . . . Gee! . . . Thanks girls!

The results and pertinent information on the winners is shown elsewhere, so rather than dwell on that, I'd like to mention some of the trends that I observed at this year's S.O.A.R. Nats. Probably the most significant statistic was the sheer number of entrants . . . 212. This was the largest R/C glider contest ever held in the U.S. Although I don't have the figures, it appeared that entries in Standard and Unlimited classes were about equal. Many 100 inch airplanes were entered in Unlimited, and as I pointed out earlier, didn't suffer a bit from their small size.

Four or five commercial designs dominated the field. The controversial Hobie

Warren Tiahrt, with Standard Class Legion-Air, soon to be available from Cecil Haga. Legion-Airs are very popular.

Yes, it rained there, too! Greg Temple wrings out a sunshade after flying was stopped for a rainshower.

University of Michigan Felix Pawlawski Scholarship Award winner, Peter Rambo, from Camarillo, California.

Hawk is finally coming into its own. The fliers who have stuck with it and really 'learned' the airplane are doing well with it. Both Kelly Pike and Col. Bob Thacker posted *perfect* two minute precision scores on one flight . . . and perfect is hard to beat! (Kelly tried to impress would-be Hobie owners with the strength of the bird by driving the spike that marked the center of the circle three inches deeper!) Ron Lee, of the Hobie Model Co. was flying the new 10 foot wings (which he assures me will be available *very soon)* and they look very good. The increased span has lowered the wing loading and greatly improved the roll stability. Cost will be approximately $10.00 more than the existing 100 inch wings. The Windfree is still a dominant force in soaring . . . there were three in the top five places in Standard class. The Craft-Air Windrifter is becoming very popular and is performing well in both Standard and Unlimited competition. (Now if those low-aspect ratio wings just didn't take up so much space in the pit areas . . .).

The one predominant design in Unlimited class would have to be the Legion-Air, from Cecil Haga of Arlington, Texas. This 140 inch giant looks very professional with its four-piece, aluminum-sparred wing. And the giant spoilers have got to be seen to be believed. Given some more time with the design, the Legion-Air contingent could be real trouble. (And Warren Tiahrt of Michigan was sneaking around with a prototype 100 inch Legion-Air that looks very good. I sure would have liked to have seen it fly . . . howcum yer so sneaky . . . Warren . . .????)

Col. Bob Thacker told us three months ago that he was going to win

Continued on page 78

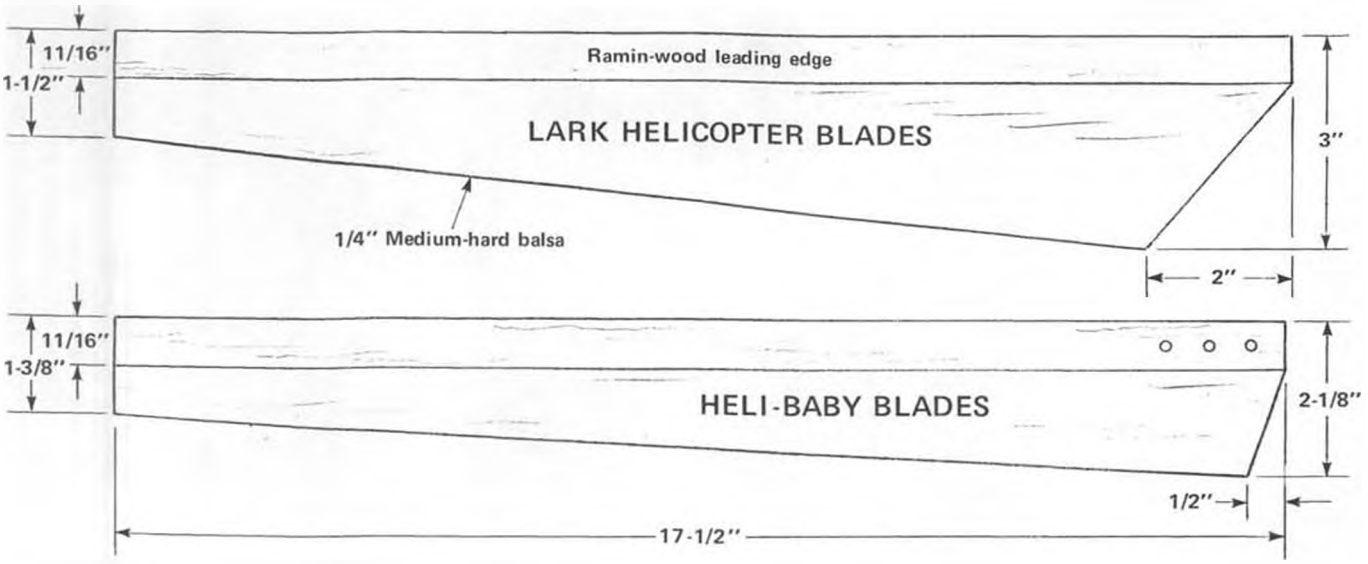
Winning Senior Team . . San Fernando Valley Silent Fliers (l to r): Rick Pearson, Terry Koplan, and Bill Nibley. NSS president, Rod Smith, peeks in as Dan Pruss makes award.

Winning Junior Team . . Rocket City Radio Controllers (Huntsville, Alabama) l to r: Greg Smith, Dick Kojako, and James Fitch. Trophy girl Linda Porter looks 'em over.

Soaring Nats Contest Manager presents Dan Pruss with his own Hobie Hawk rock . . the one Dan tried to break with his Hobie.

Mark Smith accepts first place trophy for Grand Champion of Standard Class. He's been in top three in Standard for past 5 years.

Top Flite Models' Sid Axelrod gleefully (?) accepts the Willow-Bee Wand from last year's owner, Rod Smith. It now has Thacker's tie!



CHOPPER CHATTER

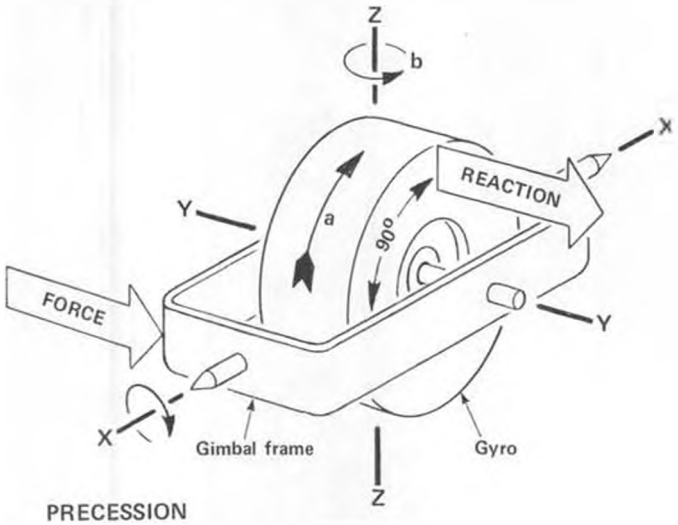
By JOHN TUCKER

• Over the past couple of years, probably the most asked question has been, "What about that KAVAN GYRO . . . does it really work as good as they say . . . is it a worthwhile investment?" Well, in addition to a couple of other items, I'll tackle that issue this month and try to clear up any misconceptions about gyros and how they work. A little further downwind, we'll talk about the flight tests of the SCHLUTER HELI-BABY and a serious problem encountered in the initial stages of testing. Additionally, Kim and I have been playing around with tapered main rotor blades for the past month or so with some unusual results, which I'll pass along to you experimenters. So . . . let's get on with it.

THE GYROSCOPE IN HELICOPTERS

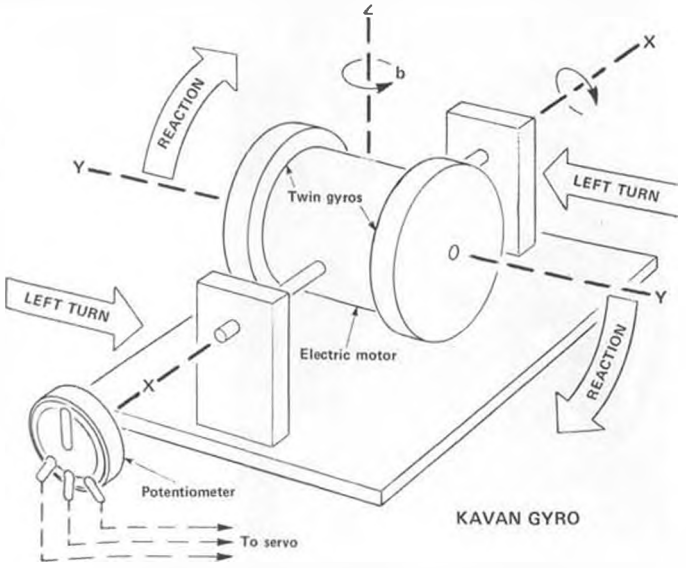
The KAVAN GYRO is essentially a very small, lightweight, automatic pilot which may be installed anywhere in the R/C model helicopter, and is used to help control the flight of the model under conditions of turbulent winds, or, when for any reason, it is desirable to maintain straight flight under difficult conditions. Obviously, one of its prime advantages is that it can absorb the work-load in controlling the tail rotor while the beginning pilot is concentrating on the other controls.

Regardless of whether you fly the nose or the tail, you'll find keeping the helicopter going in a straight direction is the most frustrating part of learning to fly the "beast." Altitude and power control, along with the pitch and roll movements, do not present too much of a problem to the tyro, however, watch out for the swinging tail! To further complicate the problem, it must be remembered that moving any one control will always require additional control inputs because of interaction of the forces of flight, especially the change in torque whenever power is applied.



PRECESSION

Applied force causes a reaction, which rotates gimbal frame around axis "X". This reaction is 90° in direction of gyro rotation.



KAVAN GYRO

The illustration shows a left turn, which makes the gyros rotate clockwise around axis "X". This, in turn, rotates the wiper arm on the "pot", thus producing a corrective signal to the tail rotor servo.

The gyro literally senses the rotational turning of the chopper and sends a signal to the tail rotor servo, which then corrects the unwanted movement. To put it in another fashion, when the pilot is flying his helicopter, his eyes "see" what the model is doing, his brain calculates just what correction needs to be made, and his muscles react by moving the transmitter control stick in the proper direction. The corrective signal is then transmitted to the receiver, which in turn decodes the information and causes the servo to move the control in the proper direction also.

You can see that the weak link is the training involved in making the brain come to a correct conclusion and the muscle control in relaying this decision. Well now, if you insert a device (the gyro) in the model, which has the capability of "seeing" a turn and can directly control the tail rotor servo automatically, you have just bypassed most of the normal sequence of events in making the model fly straight. Most importantly, the brain doesn't have to get involved! Yes, it's a valuable tool for the beginner!

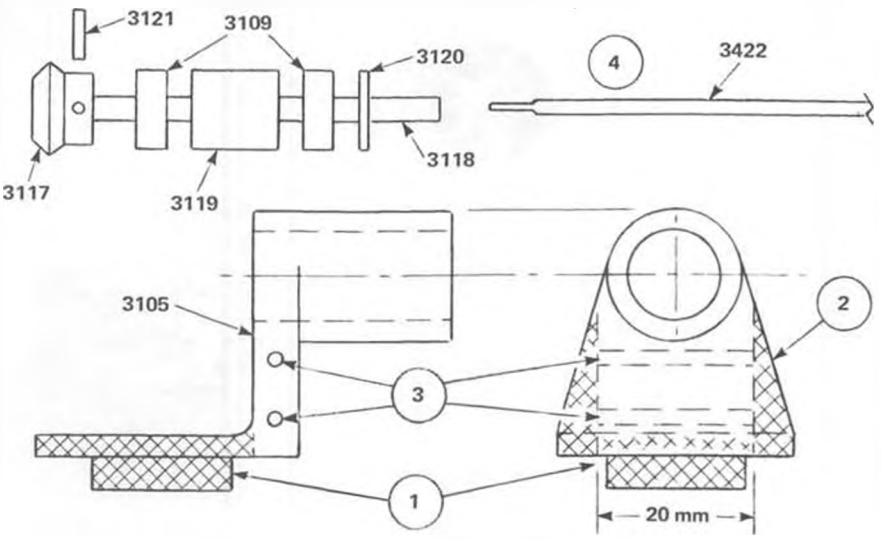
If you can afford to spend all that green-stuff, and spend many, many hours over the workbench creating your favorite R/C helicopter, you can certainly afford to install the gyro unit as the best insurance possible. And don't be too sure it's just for the beginner either . . . a great number of expert flyers still use the gyro in their everyday flying, plus the fact that the gyro also has many other applications which I'll cover very briefly a little later on.

Mechanically, the gyro consists of a small plastic cube; about 2 inches square, which contains a highly efficient 6 volt motor with 2 brass rotors mounted on each end of its shaft. The motor and rotors are mounted in a "gimbal," or frame, so as to be able to respond correctly to the gyroscopic forces involved. There are also 2 small "centralizing springs" and 2 potentiometers mounted within the cube. The spinning armature of the motor and the 2 brass rotors acts like a gyroscope. As such, it has the properties of gyroscopic action, one of which is "precession." Gyroscopic precession is the resultant action (or deflection) of a spinning object when a force is applied to this object. This action occurs approximately 90 degrees in the direction of rotation from the point where the force is applied. As a result, when a turn is made (either unwanted or wanted), the gimbal frame in which the gyro is suspended rotates on its bearings in harmony with the turn being made. This rotational movement of the frame is coupled directly to the wiper-arm of the main pot, which in turn changes the electrical balance in the tail servo electronics.

The behavior of the gyroscope, like

Continued on page 71

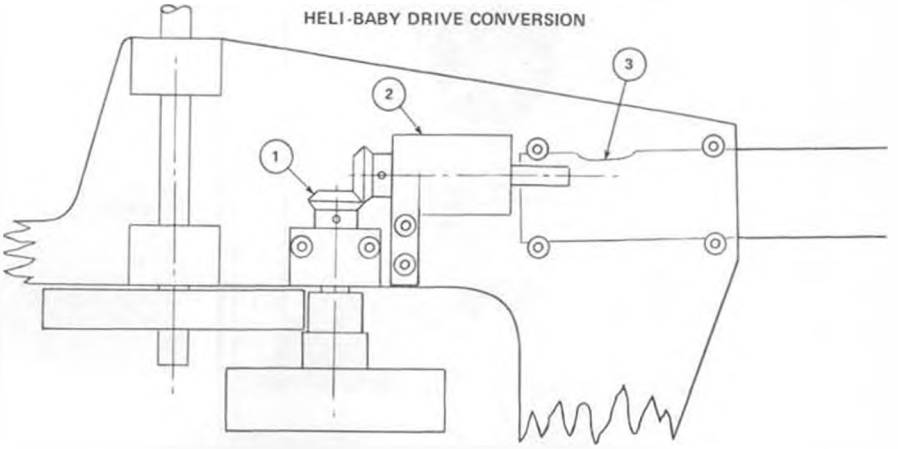
HELI-BABY DRIVE CONVERSION



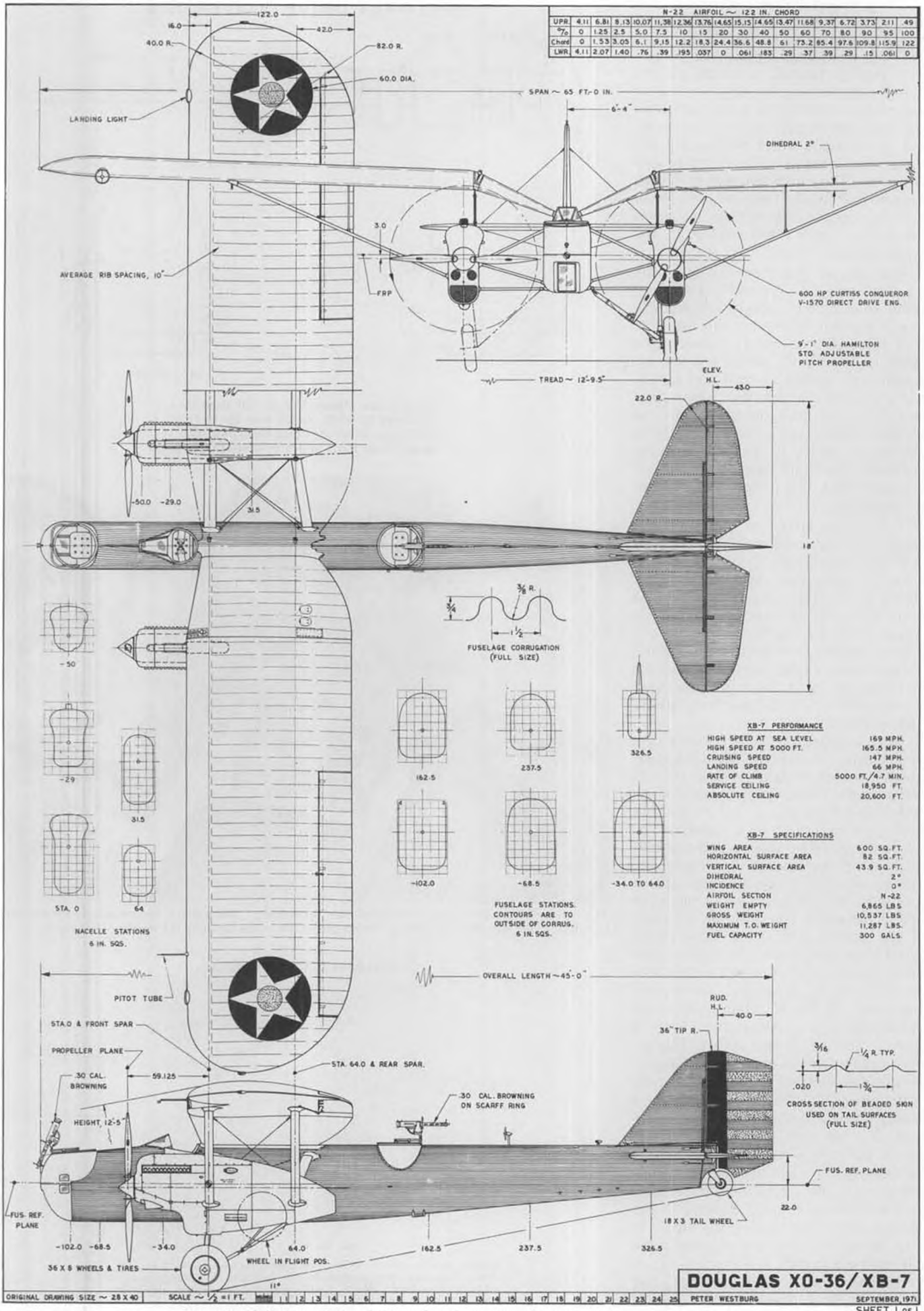
1 – Cut off base flange, file or mill smooth.
2 – Mill sides to width of 20 mm (or to fit).
3 – Drill two mounting holes (No. 34 drill).
4 – Install drive parts and bolt assembly in place.

The Kavan Gyro installation on the Schluter "Heli-Baby." Note that a mounting plate has been installed, using vibration absorbing rubber grommets, directly onto the landing skid struts.

HELI-BABY DRIVE CONVERSION



1 – Remove aluminum pulley, turn down shaft, install Kavan bevel gear No. 3117.
2 – Modify Kavan bevel gear transmission No. 3105, insert parts 3117, 3109, 3119, 3120, 3118 to complete transmission assembly. Install assembly, bolt in place with gears properly meshed. Drill holes with No. 34 drill.



DOUGLAS XO-36/XB-7

By PETER WESTBURG

• Until the advent of the Douglas B-7, the bombing force of the United States Army Air Corps consisted of a dozen Curtiss Condor B-2's and approximately 130 Keystone B-3 through B-6 bombers. All were biplanes with two engines and open cockpits, and except for slightly higher speeds and better engine reliability, they were much like the Handley Pages, Gothas and Capronis of World War I.

The war maneuvers of the late twenties in which P-1's, P-6's and P-12's intercepted the slow Condors and Keystones demonstrated that better bombing equipment was needed. At the time, there was more money in the budget for observation aircraft than there was for bombers, so the XO-27 was ordered from General Aviation (Fokker), and the XO-35 and 36 from Douglas. Two prototype and 12 production O-27's were ordered; the second prototype becoming the XB-8 bomber. The Douglas version was originally called the YOLR-35 (Observation, Long Range) but the designation was soon dropped. The second Douglas observation bomber, the XO-36, became the one and only XB-7, the subject of this month's plan.

The XO-36/XB-7 had a corrugated aluminum fuselage, beaded aluminum tail surfaces and fabric covered aluminum wings, to meet the Air Corps specification for an all-metal monoplane bomber. The General Aviation XB-8 didn't make it because it had a fabric covered, steel tube fuselage and plywood covered wood wings, and was 20 mph slower than the XB-7.

The Douglas gull winged bombers were pioneers in the development of the metal monoplane bomber, but they were soon eclipsed by the Boeing B-9, which was in turn obsoleted by the 200 mph Martin B-10.

Next month we will take a look at the smooth skinned production O-35's and B-7's, aircraft that enabled the skeleton crews of the Air Corps to learn and sharpen their bombing techniques in preparation for the Big War. •

The XB-7 at Wright Field, fitted with Scarff rings on the barrel cockpits, and bomb racks for up to 1200 pounds of bombs. Useless little mudguards had been removed.

Two Conqueror engines flew the XB-7, with its wing area of 600 sq. ft., and maximum gross weight of 11,287, at a speed of 169 mph! Wheels retracted, but stuck out enough for landing.

FOR Ms ONLY

By CHAR ROHRING

CARTOON BY RICH WAHL

• Girls, I had this crazy feeling I was going to get a lot of mail from you yesterday. When it finally came I opened one of my husband's letters by mistake. Now I'm feeling guilty because I actually read it and threw it away. It was a chain letter. It said to reproduce the letter 10 times and send it out to fellow modelers. Within three weeks you would receive 2,374 packets of nylon hinges! Maybe it was a joke, but with my luck I couldn't take the chance.

I had envisioned a postal truck pulling up to the front door with several bags of mail for me, not hinges for Bill. I contented myself with the dainty little bunch of letters offered and was pleased to find among them a real jewel from Cheryl Wallace in Largo, Florida. Cheryl, as my teenage friends would say, "You've got it all together!"

"Dear Char,

After having your wonderful article read to me by my 'Mad Modeler' (June 1975 issue), and chuckling over its very apt descriptions, I just had to write and share one of my experiences with you.

"My husband has been an avid modeler for over 20 years (The Good brothers strike again, Char) so I'd say he is pretty well addicted to this form of 'relaxation.' He has always been one to help the new guy in the hobby because, as he says, he still vividly remembers his own fly-and-crash approach to learning. I should have known something was up when one morning . . . at about 2AM, when I was half asleep . . . he asked if it would be okay to have a 'few' of the guys over to talk theory on Friday night. I naturally said yes, because who argues about a little thing like that at two in the morning, right? Wrong! Who would dream his 'few' would turn into over a dozen beginners. Thus Beginners School, as it was later dubbed, was born.

"I have to tell you I have never been hostess to a nicer bunch of guys. They are, oh, so thoughtful on these Friday nights that it is unbelievable! As you well know, a modeler is anything but neat when working, but not these guys. They wipe their feet upon coming in. One even took his shoes off so he wouldn't track dirt on my carpet. They carry ash trays around, and talk about cleaning up after the meeting! When they had their Monokote session I figured I'd have bits and pieces of Monokote everywhere, I couldn't find so much as a tiny scrap left on the floor. And when they leave it is always, 'Good night and thanks so much for letting us come.' I'm afraid these twelve grown-up men remind me of nothing more than little boys who upon receiving a special treat have to be on their best behavior so they may come again!

"I think I will be rather sorry to see these classes come to an end because I too have enjoyed sitting back watching and listening to their enthusiasm, and even occasionally adding a bit of wisdom of my own to the proceedings.

"So to you other R/C Widows out there: Be tolerant of your Mad Modelers, because they are some of the nicest guys in the world! Besides you always know where they are, who they are with, and what they're doing!

"Thanks for letting me tell you about this. Keep up the good work in your articles. I'm really looking forward to next month's column.

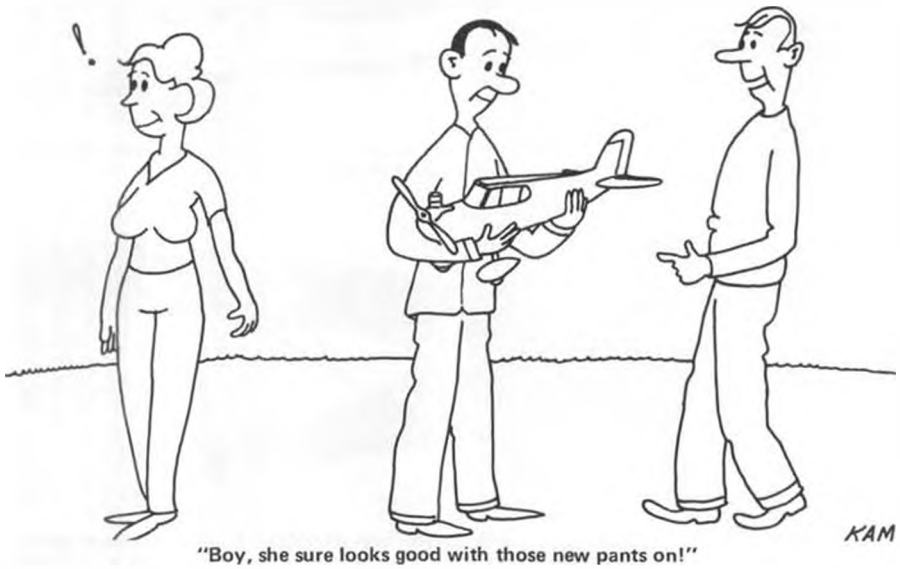
A Happy R/C Widow
Cheryl Wallace"

I like the whole letter except that tricky 2 o'clock in the morning part. Thanks Cheryl.

I'm a little surprised that nobody has written about *my* pet annoyance as far as modeling goes. It's all the little things, living and dead, that come into the house on the pants and socks of the flyer. Things like stickers, prickers, thistles, burrs, chaff and stuff. Now here is where I've had lots of experience. I have picked up, shaken off, pulled out and flicked tens of thousands of specimens.

Probably the most annoying hangeronner is a thing called Hystrix patula. It took a trip to the local Sarett Nature Center to find out that name. All these years I've just been calling it ". . . that blankety-blank weed!" This hitchhiker is about an inch long and shaped something like a badminton birdie. It goes into the sock or pant leg easily, little tiny pointy end first. The problem is getting it out. The point is followed in

Continued on page 62



"Boy, she sure looks good with those new pants on!"

STRICTLY SAIL

By RAY IHLENBURG

PHOTOS BY AUTHOR

Subject of this month's photo/story, YANKEE DOODLE, easing along on a starboard tack.

• Welcome aboard for a pictorial Tour of YANKEE DOODLE. This open house visit may be that last nudge some new sailor needs to build an R/C Yacht in one of the many classes and to try a different sort of R/C modeling. Enjoy yourself on this tour. The last few issues of MODEL BUILDER have featured construction articles for the YANKEE by our "Strictly Sail" columnist, Rod Carr. Thanks to Rod and MODEL BUILDER for keeping all of us sailors up to date. We are fortunate to have a magazine like MODEL BUILDER covering sailing events and related topics.

Many thanks to Rod for his fine shots of YANKEE DOODLE sailing in her first regatta to a hard fought fourth place finish. The winner was Rod Carr, who put his camera down long enough to show us how it's done.

The few words that accompany this tour will hopefully describe the 'extras' that went to this project. Keep things as light and as strong as possible and you should have no problems in building a winning yacht.

Photo No 1: The deck layout was kept as clean as possible. The hatch cover is 1/16 clear plexiglass and is in place in this photo. The cover "pops" into place and is 99% waterproof. Keep a little tape handy for those real windy days. The porthole aft of the cockpit is for seeing the tiller when removing the rudder. The deck is 1/16 mahogany aircraft plywood finished with surfacing resin and clear K&B Epoxy. The entire boat is finished with K&B Epoxy colors and sprayed with clear to finish the job. As always, a good finish starts with a good job of wet sanding and surface preparation.

Photo No. 2: Hatch cover removed. The Kraft KPS 16, 180 degree servo trims the jib with a 1 inch diameter drum made from plexiglass and bolted to a rotary output fitting. Sheet trim is accomplished using a single arm on the sail control in conjunction with the traveller just aft of the cockpit.

Photo No. 3: The radio antenna runs up the backstay. The traveller has proven to be worth the effort when the wind really blows. The hatch cover is in place here, and is flush with the deck surface.

Photo No. 4: This photo shows the author's idea of the radial jib boom fitting and the jibstay attachment. The turnbuckle adjusts the vertical movement allowed the jib clew.

Photo No. 5: The wide stern helps to keep the boat in order when she comes down off the planing attitude she so easily takes. This is also the end I like the competition to see. Doesn't always happen that way, but that is what keeps R/C yachting challenging.

Photo No. 6: The keel design is the author's and is known as a "fin and bulb" keel. The fin is 1/16 aircraft plywood over forming ribs and has a symmetrical cross-section (airfoil, if I may

Photo 1

Photo 2

Photo 3

borrow the word). The bulb is formed from two plastic canopies trimmed slightly and filled with 6.5 pounds of lead shot. The whole works is fiberglassed for strength. The rudder is plywood, with the same cross section as the keel fin and is also fiberglassed. The boat draws about 14 inches of water, as shown for comparison by the transmitter antenna.

Photo No. 7: The main and jib booms are made from number 9 fiberglass arrow shafts with pine dowels inserted to give the boom fitting screws something to bite into. Here you can see that the traveller lanyard makes up to the deck cleat just forward of the rudder "porthole." The stand should support the weight of the keel and *not* allow the hull to hold the weight. This photo shows how not to build the stand, in that the keel is hanging. This photo also shows a slightly unfinished stand.

Photo No. 8: Easy adjustments are what the new skipper should strive for. That way it won't be such a chore to make slight adjustments and you will be more willing to make those little changes which contribute so much to boat speed. Here we see the mainsail downhaul and vang make up at the cleats on the port and starboard side of the deck. The main sheet runs through sin-

Photo 7

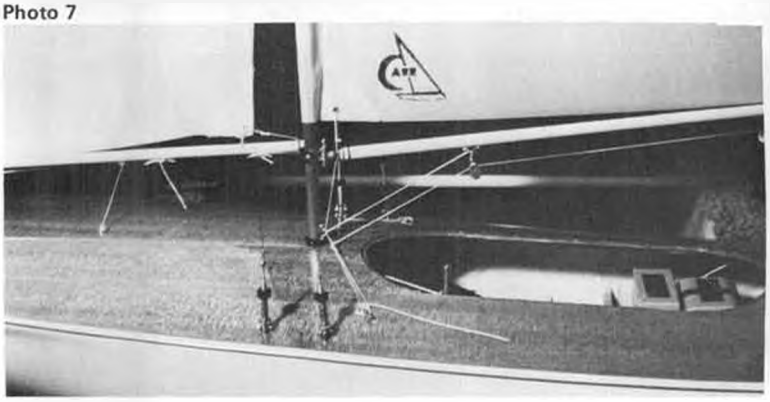


Photo 8

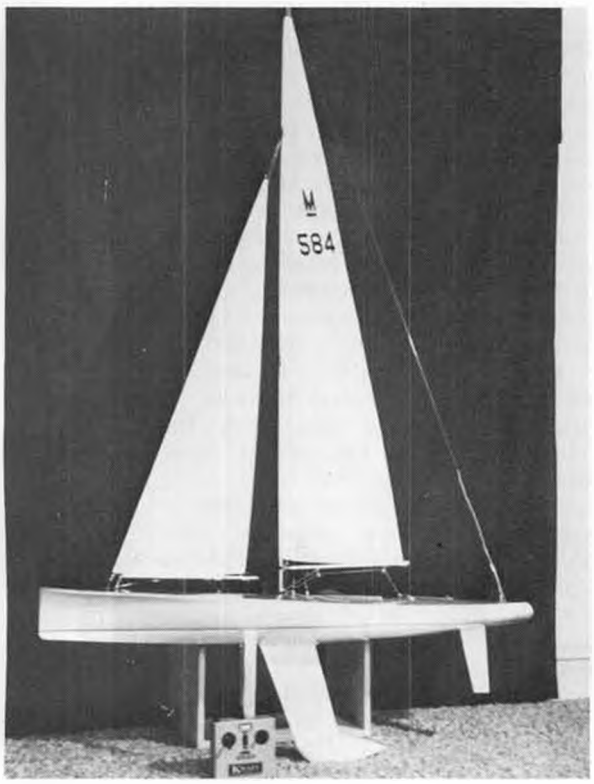


Photo 9

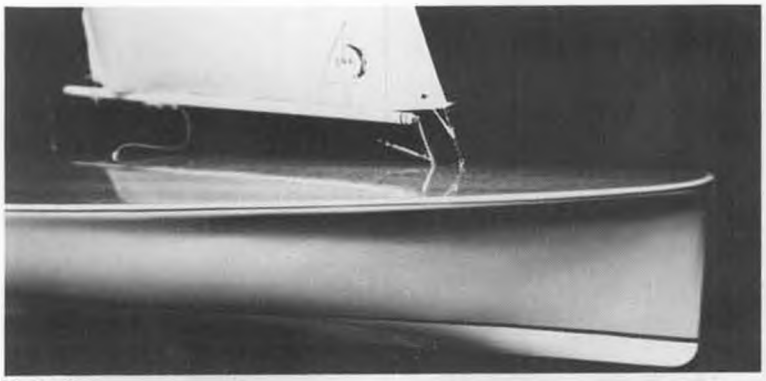


Photo 4

Photo 5

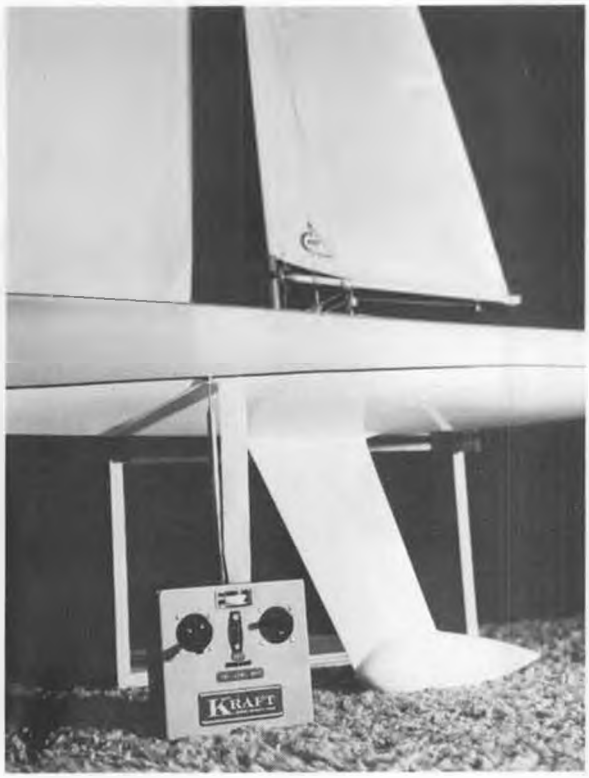


Photo 6

gle blocks to minimize wear and friction. The servo grommets on each of the turnbuckles keeps them from bouncing around and making a racket when YANKEE DOODLE travels in the back of the station wagon.

The mast is a piece of 3/8 inch tempered aluminum tubing with all of the fittings attached with 0-80 screws. Don't forget the Locktite on the screw threads! The mast steps through the deck and the O-ring seals the deck. The mainsail luff is a sleeve which slips over the mast. This arrangement keeps the turbulence around the mast to an absolute minimum, since the sail and the enclosed mast form a leading edge much like that of a wing employing a Jedelsky section. Sails are 3 ounce dacron, by Carr Sails, and do a terrific job motivating YANKEE DOODLE.

Photo No. 9: Number 584 has rather sleek lines as seen in this view. The view on the water is the one that really counts, and 584 holds her own there too. The rudder shape can be seen here. It is a counterbalanced design.

Photo No. 10: The heart of the matter in any R/C model is the radio. Kraft radio provides the guidance, with a KPS 15H manning the tiller, and a KPS 16 handling the jib trimming chores. The

Continued on page 78

Photo 10

Photo 11

Gorgeous Miss America, rechristened "Miss Sakatoon" by Ralph Dodsworth, of Saskatchewan. Judging by the hinged rudder and elevator, plus the antenna hooked to the fin, it looks like Ralph has decided not to chase after it when he goes flying!

PLUG SPARKS

By JOHN POND

• Well, it's finally happened! Although this may be old hat to the easterners, the first O/T F/F radio assist *only* contest was finally held on the West Coast at Lake Elsinore on June 28.

Staged by the San Diego "No-Name" Club, headed up by that red-headed spark plug, Red Barrows, the meet featured Texaco and limited engine-run contests. The Texaco Event, which features engine economy, was the most heavily entered, with 18 aspirants. The winning time of 52 minutes was accomplished by Bob Hoover (you guessed it, his first contest!) flying a "sleeper" that has been touted by this writer for quite some time as the Texaco model to build . . . The "Flamingo," as designed by Roger Hammer (of flying scale fame) was never featured in the Jasco Year Book, but did appear in one of the Jasco catalogs of 1938. Although it was promised as a kit by Jasco at that time, the new upcoming limited engine run rules of 1939 precluded the production of this design. Bet there are a lot more built now!

An all-black, six foot Zomby, with chrome (Monokoted) cowl, a trademark of Red Barrows' models. Super Tigre provides the radio-guided motivation.

Other Texaco winners were Jerry Otis, at 25:12, and Norman Burnham, with 16:44, for third place. Incidentally, Jerry Otis has learned quite a bit about sandbagging since he has moved to San Diego! This time, the writer was the unsuspecting victim as his Dallaire was easily 1500 feet high at 12 minutes. Otis advised moving toward the range of hills as this is where he claimed to have gotten lift. In less time than it takes to tell Pond's Dallaire was on the ground in 15 minutes total time! What wasn't realized at the time was the fact there was more lift coming off the edge of the water than the slope effect of the hills. Had again!

The limited engine run event featured five minute max flights, this time with 20 second engine runs. This event was won by another newcomer, Bob Sliff, flying a Buzzard Bombshell, for a time of 9:31. Pond finally got his New Ruler ticking for a good time of 9:31 followed by Rodger Larson flying (what else?) a Bombshell. "Ponditus," a disease defined by Jim Dean, editor of "Hotheads," set in on the writer during one of the flights. Having selected an excellent "boomer," at four minutes, he found the lift so strong that it took two minutes to get the model down (getting

Wish you could see the beautiful orange and blue Monokote covering on this 10 ft. KG-2, by Tom Mahon, of Sacramento, Calif. area.

Another view of Tom's giant KG-2. Tom's also a charter member of the Big John Owner's Association. His was the third one built!

docked a minute for overtime) and to top it off, missing the spot landing. Some days, it don't pay to get out of bed!

Excellent officiating by Gene Bach, as C.D., was the order of the day. Gene disqualified Red Barrow's otherwise winning Texaco flight as he landed too far away from the landing site. Even better sportsmanship on Red's part for accepting with no complaint!

Enthusiasm has generated to the point where another contest will be staged by the "No-Name" Club on September 21 at Lake Elsinore. If you want to thoroughly enjoy yourself, and yet act somewhat like a competitor, come on out. It really is a blast!

ENGINE OF THE MONTH

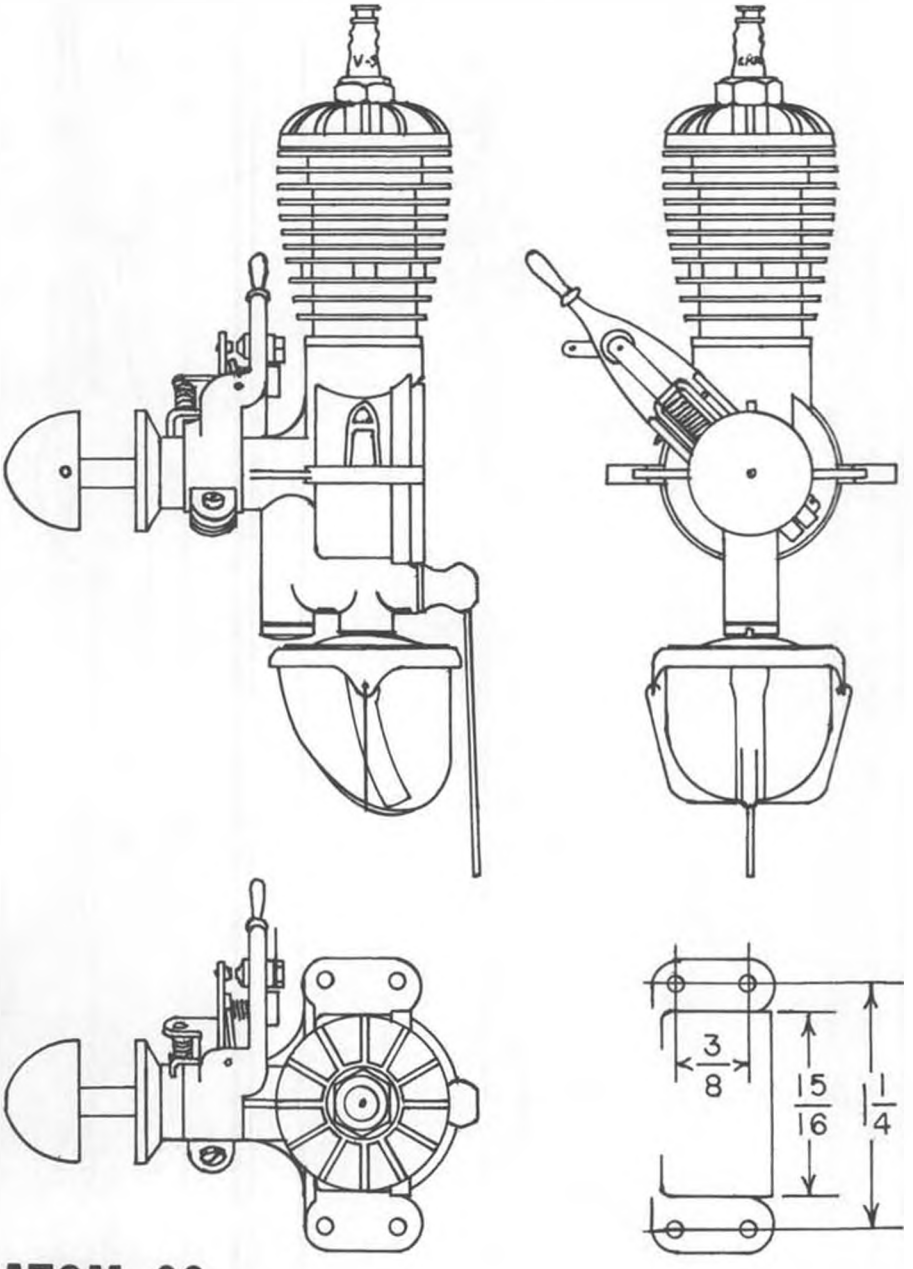
Not everyone knows that the Atom engine was the brainchild of Ray Arden, who gained such extensive fame with his Arden series of engines. Credit must be given to Ray for popularizing the small engine (under .10 cu. in. displacement) as darn few engines of this size were made commercially.

The Atom was almost an instantaneous hit when it first arrived on the market. Here, finally, was an engine with reliable starting qualities. Even this columnist had to have one. Upon viewing its size, the engine was promptly mounted in the cut-off nose of a standard rubber powered cabin model, on 1/4 inch thick balsa, and flown this way! With only 150 sq. in. of wing area, the model proceeded to amaze the writer with a seven minute flight! With others enjoying the same modicum of success, it was no wonder that almost everyone had one of these Atoms in his stable.

The first series of Atoms featured a very simplified carburetion system, consisting of an air choke that was variable by swinging the choke wire in an arc of 90 degrees. This made running of the engines extremely simple, but as the engine wore, vibration would cause the wire throttle to move. Later models featured the standard type needle valve body extended across the venturi.

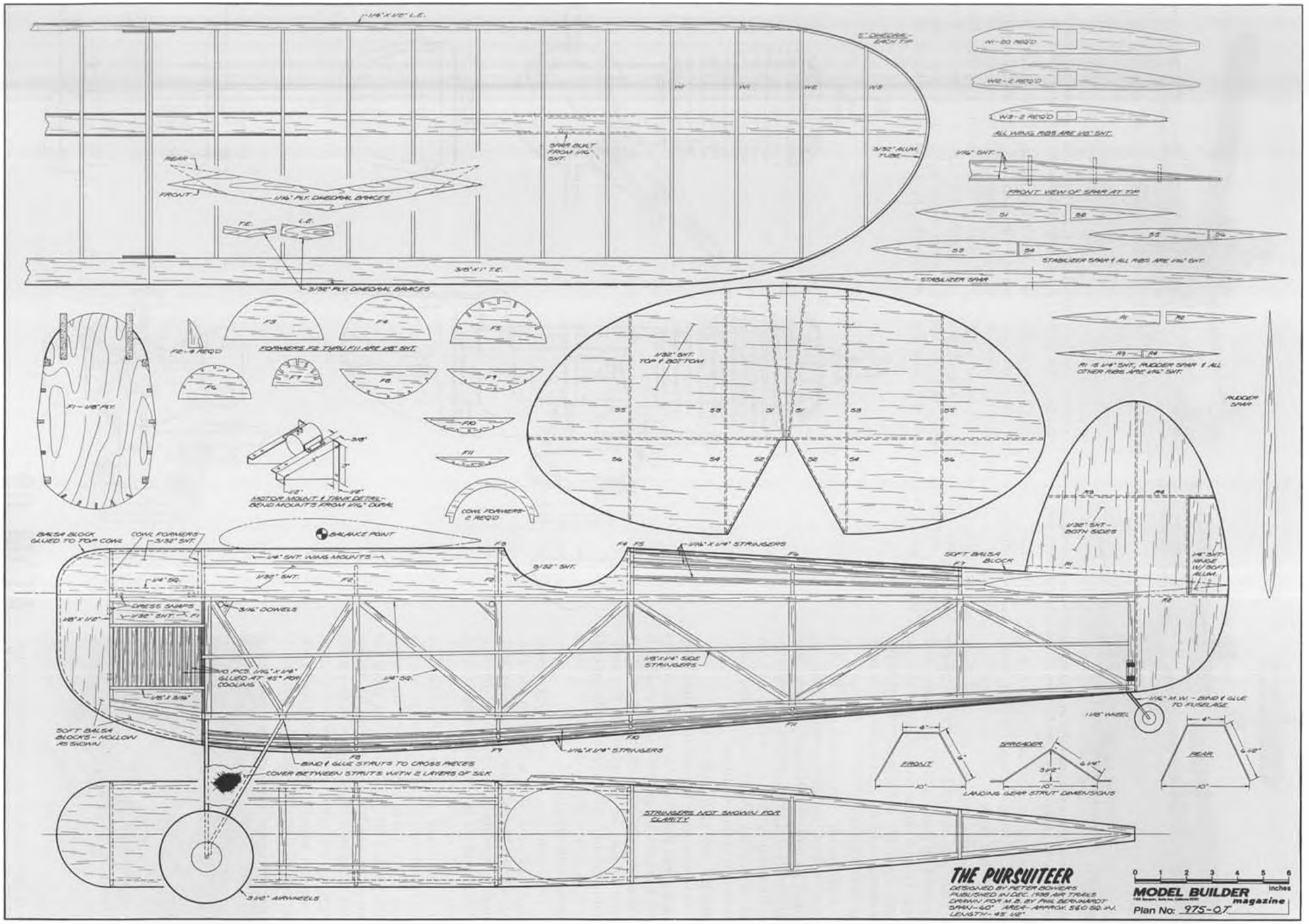
Probably the foremost proponent and biggest booster of Atoms was the fabulous modeler, Louie Garami (now deceased). On a bet, Louie went to a

R. G. Brickner built this .020 Replica of the V-K Challenger, and took a 1st place with it.



ATOM .09

Drawn by TEX NEWMAN


1-1/4" X 1/2" L.E.
3/16" X 1" T.E.
1/16" PLY DIHEDRAL BRACES
3/32" PLY DIHEDRAL BRACES
SPAR BUILT FROM 1/16" SHT.
3/32" ALUM. TUBE
W1 - 20 REQ'D
W2 - 2 REQ'D
W3 - 2 REQ'D
ALL WING RIBS ARE 1/16" SHT.
FRONT VIEW OF SPAR AT TIP
STABILIZER SPAR & ALL RIBS ARE 1/16" SHT.
STABILIZER SPAR
R1 IS 1/4" SHT. RUDDER SPAR & ALL OTHER RIBS ARE 1/16" SHT.
RUDDER SPAR
F1 - 1/8" PLY.
F2 - 4 REQ'D
FORMERS F3 THRU F11 ARE 1/16" SHT.
1/32" SHT. TOP & BOTTOM
MOTOR MOUNT & TANK DETAIL - BEND MOUNTS FROM 1/16" DURAL
CONE FORMERS - 2 REQ'D
BALSA BLOCK GLUED TO TOP CONE
CONE FORMERS - 3/32" SHT.
BALANCE POINT
1/4" SHT. WING MOUNTS
1/4" SQ.
1/32" SHT.
3/32" SHT.
1/16" X 1/4" STRINGERS
SOFT BALSA BLOCK
DRESS SHAPE - 1/32" SHT.
3/16" DOWELS
1/8" X 1/2"
10 PCS. 1/16" X 1/4" GLUED AT 45° FOR COOLING
1/8" SQ.
1/8" X 1/4" SIDE STRINGERS
1/16" M.W. - BIND & GLUE TO FUSELAGE
1/8" WHEEL
SOFT BALSA BLOCKS - HOLLOW AS SHOWN
BIND & GLUE STRUTS TO CROSS PIECES
COVER BETWEEN STRUTS WITH 2 LAYERS OF SILK
STRINGERS NOT SHOWN FOR CLARITY
3 1/2" AIRWHEELS
LANDING GEAR STRUT DIMENSIONS
FRONT
SPREADER
REAR
THE PURSUITEER
DESIGNED BY PETER BOWERS
PUBLISHED IN DEC. 1935 AIR TRAILS
DRAWN FOR M.B. BY PHIL BERNHARDT
SPAN - 60" AREA - APPROX. 560 SQ. IN.
LENGTH - 45 1/2"
MODEL BUILDER magazine
Plan No: 975-O.T.
inches

Nick Sanford has better luck with free flights. He always gets the Corben Super Ace back, but the R/C Scram . . . scrammed!

Grrrunt! Hugo Lung "assists" his Boehle Giant into the air. He's a member of the SCAMPS.

contest on the subway, carrying his Atom powered gas model in a shopping bag! Before the boys had quit laughing, Louie had won first place in Class A and was taking the subway home! Some of the best known designs employing the Atom engine were Louie Garami's designs. To name a few; Stratostreak, Half-Pint, Wahoo, the redoubtable Molecule (Nats winner!) and a series produced for Polks called Hummingbird, Eve, Haymaker, et al.

No one uses Atom engines now, as most of the engine collectors have stored them away for posterity. If you have one, keep it, and enjoy it!

SAN VALEERS ANNUAL

Who would have thought there could be an encore to the National Free Flight Championships at Taft over the Memorial Holiday? Bob Hunter and Co. (San Valeers) proved for once and all, the proximity of a big contest need not detract from the size of another.

Employing a clever gimmick, Bob wrote all interested sponsors for donations in the form of money rather than merchandise. This proved so successful that when the writer submitted his check to sponsor an old timer event, he found that Gene Wallock, of P&W, had paid for all seven events! Wotta good man!

According to early reports from Jack Transue (attending the O/T R/C meet on Sunday), the old timer events had drawn over 120 entries by then! This is not to say what the regular free flight events were drawing! To help spur interest in entries, Bob came up with the terrific idea of giving away a brand new Honda 600 motorbike for the Sweepstakes prize (co-sponsored by Taft Honda). The boys were really scrambling for that one, but Bruce Norman, flying basically the old timer events only, came out as top man! This made the 26 hour drive from Texas well worth it! Rumor has it that Bruce is trying to wangle a transfer to the West Coast for the good old timer flying out here.

Interestingly, the .020 Replica event was run on the basis of three flights only (something the writer has been plugging

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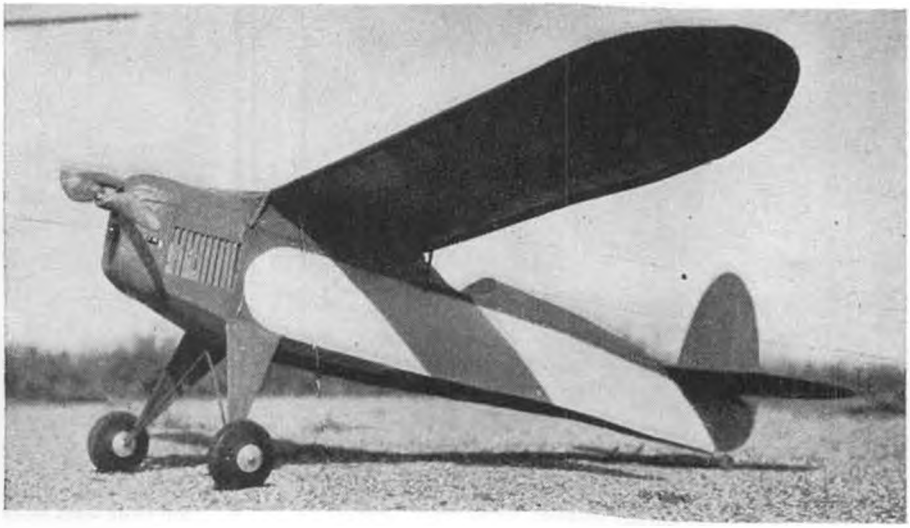
PURSUITEER

OLD TIMER Model of the Month

Designed by: Pete Bowers

Redrawn by: Phil Bernhardt

Text by: Bill Northrop



• Pete Bowers always had a knack for designing clean, simple, functional, and sharp looking models. The talent carried over into his famous Fly Baby Homebuilt, which even he must admit, is nothing more than a BIG model.

A prime example of his design skill is this snappy little "Pursuiteer," which was published in the December 1938 issue of Air Trails. Though it was de-

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Cathy Burnstine lands her Liberty Sport after the flight that gave her first place in Senior AMA C/L Scale. Model was built from a Sig kit. Cathy and her father, Ralph, kept up a running conversation during her flight which was as entertaining as the flying itself. "Two wings are better!"

Special 1975 Nationals Report

Bill Hunter dumps some 'Loosiana Dew' from his boots after chasing a model in the boonies.

This whole modeling thing has finally gotten Johnny Clemens down!

• Yes folks, there was a Nationals in Lake Charles, Louisiana, the week of August 3 through August 10. It came in with rain, on Monday, August 4th, and went out with rain, on Sunday, August 11th, but all the days in between were pretty fair.

From a magazine editor's point of view, it was kinda lonely . . . we were the only editor present . . . though Model Aviation had reporters and photographers lurking everywhere, and R/C Scale Modeler covered . . . what else . . . R/C Scale.

Attendance was down somewhat, as expected, but some categories, such as R/C Quarter Midget Pylon and Sport Scale, showed an increase of entries. Class D Pattern reached an all-new low

"Flying in the rain, I'm flying in the rain . . ." Sid Axelrod holds on while Dan Santich looks for low throttle. He found it. Sport scale.

Message to free flighters: Not all R/Cers are non-modelers. Top pylon racer Kent Nogy flew this Al Vela design in Class C Gas.

Carl Goldberg still flies in every Nats, picked up a couple of maxes in Open H.L.G. Bank it more to the right, Carl! How's the arm feel?

Bruce Mathews launches his stable Douglas observation bipe. He took 1st in Jr.-Sr. Rubber Scale, sponsored by MB.

Bob Reuther's winning "Miss Cosmic Wind" with Skyglass fuselage. Note mod to exhaust extension on Rossi to meet "no pipe" rule.

Bob Underwood's 3rd Wittman Bonzo is an excellent flying scale model. Just missed the U.S. team, placing 4th this year.

of 67, Expert and Novice combined.

Free flight, at least to us, seemed as well attended as ever. When rising air came through, the crowded "perpendicular" flight line sprang into life and the mad hornets would bore holes in the sky from all directions. Hardy "Bull Horn" Broderson kept things well organized and had car and motorcycle traffic flowing smoothly . . . most of the time.

Flying scale had a beautiful morning, with mild winds and lottsa lift. however, the extreme heat was rough on rubber, which in turn, was rough on tissue covered fuselages.

Our former C/L editor, Jed Kusik, teamed with Larry Jolly, placed first in the FAI C/L Team Race trials, and then the pair backed it up with a first place in the Nats event, just a day later, to to prove it wasn't a fluke.

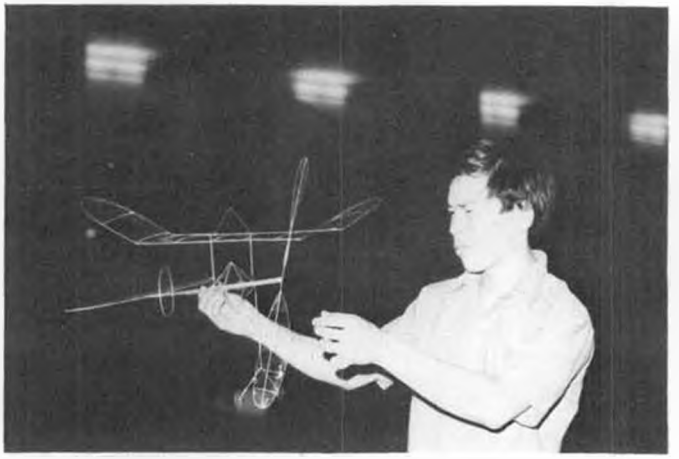
Next month, we'll have extended reports on some of the events. We could not cover them all . . . too many happen at the same time . . . and like we said . . . based on the number of reporters and photographers it had floating around, the "Washington Newsletter" will publish enough information to choke a horse.

Special note to Pro Line owners: Have no fear, Jim Fosgate is here! He can be reached at 602-943-9010. The company is NOT bankrupt, it is in receivership, so hang in there. ●

"Little" Rhett did it again, making it 3 in a row! Our team took top 3 places. Solid!

Hardly "Bull Horn" Brokenspar takes a break from directing traffic. It was "Times Square."

Queuing up for a late round of A/2 Nordic. The mood appears to be light-hearted . . . T I M E R ! ! !



Richard Whitten is not putting a hex on his own indoor cabin ship. He's getting rid of some prop wobble. Won JSO event with 13:53.9.

Chuck Rudner (left), MACA's "Killer of the Year" for 1974, and Warren Sanders, from Washington, D.C., have at it in Cincinnati.

New MACA president, Rich "Von" Lopez, left, and Mike Guthomson at the '74 Nats. Rich is from Daly City, Calif., Mike's from Texas.

control line

"FROM THE HANDLE"
By DAN RUTHERFORD

• Bill Northrop certainly has courage. Or a short memory. A few months ago I started writing a Combat column for AAM. My first column saw them get threatened with a lawsuit. After just three Combat columns had appeared, AAM went belly-up. The lawsuit and subsequent bankruptcy weren't related, but I was involved in a small way. If you believe in people being jinxed, would you ask me to work for you after what happened to AAM? Sure you would. If you have courage . . . and a short memory.

While I hesitate to fill this column with trivia, I guess that I should take a few lines to tell you who I am, what I am interested in, etc. On my birth certificate, I am Daniel Lee Rutherford (thanks Mom, it's a swell name) but I am "Dirty Dan" to all my modeling friends. I live in the Great Northwest where it does not rain all the time. Really!

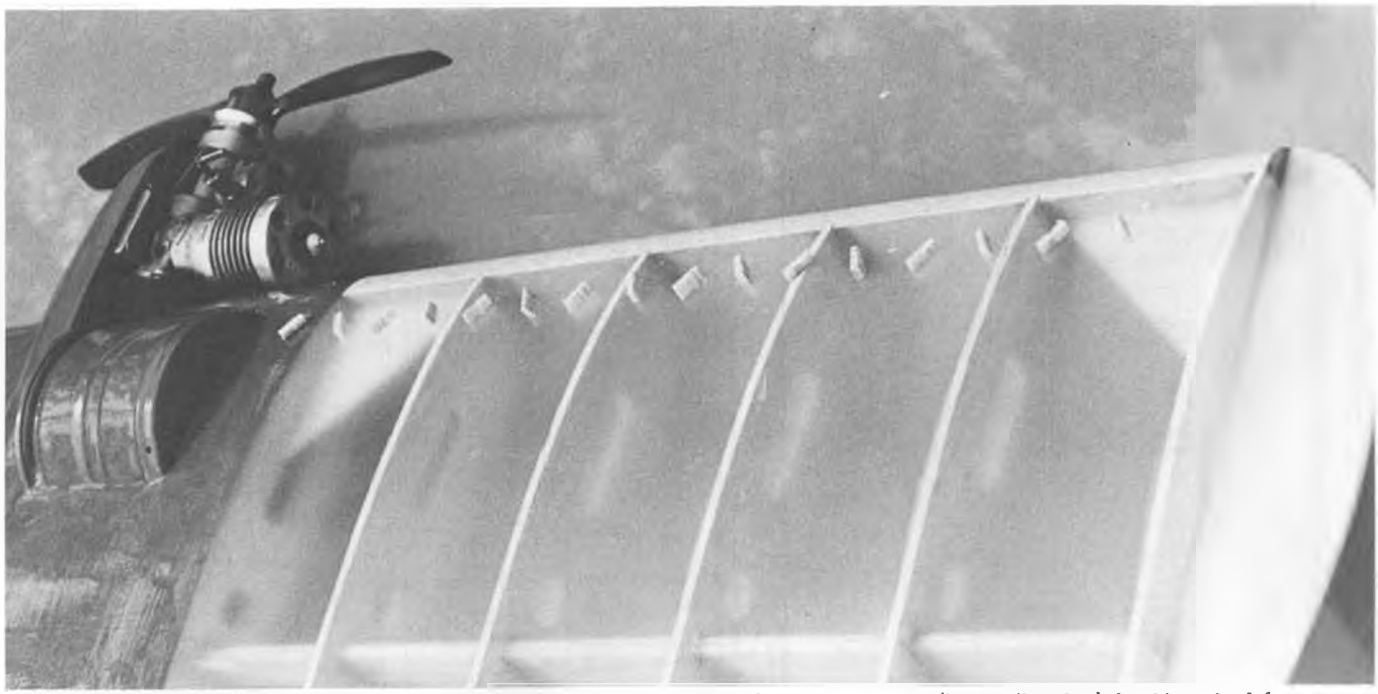
I am an independent sales representative, with my primary employer being A&L Distributors (Bud Anders and Larry Leonard), out of Van Nuys, California. Pay. attention now. I am quoting from my business card. "A&L Distributors, Inc. Stocking over 150 lines of modeling supplies. Specializing in R/C Planes, Cars, Boats, Parts and Accessories." Yes, folks, I am a gung-ho C/L Freak, running around the N.W. making my living selling R/C stuff to hobby shops! Bud and Larry also stock all of the good C/L and F/F items, and it is hard to find a job that you really enjoy, so I can't complain . . . But it is an unusual situation.

Unlike most contributing editors, I am not an old hand at modeling. Dad bought a Jim Walker trainer of some kind for me when I was about 10, but he was the only one to try to fly it. At 14 I got involved with motorcycles and have thousands of miles "in the dirt" behind me. As I have a tendency toward getting totally involved in things, motorcycles took up all of my spare time, and the model planes got put on low burner.

About 1969, sometime, I was out wheel-walking my Greeves 250 just to keep the neighbors on their toes, when I noticed a guy flying in a ball field. We talked for awhile. Next time I was at my parents' ranch I got the old plane out and fixed it up, learned how to fly it, and started getting involved in Combat. The guy flying in the ball field was Ron Scoones, by the way. Ron and I

Result of engine-to-engine mid-air. Motor belonged to Tupper, of the Polish Pit Crew, Chicago. Ouch!

Modified "Carrier Pidgeon" from M.A.N. plans, by Joe Koch. It weighs 26 ounces and is powered by a Super Tigre .35.



Boeing jet style vortex generators on Howard Rush's Goldberg Jr. Satan. More lift and tighter turns (in one direction) should result. A few inside and outside loops should tell the story. Dandy for catching combat streamers, anyhow. Did they work, Howard?

competed as a team for several years and have done a lot of winning (and losing!) together. Ron was ranked as the No. 11 MACA Combat flier last year, and is chairman of the new Combat Advisory Committee to the Control Line Contest Board.

All of this means that I have been modeling for only six years, but I have really been into it and can make up what I lack in experience with enthusiasm, double-talk, and B.S.

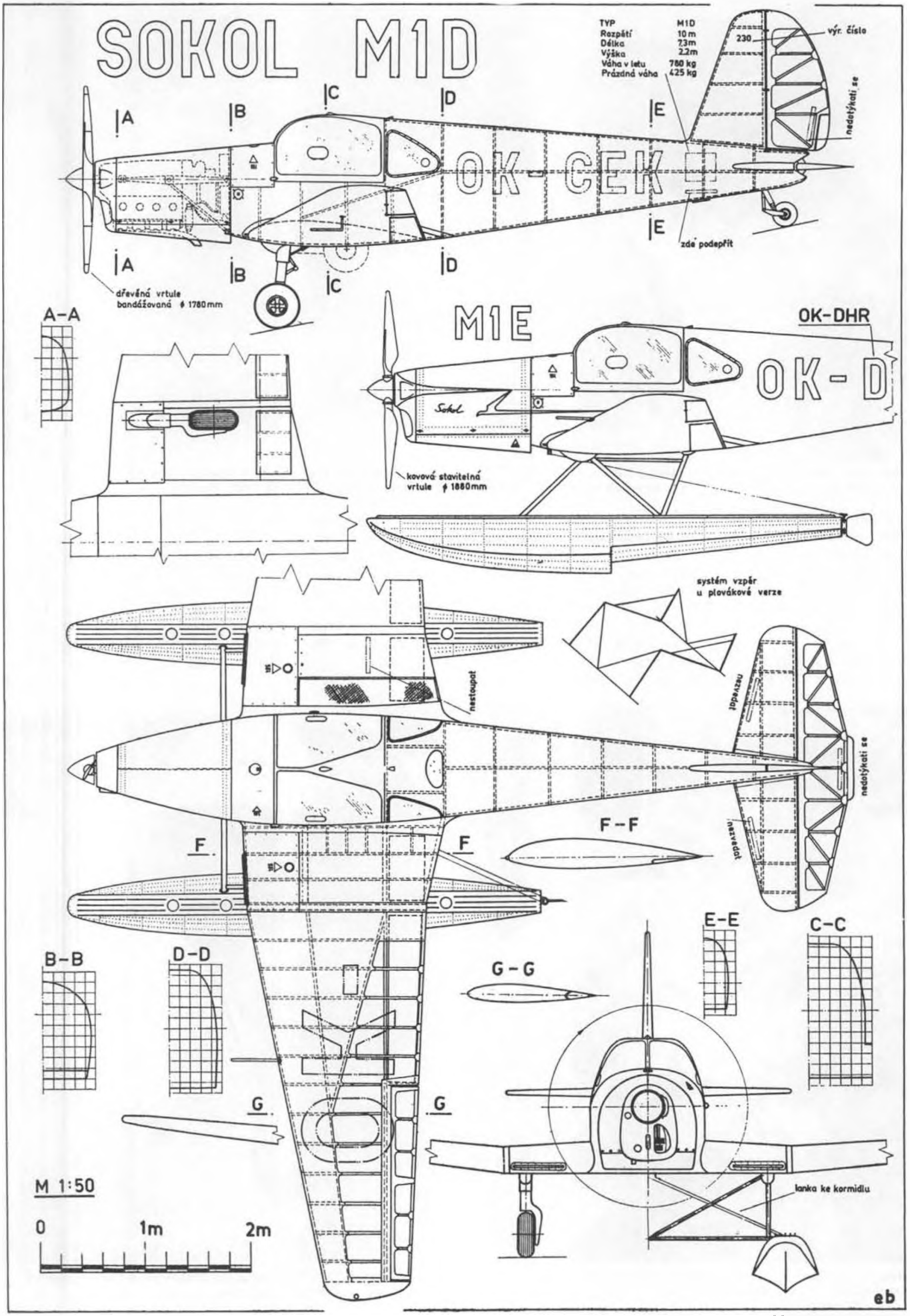
With all the different forms of modeling available, it is hard to settle on just a few events to compete in when you are like me and think that most everything that flies is pretty neat. After trying just about everything from 29¢ Sleek Streeks to R/C, I found that C/L flying, where I got started, was the best for me.

The big thing in C/L for me is Combat, and I fly all the classes: AMA (Fast), Slow, FAI and .049 Combat. The Racing events are great, and I fly Rat, Slow Rat, Goodyear and Mouse. I never thought much of the Stunt event until recently. I always figured that if you could handle a honkin' Fast Combat

Continued on page 84

Steve Sacco, from Boston, Mass., and his Bosta. This model features a molded fiberglass leading edge.

Old Number 9, Rich Lopez, in the MACA 1974 top ten, doesn't wear a plain white shirt any more.


SOKOL M1D
TYP M1D
Rozpětí 10 m
Délka 7,3m
Výška 2,2m
Váha v letu 780 kg
Prázdná váha 425 kg
výr. číslo
230
nedotýkati se
OK-CEK
zde podepřít
dřevěná vrtule
bandážovaná ϕ 1780mm
A-A
M1E
OK-DHR
OK-D
kovová stavitelná
vrtule ϕ 1880mm
systém vzpěr
u plovákové verze
nástoupat
nedotýkati se
F-F
B-B
D-D
E-E
C-C
G-G
lanka ke kormidlu
M 1:50
0
1m
2m
eb

Dick Johnson's "Flying Pancake."

The Ellehammer, built by Ted Dock.

MODEL BUILDER's Premier Parcel Post Proxy Peanut SCALE CONTEST

PHOTOS BY WARREN SHIPP

OFFICIAL CONTEST RESULTS

First Place Overall and 1975 GRAND PEANUT
Morane Saulnier, by CLARENCE MATHER
San Diego, California

First Place, Pioneer Class
Blackburn Monoplane, by JOHN BLAIR
Green Mountain, North Carolina

First Place, World War I Class
Morane Saulnier, by CLARENCE MATHER
San Diego, California

First Place, Golden Age Class
Waterman Gosling, by PHIL COX
Highland, Indiana

First Place, World War II Class
Bucker Jungmann, by WALT MOONEY
San Diego, California

First Place, Modern Class
Fike "E", by JIM GERZ
Chicago, Illinois

Highest Score in Scale Judging
Sopwith Triplane, by ROALD TWEET
Rock Island, Illinois

Best Flight Score
Fokker E-III, by ROBERT STEWART
Hornby, Ontario, Canada

Best Shipping Container Tie:
Snoopy's Doghouse, by JAMES HYKA
Warrensville Heights, Ohio
and
Sopwith Hangar, by ROALD TWEET
Rock Island, Illinois

Worst Postal Damage
Lockspieler and Shinden Canards, by ALEC PEDASHENKO
Woomera, Australia

Best Model from Walt Mooney Plans
Waco SRE, by DANIEL WALTON
Sepulveda, California

Best Peck-Polymers Kit
Pietenpol Sky-Scout (Mod. from Air Camper kit), by JOHN KREKOVICH, Overland Park, Kansas

Best Biplane
Sopwith Pup, by JOHN BLAIR
Green Mountain, North Carolina

Best Overseas Entry
Luton Minor, by ANDREW MOOREHOUSE
Cambridge, England

Best Junior Entry
Hawker Fury, by LAKE WILSON (Age 13)
Long Valley, New Jersey

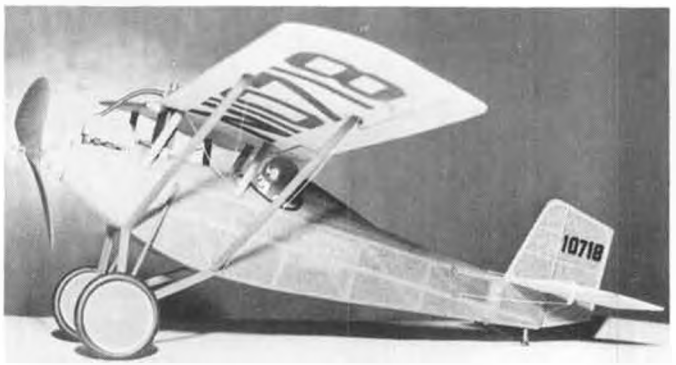
Oldest Qualifying Contestant
RAY MALMSTROM (Age 60)
Harlton, England

Youngest Qualifying Contestant
DAN EBLE (Age 11)
Uplands, California

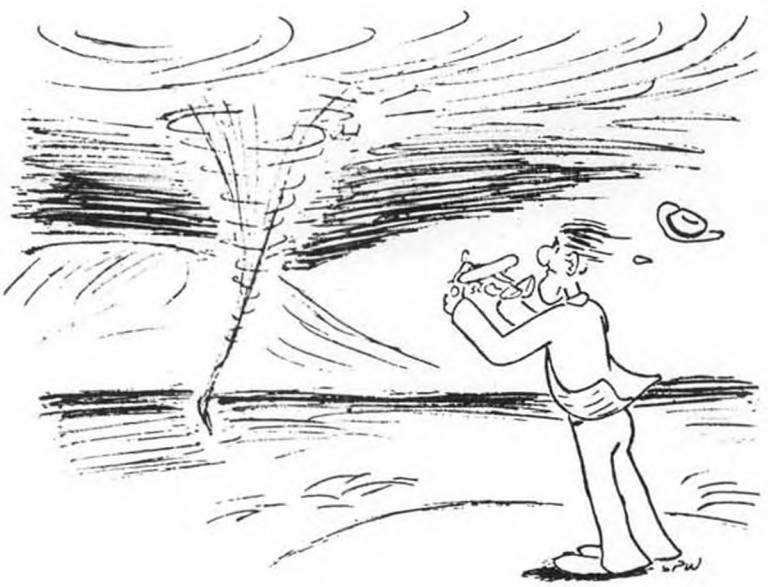
Most Distant Entry
DAVE LINDSTRUM
Al Kuwayt, Kuwait

Roald Tweet's highest scale points winner.

Blackburn Monoplane, by Don Eble, was 2nd in Pioneer Class. Blackburns placed 1st, 2nd, and 3rd.



Pietenpol Sky-Scout, modified by John Krekovich.



All test flying has been done on cool, calm days; this should make trimming necessary for flying it in the hangar minimal.

PHEYING A PEANUT

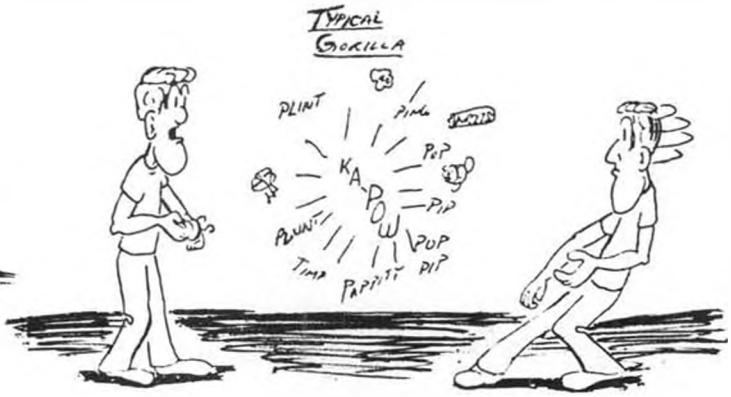
By STEVEN WALTON

This series of cartoons and flying instructions were a part of Steve's scale presentation for Model Builder's Proxy Peanut contest. We thought you'd enjoy them as much as the contest officials and fliers did. . . . Oh, by the way, Steve is 16 years old . . .

The plane flies best in a fast climbing left circle.

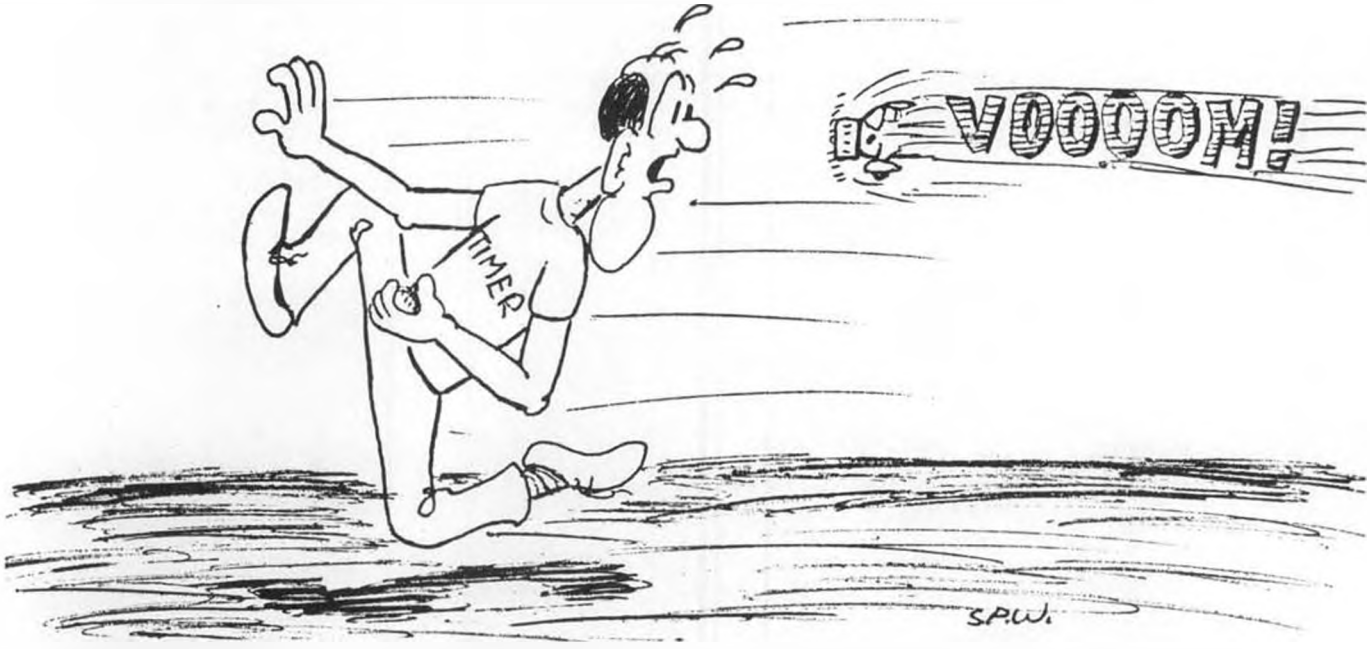
It is imperative that this plane has a good initial climb; therefore, when launching, point the nose 15 to 20° skyward and toss GENTLY aloft.

On a 16 to 1 winder, the Mister Mulligan took 70 winds on the winder and did approximately 30 seconds consistently.

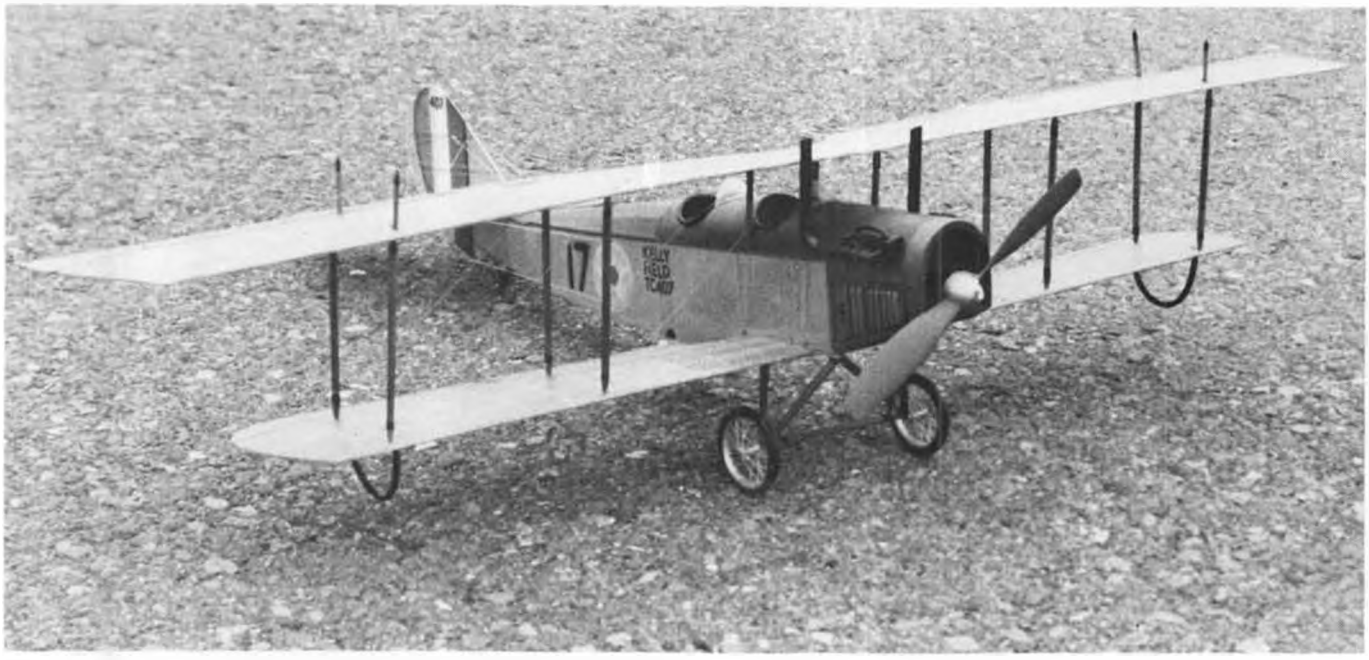


Beware of gorillas, as they will prove fatal to this plane.

On occasion, the rubber band will wad up in the nose; this will usually result in a scale glide (which resembles closely that of a clump of grass or a brick). Due mainly to this, it is desirable to stay within catching distance.



One last thing; make sure the flight path is relatively clear of humanity, for if the ship fails to climb more than 10 feet in its first 2 or 3 seconds aloft, it has a tendency to crash into the nearest obstruction.



George James built this Jenny, a highly modified Comet kit. Powered by a VL Products electric motor.

FREE FLIGHT SCALE

By FERNANDO RAMOS

● This month I have several items that I would like to cover, but first I think an explanation is in order. A couple of months ago I said that I would be making a kit conversion of Fly-Lines' Curtiss Robin. Well, the project is alive and kicking, but I haven't had the time to get it any further along than I presently am. However, I do see daylight ahead and you will be seeing this two-parter very soon.

Electric as a motive source for model airplanes has been around for quite some time, but it has been only recently that anyone took it very seriously. When Mattel introduced its very popular High-Riser and Super Star electric powered, quick charge flying models, the modeler saw real potential in electric power. Since then, of course, we have seen additional units on the market ranging in power from small F/F all the way to large R/C models.

The biggest advantage to electric, as I see it, is that there is no noise problem, and the way things are today, that's certainly a big plus. This means that school grounds, where gas powered models are no longer allowed, will probably be receptive to electric models. Charging time can be varied so that short motor runs are possible in the case of limited flying space.

Does electric have any disadvantages? Yes, I think so. Weight for one. Electric motors seem to be inherently heavy, as are batteries. Another interesting point is that the initial torque of the motor is very high, followed by a cruise type condition, followed by a free-wheeling-prop condition. In my observation with scale models, this causes a model to fly left under the initial torque, then all of a sudden it will start to go to the right under the cruise condition. Too often this right turn gets tighter and tighter resulting in a crash. Of course, not all models react this way, but I did see several of them do this at a recent Flightmasters all-electric contest.

One way to rectify this problem is to have a variable pitch prop. As yet, I haven't looked into how this could be made, but I can see a future article on this subject right around the corner. If any of you have any ideas on this subject . . . pass it along for the rest of us to see!

In the meantime let's play with what is presently available, and to help you along, here are a couple of ideas that I

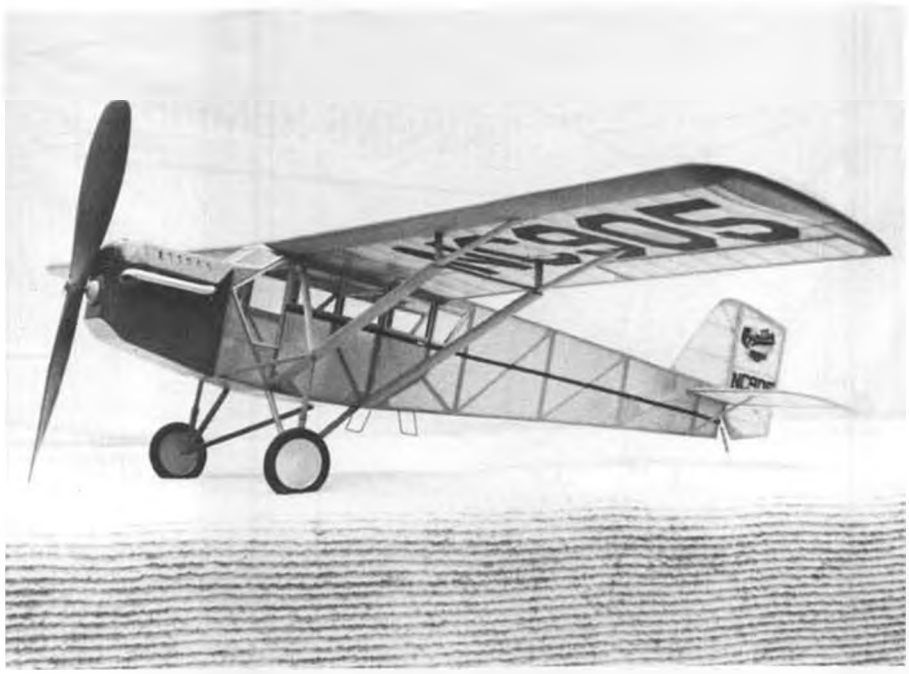
VL Products electric powered Longster, possibly from an R/N Models kit, built by Larry Moss. Great design for flying scale.

Real Anzani three-cylinder engine from which model at right was copied.

would like to pass on. For scale work, I personally feel that geared motors are the only way to fly. I've gotten arguments on this subject, but I still prefer geared motors for scale models. For one, a geared motor can swing a larger diameter prop, resulting in a more realistic flight pattern. The non-geared motors have to swing smaller diameter props in order to turn the very high RPM's which these motors are designed for.

Since many scale modelers probably have one of the Mattel units, I would like to show how it can be modified for lighter weight and easy installation. The thing of course, is to take the unit completely apart. Now look at Figure 1. See how the prop shaft has been mounted on the motor, using some shim brass stock and 1/8 inch O.D. brass tubing. The prop shaft should be in place prior to soldering to insure proper meshing of the gears and straight prop shaft alignment. The three tubes around the motor are for mounting. Take 3 pieces of 5/32 brass channel about 3/8 inch long and

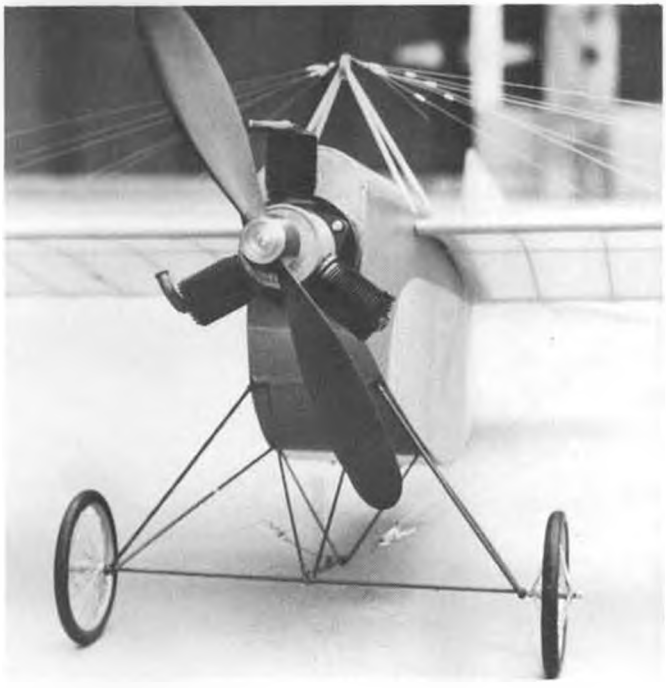
Continued on page 69



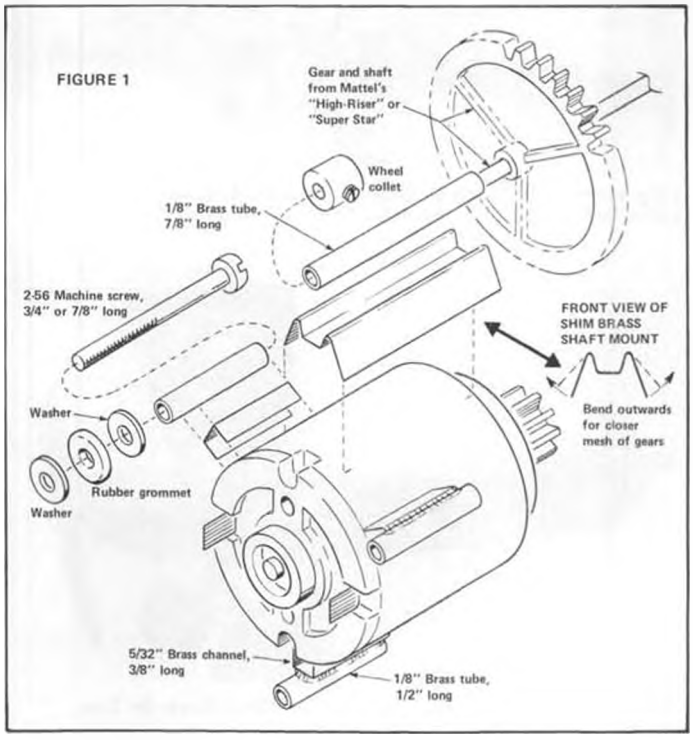
This Curtiss O-X5 Robin was built from Cleveland 3/4 inch scale plans by Phil Cox, Highland, Indiana. Span is 30-5/8 inches, and weight, without rubber, is 2-1/2 oz. Glen Goubeaux photo.

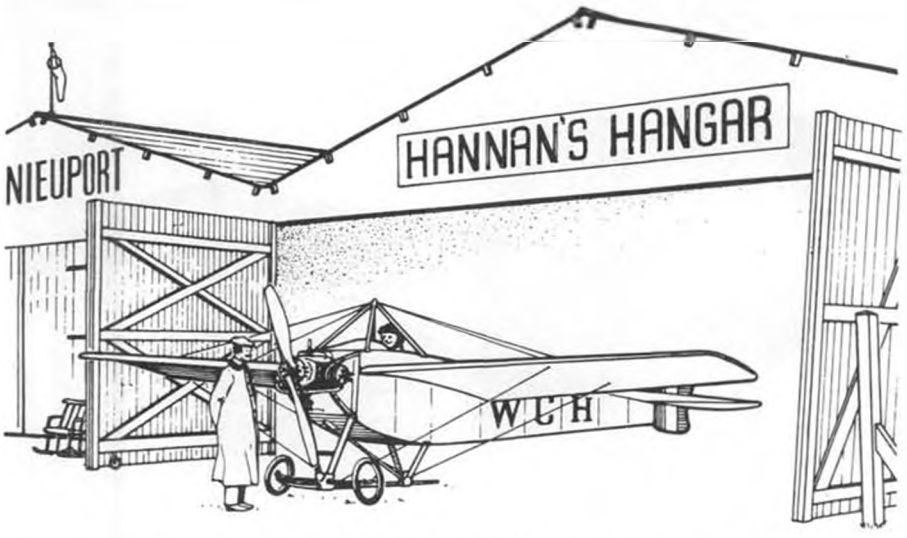
Bill Stroman's Sopwith Pup is powered by the popular VL Products electric motor.

Jack Bales constructed this C/L electric powered Gee Bee. Electric power is really beginning to catch on with scale modelers.



Fernando's Caudron, built from an R/N Models kit. The VL Products electric motor is hidden under the scale Anzani engine. See text.





. . . Anybody who still thinks the sky's the limit is short of imagination.

• Our lead-in line this month was contributed by Douglas Gillies, of Glasgow, Scotland, who found it on a small desk calendar. Doug was host to your author during a recent R & R (Research and Recreation) trip, wherein we visited museums, modelers, and historians in France, England and Scotland. We'll be commenting upon our findings from time to time, but by way of a brief summary, we found aviation alive and healthy virtually everywhere, and the enthusiasts are absolutely first-rate human beings. We were received with cordiality, treated to fine meals and personally conducted tours. Kind words were heard frequently regarding this publication, for which we are most appreciative. Our debt to our hosts is enormous, but we shall make every effort to repay it in some form or another. The common bond among aviation enthusiasts is a marvelous thing, and deserves careful nurturing at every opportunity. Would that the world's politicians could get along as successfully as aircraft admirers!

NEW ALTITUDE RECORD?

As the result of a dare by C.G. Scott, we flew the prototype Escondido Mosquito (8" wingspan) inside an Air France Boeing 747 flying at 33,000 feet. The flights were witnessed by professional magician David Lawrence, of England, and a charming French stewardess, whose name, regretfully, was not recorded. The aft section of the cabin was chosen for the experiments, as the few passengers there were sound asleep, in spite of the fact that it was broad daylight. Durations were quite limited, owing to the cabin pressurization turbulence, but considering the speed of the 747 "flying site," the Mosquito may have also established some sort of distance record for rubber-driven models while aloft!

A LARGE MEASURE

That's what Xerox machine operator Tom Matterfis sez we will get if we persist with our copying of plans by that system. According to Tom, all copying machines, by law, must expand the image slightly; the rather naive assumption being that this will prevent exact duplication of money or negotiable securities. Thus, in the case of Xerox machines, the amount of stretch involved is about 3/16" in 13", or .01442% which could cause modelers some trouble during the static scale judging portion of a contest! Further, copies of copies accentuate this effect, so a fourth generation print might have "grown" some 3/4 of an inch! To play this seem-

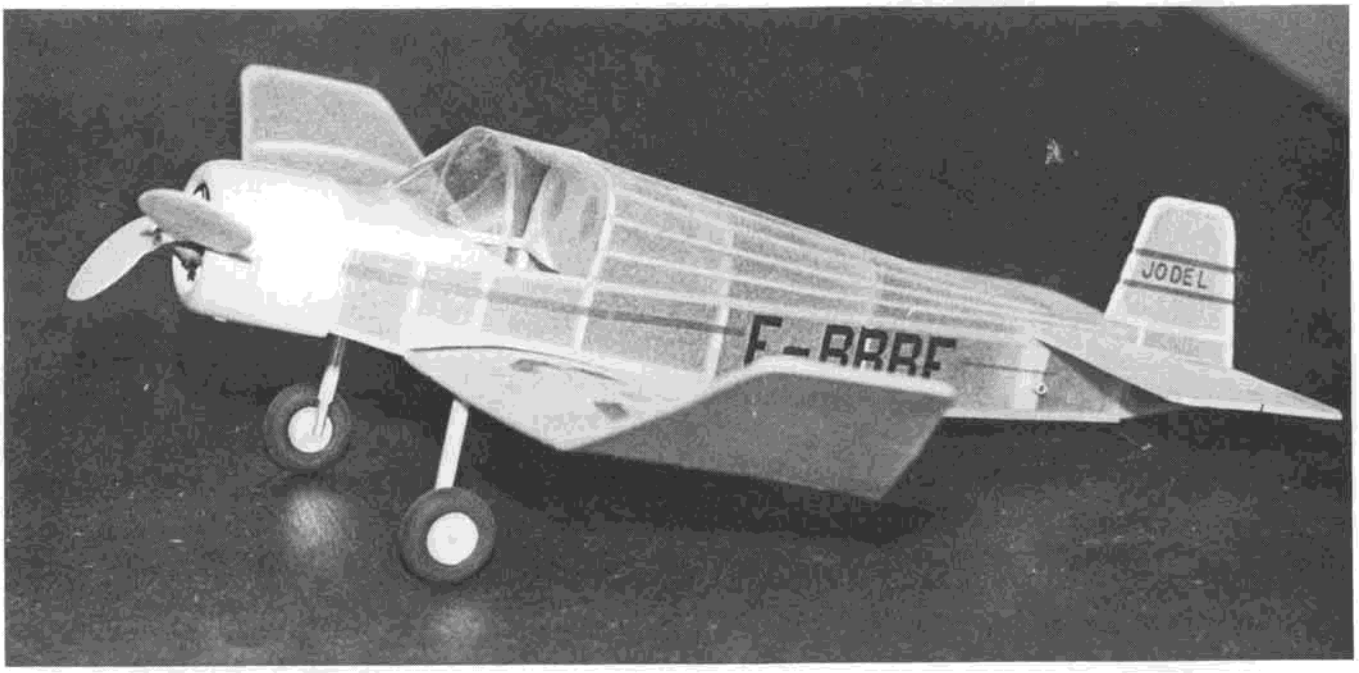
Continued on page 76

CO_2 powered BE 2e, by D. Banks, Kingsbury, England. Photo taken by Ron Moulton, Managing Editor of Aeromodeller.

Prize-winning BD-6 rubber-powered model by Bob Clemens, spans 16 inches. Excellent workmanship and photography.

Fokker C-1, in Russian markings, by Dave Stott. Photo by Tom Nallen.

F6F Hellcat in French Naval markings, built from "Flying Scale Models" plans book. Built by Aime Roger, of France.



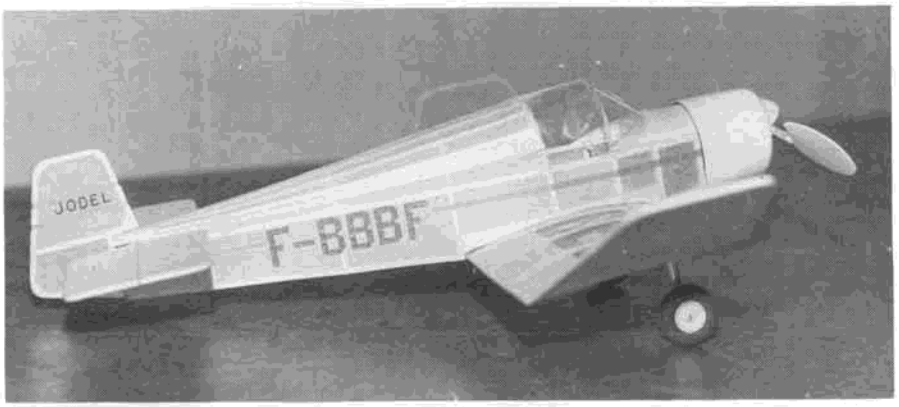
JODEL D.11, Peanut Française

Our regular Peanutter, Walt Mooney, is taking some time off, and so, while the cat's away . . . . we bring you another version of the popular Jodel series, and again, it's a little unusual . . . . By REX B. POWELL

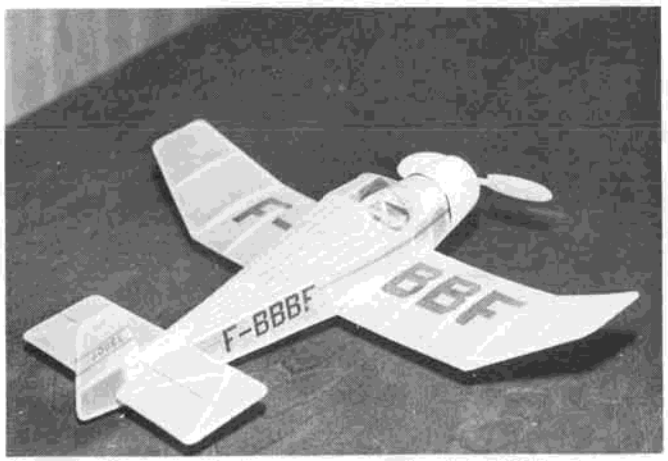
PHOTOS BY AUTHOR

• The Societe Des Avions Jodel has had a significant effect on private flying in France and Europe. This all began in 1948 with the design and construction of the Jodel Bebe D.9. The immediate success of this aircraft, designed primarily for "home construction," lead to the development of a two seat version of the D.9. The prototype of this two seater was the Jodel D.11, flown first in the spring of 1950. The D.11 prototype was quickly followed by many versions such as the D.111 and the D.112. The distinguishing feature of the D.11 was the 45 hp Salmson 9ADb nine cylinder radial engine.

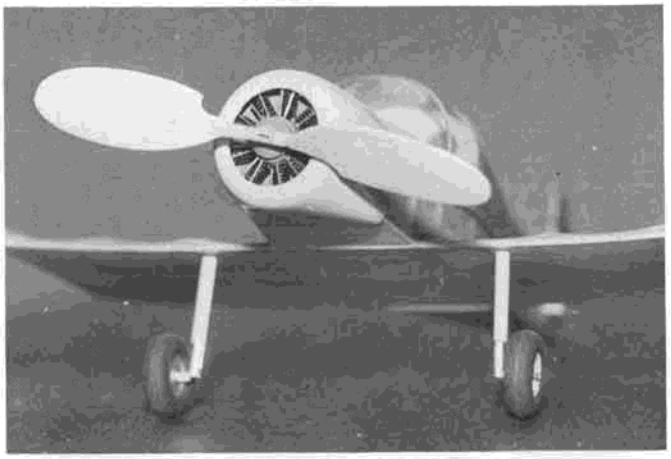
Continued on page 77



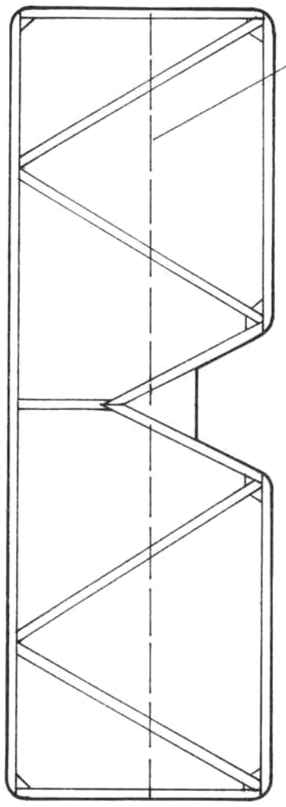
Vac-U-Form was used to make cowl halves and wheels, however, these can be made from balsa without too much difficulty.

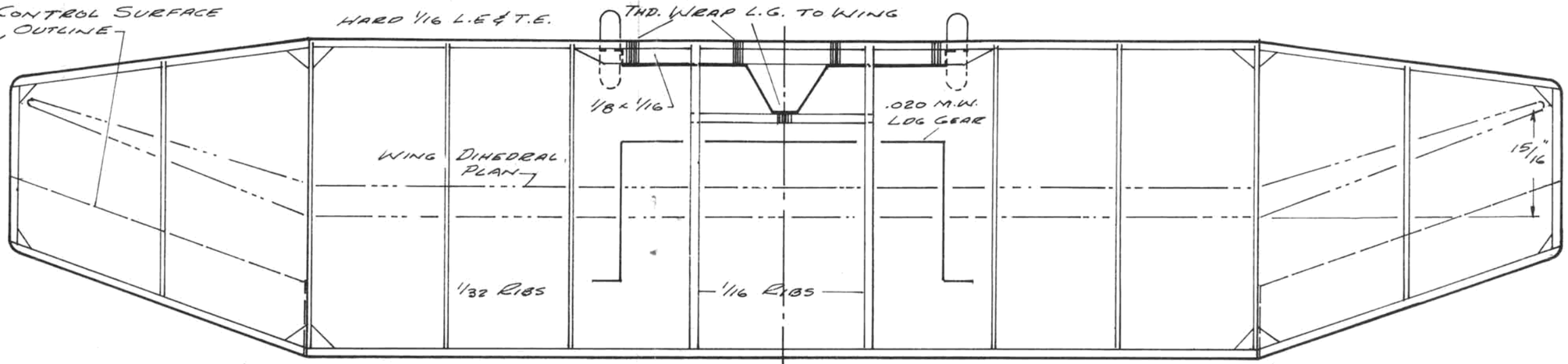


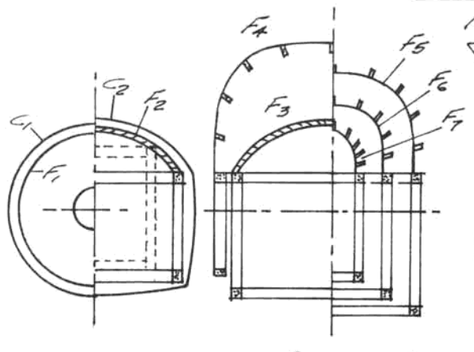
Generous dihedral and stab area are guarantees for stability. Canopy does not require molding, can be made from flat stock.

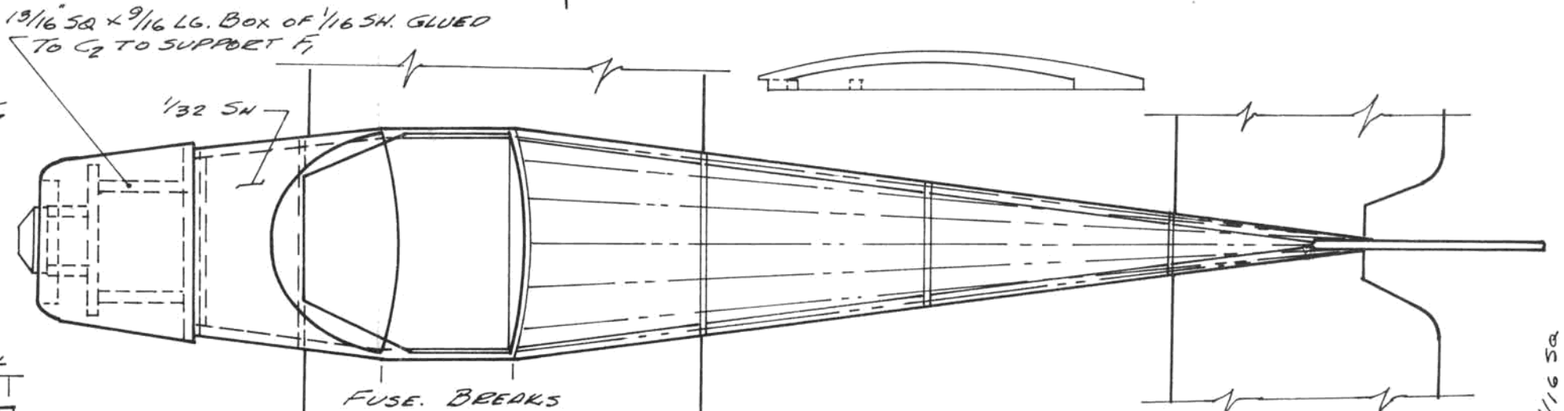


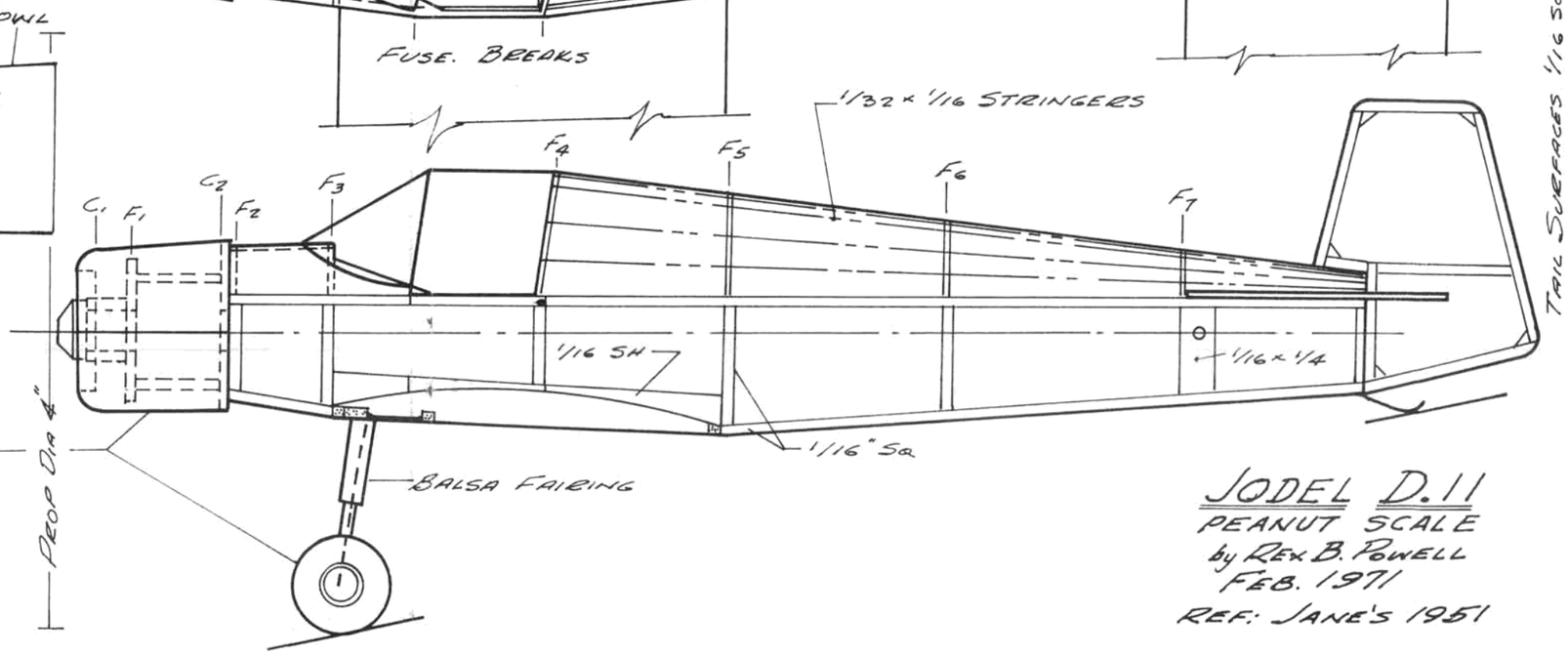
Unusual prop shape is dictated by radial engine cowl. Cylinders are built up from black nylon bolts.











JODEL D.11

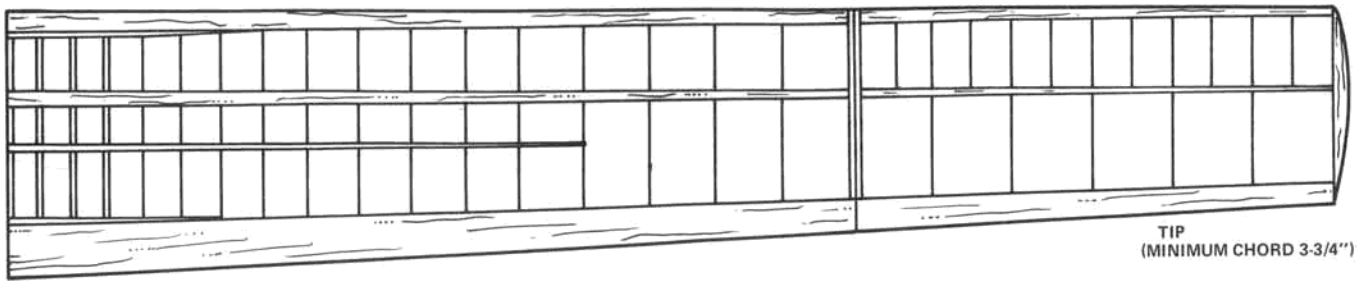
PEANUT SCALE

by Rex B. Powell

FEB. 1971

REF: JANE'S 1951

SPANWISE STRENGTH DISTRIBUTION – (TYPICAL SEMI-SPAN WING)



FEATURES:
1. TAPERED LEADING EDGE
2. TAPERED TRAILING EDGE
3. ALL SPARS TAPERED
4. PLYWOOD DOUBLERS ARE TAPERED AND END AT DIFFERENT POINTS ALONG THE SPAN
5. RIB SPACING IS VARIABLE ALONG SPAN (USE OF FALSE RIBS IN TIPS)
6. THICKER RIBS USED NEAR ROOT
7. WING PLANFORM IS TAPERED (MAY BE ELLIPTICAL)

FREE FLIGHT

By BOB STALICK

• It looks like a big column in store for us this month, so in order to keep this introduction short, I'll stop now *(Unbelievable! wcn)*.

MYSTERY MODEL FOR SEPTEMBER

Remember when the AMA F/F Contest Board changed its rules structure in 1959? Gone were the old carefree days. All free flight models had to meet the FAI specifications regarding engine displacement and weight, and regarding wing areas and weight. The minimum weight of a typical .049 powered free flight was now set at 8-1/2 ounces. Wing area worked out to just over 300 sq. inches.

This change in rules nearly split the country in two . . . the fers and the agins. California people uniformly swore at it. Easterners generally praised it . . . or was it the other way around? Wildcat contests were held. This month's model was designed. It was the first published design by a proponent for the new rules, especially intended to meet the new rules head-on. Half-A powered, it featured several innovative ideas in construction and design . . . ideas which have become S.O.P. since. If you can name it and if you are the first to respond to Bill Northrop with the correct answer, he will reward you with nice things.

DARNED GOOD AIRFOILS . . .

MVA 439

The MVA airfoils, developed scientifically at the Goettingen laboratories, have not generally been used with the same degree of popularity as have some of the more esoteric sections, such as Benedek. During the next few months, I intend to rectify this gap, by presenting several of the more promising MVA-Goettingen sections for your consideration. This month's feature is the MVA 439, a turbulent air section suited for Nordic models in thermal conditions. Dead air time should be in the 2:30 area. Since the section is reasonably thick, many different construction techniques could be employed without difficulty. Should be well suited to aspect ratios under 14.

While on the subject of airfoils, I would like to plug a book which I have just recently obtained. Entitled, "Free Flight Model Aircraft Book of Airfoils," this handbook, which is available from FAI Model Supply in Phoenix, Arizona, contains 78 popular sections drawn in full size (between 3-1/2 and 8 inches) by Craig Cusick. There are no coordinates, but 10 lengths of each section, so you can trace directly off of the book. Although there are no explanatory notes for the foils, most are subjects of recent statements carried in MODEL BUILDER "Free Flight," and a quick perusal of past issues should give you some indication of the ones you might wish to select for your own use.

A list of sections featured in MODEL BUILDER since January, 1974, follows: January, 1974, Thomann F-4; Feb., Neelmeyer; March, NACA 4407.5; April, Samann Bussard II; May, Mountie; June, Jedelsky EJ: 75; July, Benedek B8353b2; August, CH-407 (mod); September-October, Goettingen 400; November, Kaczanowski GF-6; December, Goldberg G-610b; January, 1975, RSG 29; February, Lucky Lindy; March, Clark Y; April, Benedek B-6405b; May, Cheesman 20A-08; June, Goettingen 359; July, Benedek B-7457d2; August, Benedek B-6356b; September, MVA 439.

THREE VIEWS OF THE MONTH

This month we have a double feature for you. Since the majority of this column is applicable to Nordic A/2 gliders,

BALANCED WING CONSTRUCTION

Figure 1

Figure 2

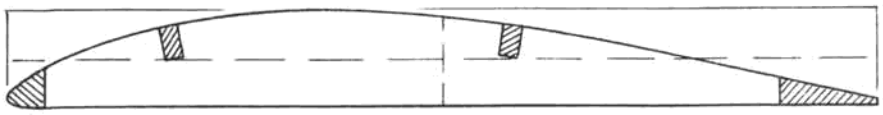
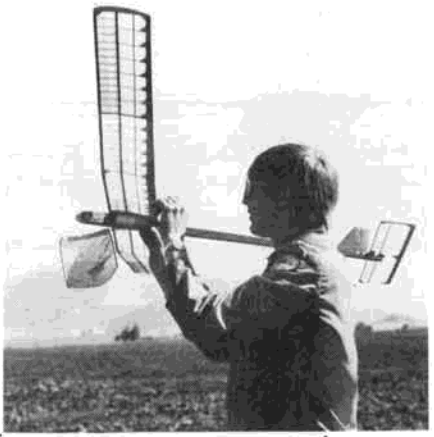
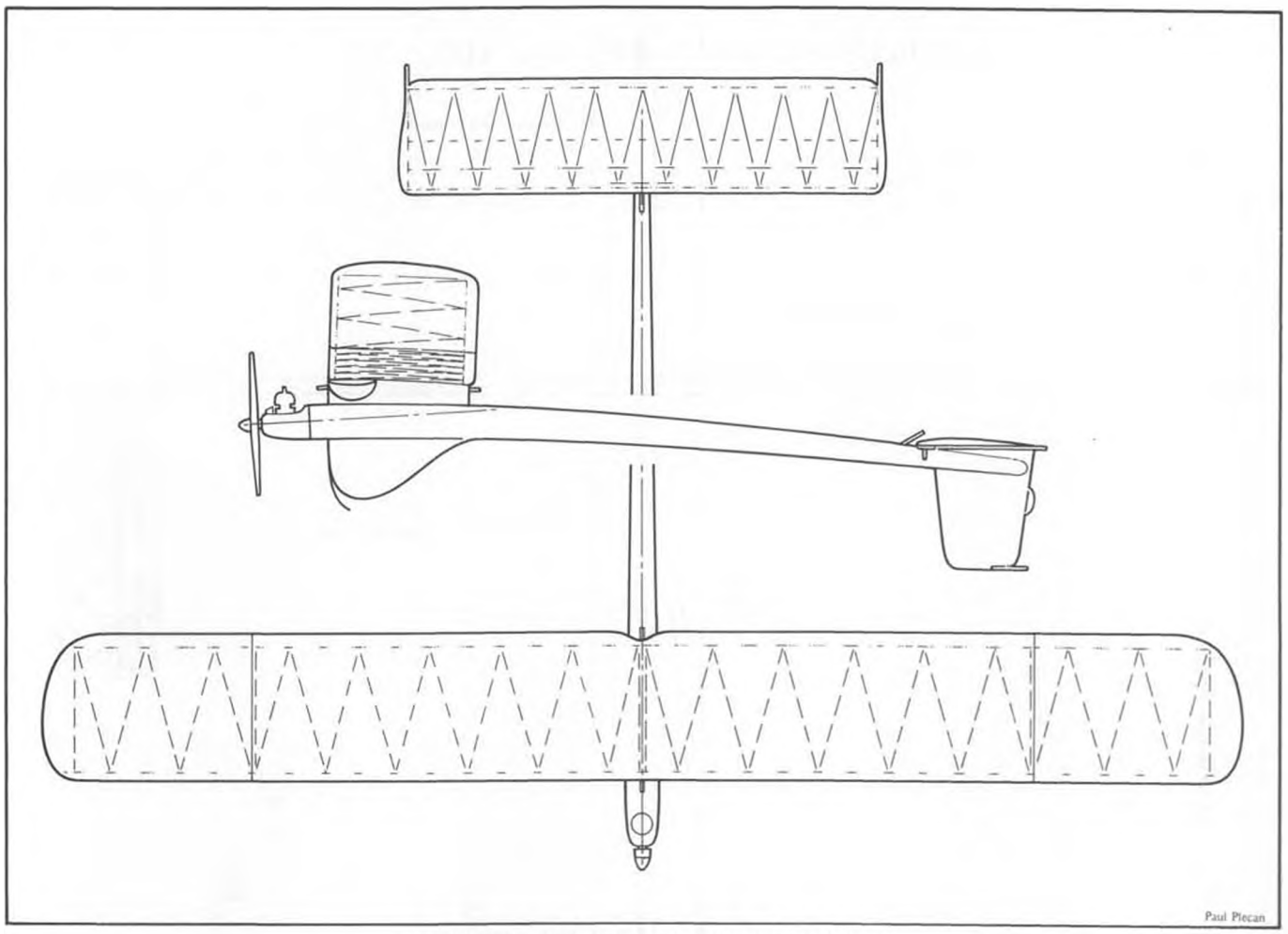


Figure 3



F/F Editor with his Simplex A/2, showing tapered TE and light wing structure (4 oz.).



Paul Plecan

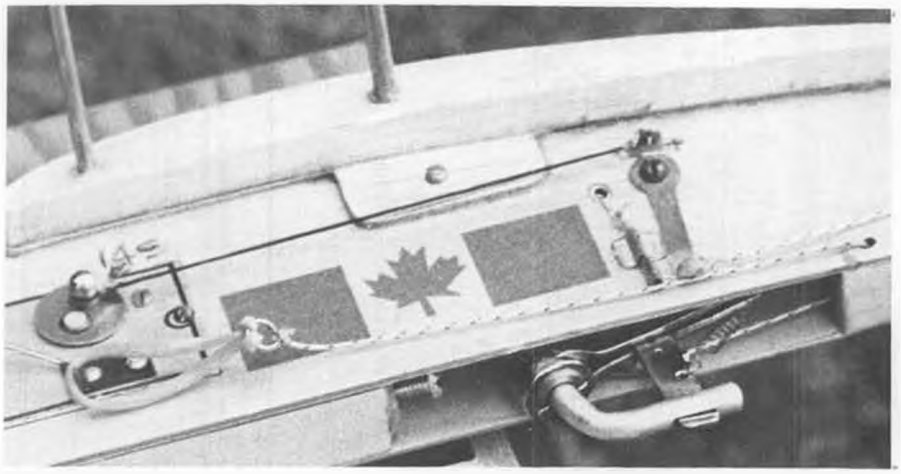
MYSTERY MODEL FOR SEPTEMBER

and since the FAI Semi-Finals are ready to descend upon us as you read this, it seems appropriate that some attention be given to two influential developments which can have a significant bearing on winning and losing.

Three View No. 1 is of Ekhtenkov's A/2 winner from the 1974 World FAI Championships. Look it over carefully when you are reading the section of this column dealing with model design.

To go with this, we also have several sketch-views of John Clear's ultra-simple-make-it-in-your-own-workshop Circle Tow hook.

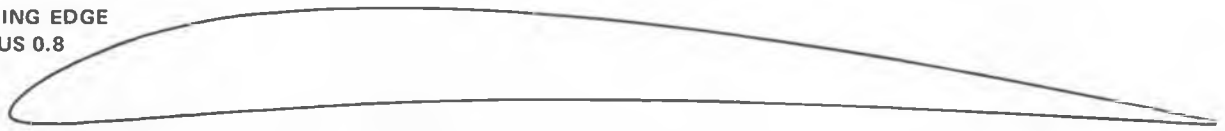
John Clear is an expatriated Britisher, who at present resides in the Seattle area. Generally he can be found at the F/F sites launching rather strange appearing



Close-up of circle-towhook, identical in operation to the John Clear hook illustrated on page 49 of this issue.

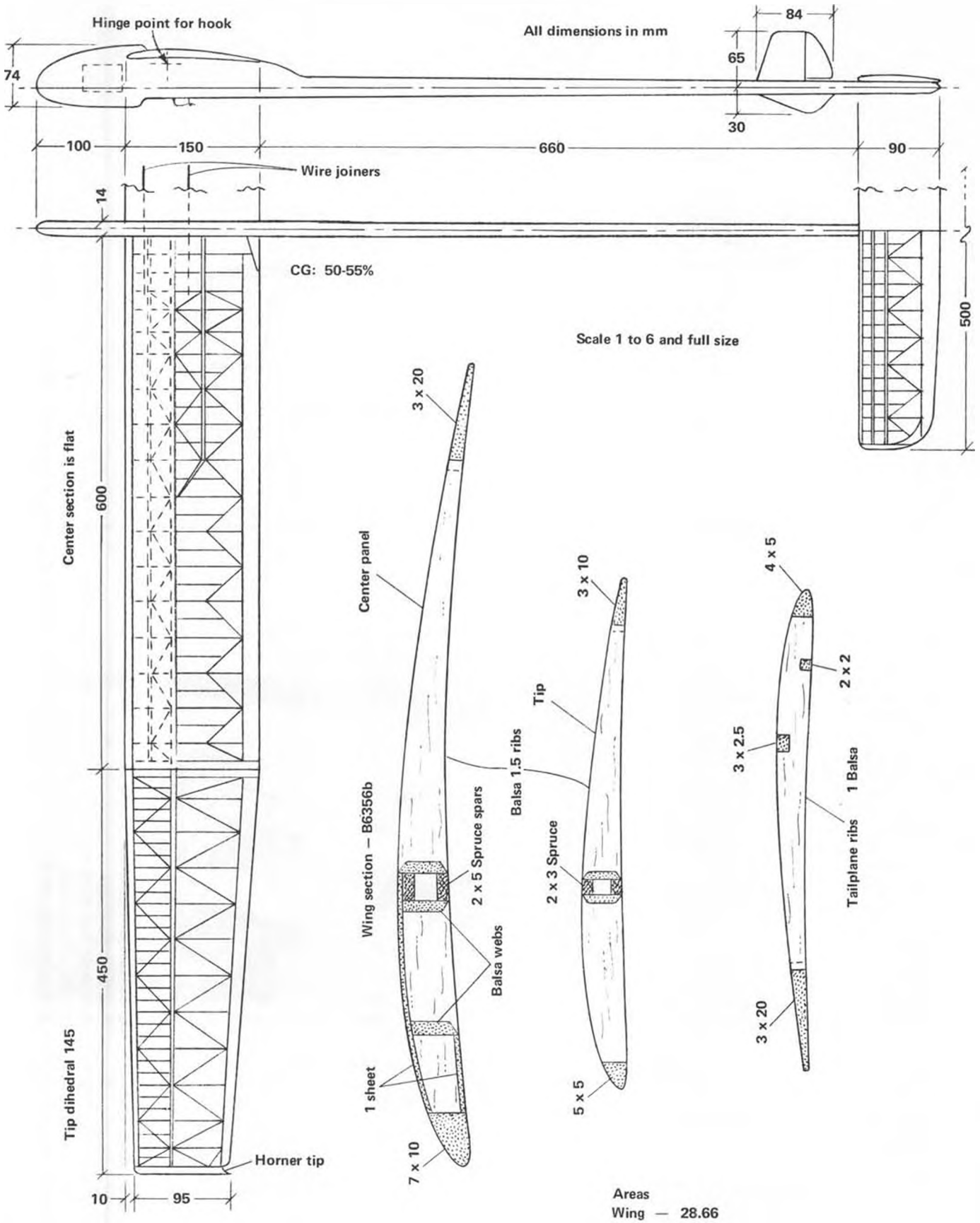
DARNED GOOD AIRFOIL — MVA-439

LEADING EDGE
RADIUS 0.8



STATION	0	1.25	2.5	5	7.5	10	15	20	30	40	50	60	70	80	90	95	100
UPPER	0.8	2.5	3.4	4.9	5.9	6.8	8.1	9.0	9.6	9.4	8.7	7.5	6.0	4.2	2.3	1.8	0
LOWER	0.8	0.2	0.1	0.1	0.2	0.4	0.9	1.2	1.7	2.0	2.1	2.0	1.6	1.1	0.6	0.5	0

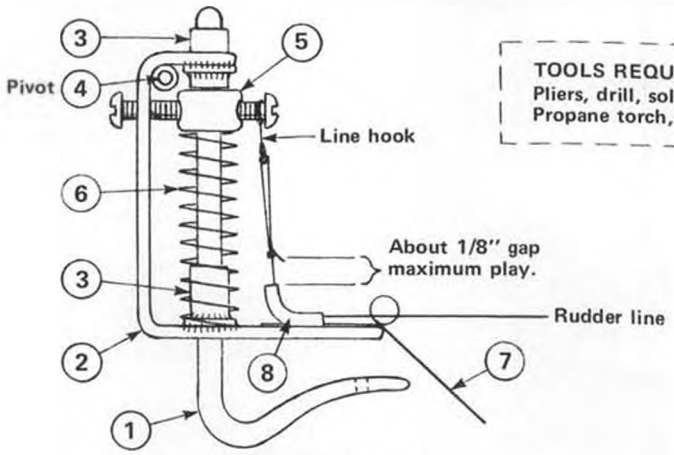
VALERIJ EKHTENKOV's F1A, EVG 1172



Areas

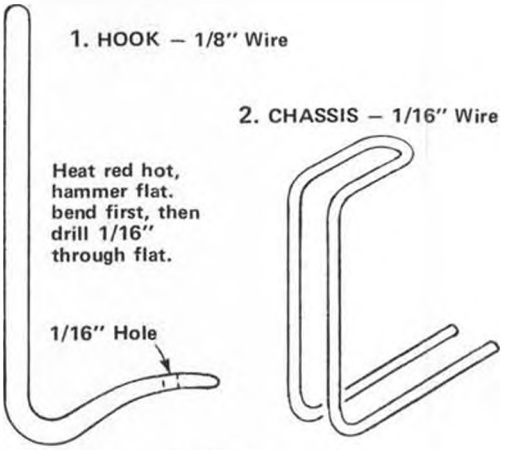
Wing	—	28.66
Tail	—	4.30
		32.96

ENGLISH TOWHOOK — Based on Ian Fairgrieve's design (in *Free Flight News*, Feb., 1973) by John Clear



ASSEMBLED VIEW

TOOLS REQUIRED:
Pliers, drill, soldering iron,
Propane torch, hammer.



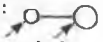
PARTS

3. BEARING TUBES — Brass, soldered to chassis.
Washer filed to press fit and soldered

4. PIVOT — 3/32" I. D. brass tube, 1/2" long, soldered to chassis.

5. COLLET — Brass cable end (from motorcycle shop)

Discard grub screw and drill 1/8" right through.
Tap cable hole 4-40. Cut 1/16" off each end.
Fit two 4-40 screws and .020 line hook:



Two winds

6. SPRING — 1/32" Wire. 9 to 10 turns on 1/4" mandrel. (Experiment with different size springs).

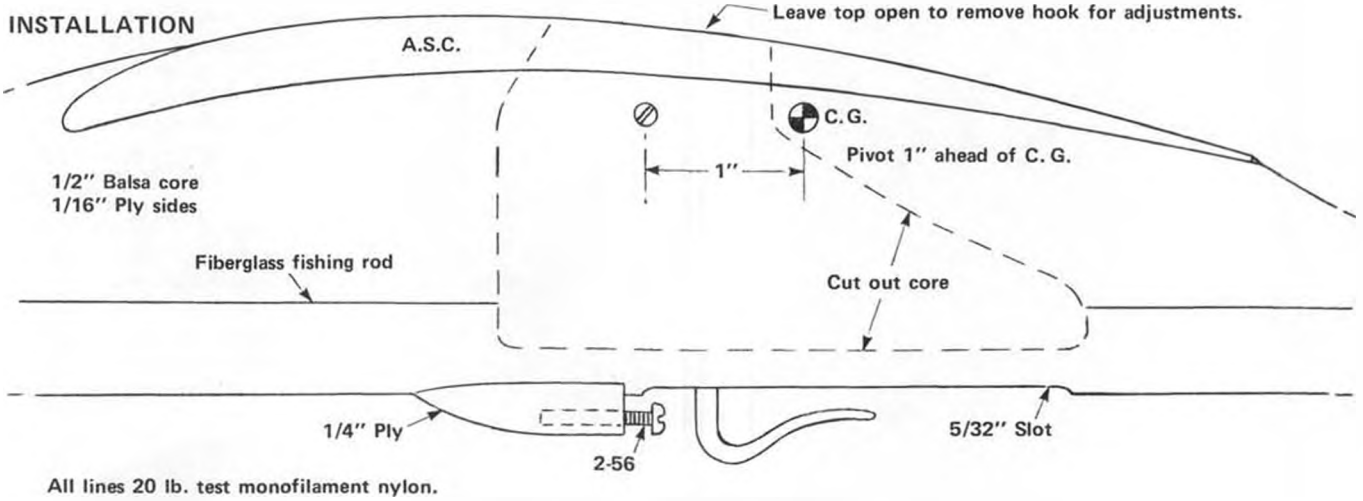
7. LATCH — .020" Wire.

Two winds

Solder short end to chassis leg.

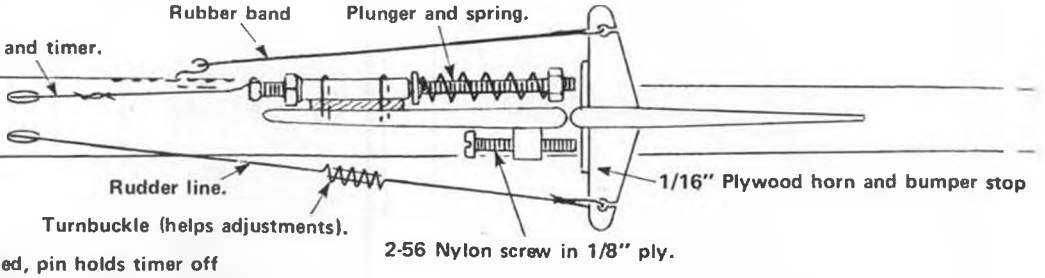
8. LINE GUIDE — 1/32" I. D. brass tube bent with monofilament nylon inside and soldered to other chassis leg.

INSTALLATION



All lines 20 lb. test monofilament nylon.

RUDDER MECHANISM (TOP VIEW)



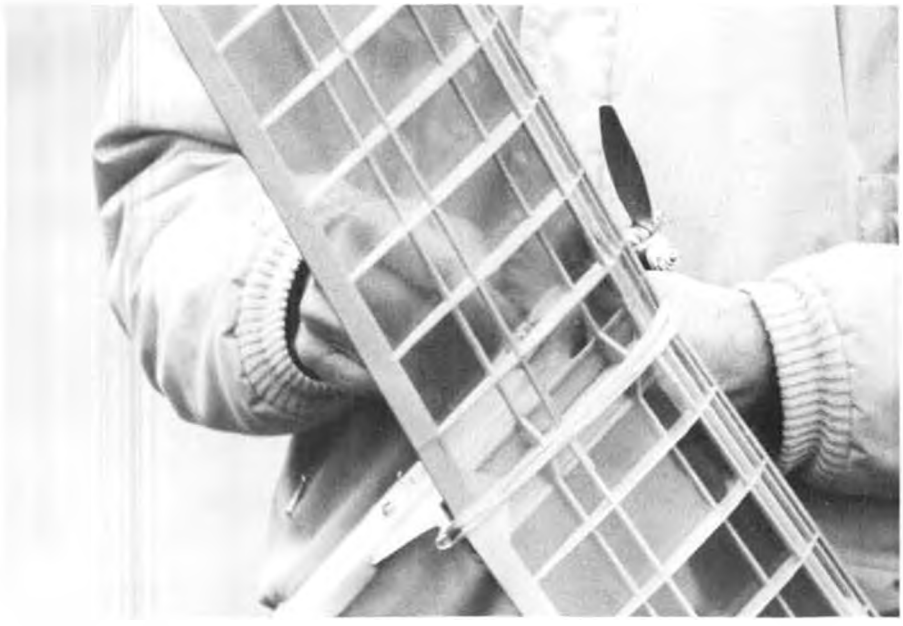
OPERATION

1. Tow ring on, hook latched, pin holds timer off and rudder plunger forward (spring compressed). When line is pulled on tow, the rudder is held straight (adjust with the nylon screw). When line is slack, the rudder is pulled over by the rubber band (adjust with rear nut on the plunger).
2. Hard pull (about 4-1/2 pounds) unlatches the hook, spring compression allows 1/8" slack on the rudder line and rudder moves over slightly to give zoom release.
3. Model released into thermal in climbing turn, release pin allows plunger to push the rudder back to the glide setting (adjust with the front nut), and also starts the timer.

PLUNGER AND SPRING DETAILS:

1-1/2" Brass stud (2-56) and two nuts.
Spring from ball-point pen.
.020" Wire hook soldered on front end.
3/32" I. D. aluminum tube stapled and epoxied to fin (raised approximately 1/16" to clear nuts).

Photo taken at 1971 Nats of Charles Apprendi Jr., and his Starduster 900. Note placement of spars on this unmodified Competition Models kit. See text.



Another, and newer Competition Models kit, the Orbiteer. Note balanced spar placement, as described in the text.

flying beasties with no fuselage, or with no tail assemblies, etc. Nearly all are diesel powered or rubber powered or unpowered. Inventive lad, this John.

The May, 1975 issue of Bat Sheet carries this recent inventive development by John. This towhook can be assembled with ordinary hand tools, and the odds and ends of metal parts that can be found in any modeler's shop. The parts shown are sketched full-sized, so you can start building one now.

Directions should be self explanatory once you "walk your way" through them, along with the sketches.

By the way, the 3-views of the "INTERN," in the July 1975 issue had a couple of errors. First of all, the wing chord is 5 inches, as shown in the wing plan. The 6-5/8 inch dimension on the fuselage side-view is actually from the wing leading edge to the *base* of the pylon. The other error probably won't cause any confusion. Somehow, the word "scale" got into the description of the plane. No one will spend too much time looking for the prototype!

BALANCED WING CONSTRUCTION

There are several problems that modelers encounter which can be solved at the design stage. One of these is warpage (unintentional). Undesireable warps can be eliminated when you design your wing and stab layout. Methods vary . . . all-sheet construction or a full-geodetic structure are very warp resistant, but there are ways of solving the warpage problem using traditional straight-rib structures. It all depends upon the layout of the spars (and using a straight building board).

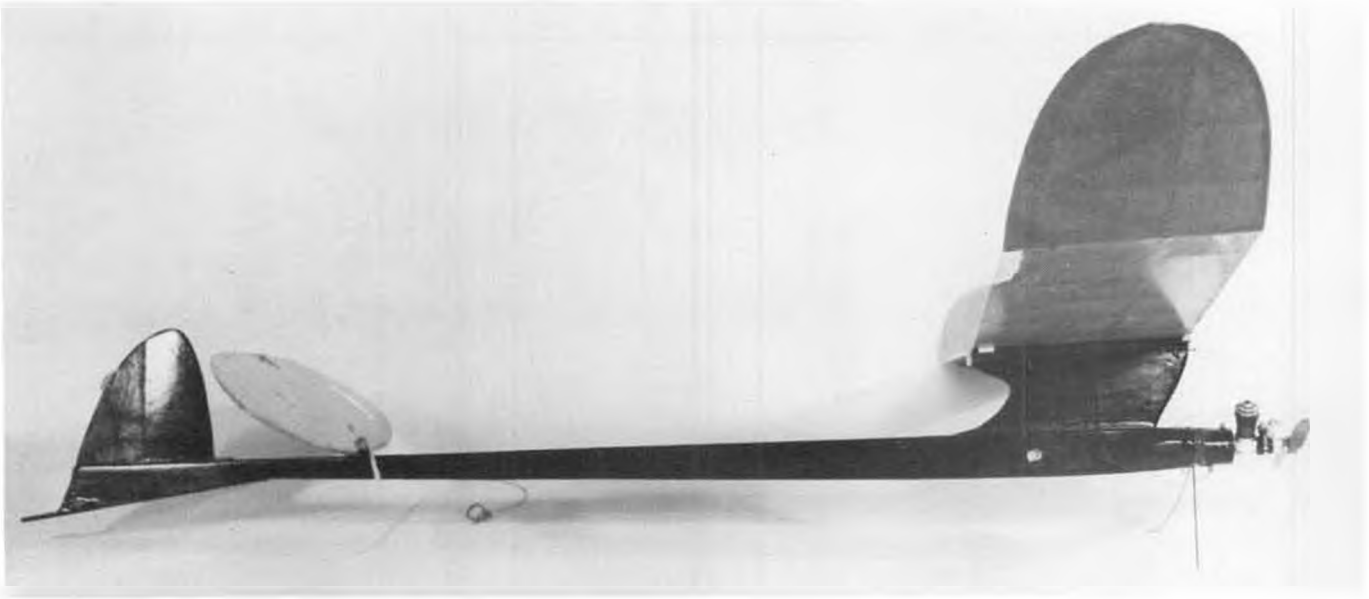
In the 1959-1961 ZAIC Yearbook, David Andrew suggests a structure which will eliminate warpage due to tissue shrinkage. The system involves drawing a rectangle around the airfoil pattern (see sketch), then subdividing the rect-

Continued on page 81

Guy Kirkwood gets nice ROG launch on his K&B 40 powered Playboy Sr. at the Southwestern Regionals, last January.

PHOTOS BY SHERI LEE CALHOUN

Chuck Thompson's Satellite 788 bores hole in sky at January Regionals. Took 2nd in B Gas.



FIREDRAKE 1/2A

By LARRY SICURANZA

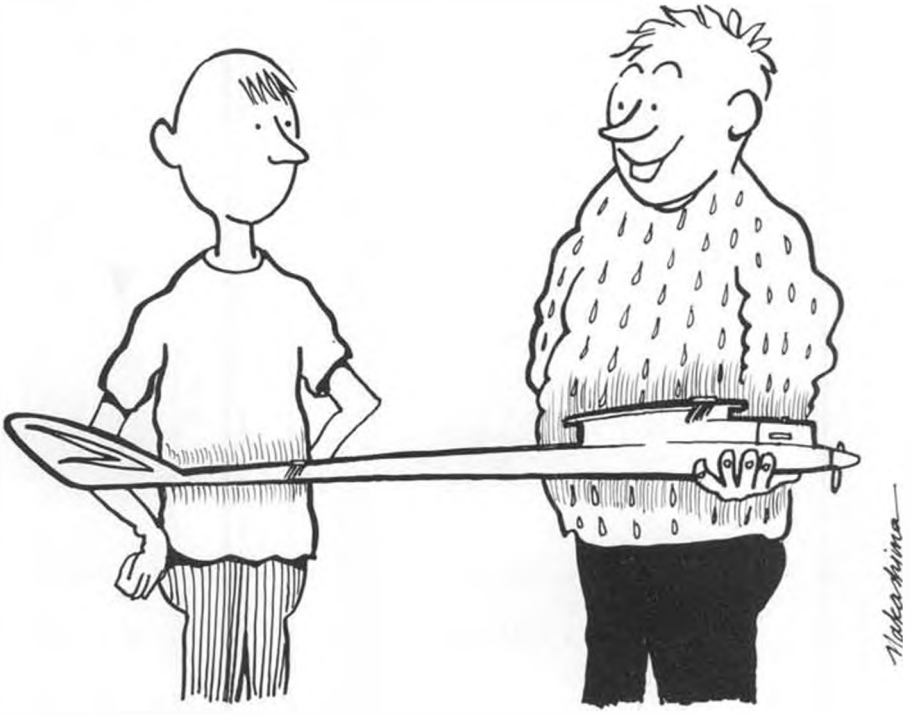
A triple-threat design to consider in your search for the ultimate Half-A . . . it climbs, glides, and penetrates.

• Firedrake is one answer (mine!) to a knotty problem. The problem is double-category 1/2A competition.

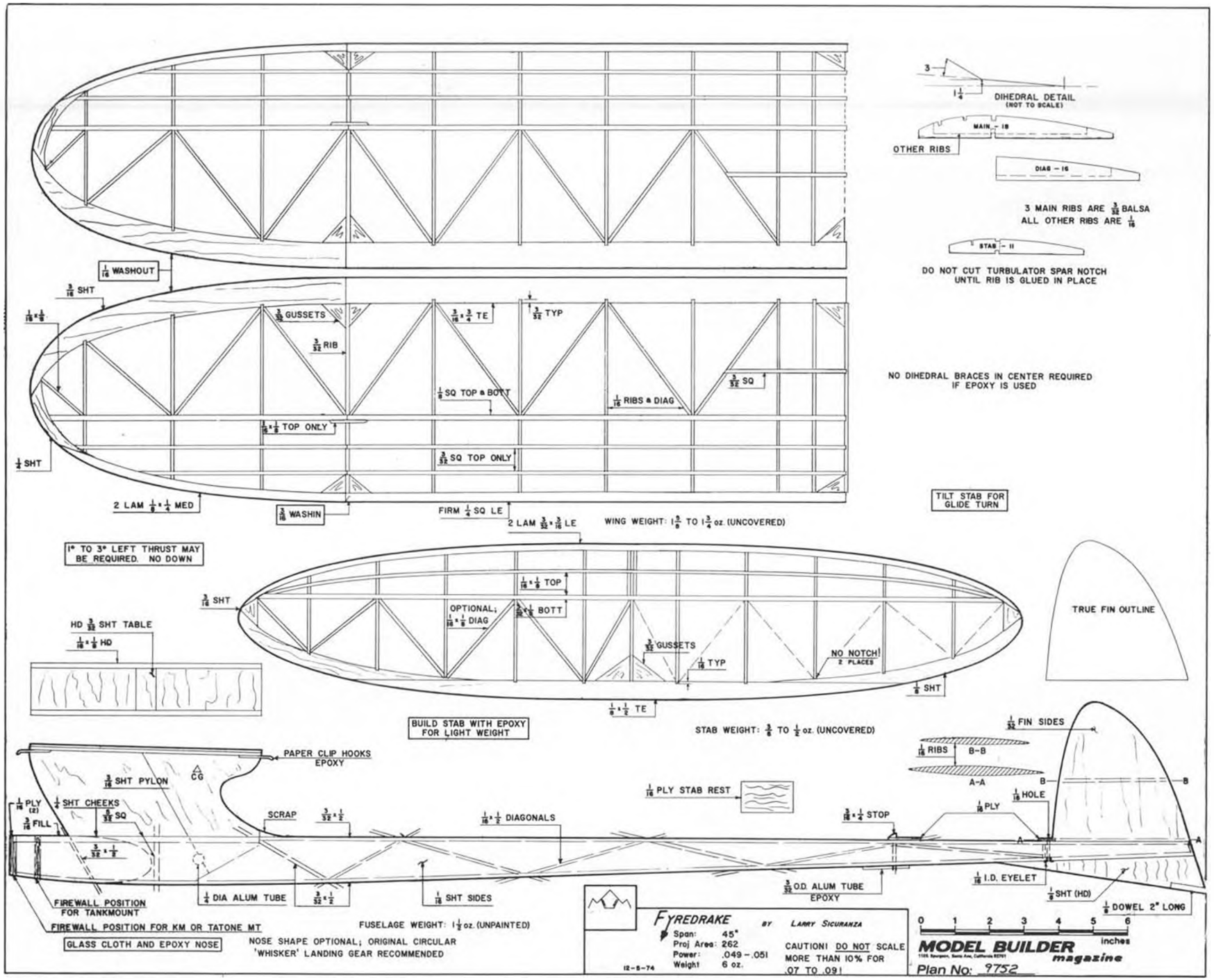
Unlike their bigger brethren, 1/2A's don't fly too well to begin with, and current designs tend to emphasize either climb or glide. The results are 200 inch bombs that climb like balsa prices and glide like anvils, or 350 inch overcasts that will do 7 minutes from an altitude of 63 feet. They will also, exhibiting all the penetration of an overcooked artichoke, drift out of sight in 2 minutes and 49 seconds. Considering that a pair of each is needed for a busy season, you'll see why I view 1/2A competition as a problem . . . if not a four-star pain. I also view it as a helluva lot of fun, what with relatively inexpensive planes and hordes of flyers.

The logical step, then, is to try to design a ship that can climb, glide and penetrate. All three, not the best two of! Firedrake (a kind of little dragon) does the job. He doesn't have a terrifying contest record, because he's fresh-hatched, but four other flyers have the plans, so time, as always, will tell. The kit that is in planning will also help in this regard. Seems the chugbugs that win the most come out of boxes, so watch the Digest.

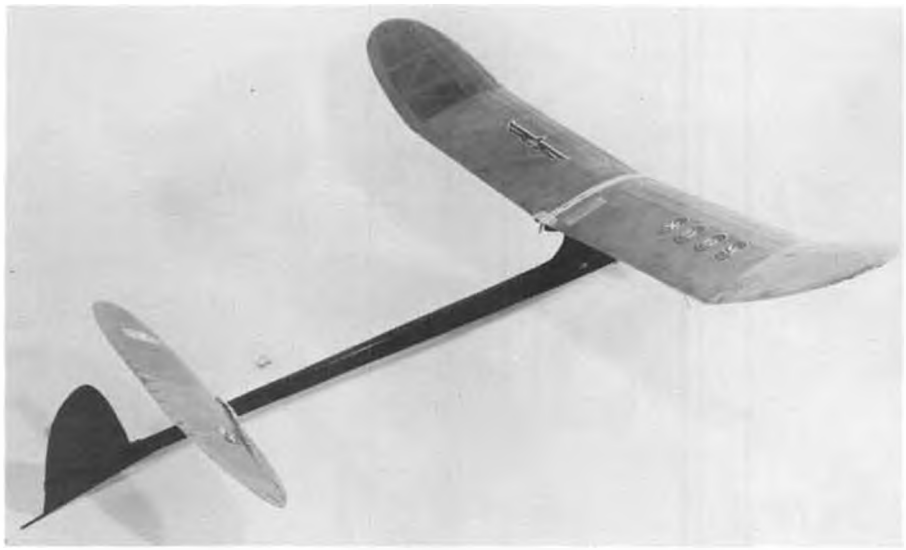
Design philosophy is not so simple as you might think, since 1/2A's are not visions of efficiency, due to their size. Scaling down bigger birds often results in mini-duds, so Firedrake started life as what he is. I call it 'he' because it is no lady. He'll bust you in the ear quick as a wink if you don't pay attention. As far as numbers are concerned, the aspect ratio is set at 7 plus to allow some airfoil efficiency. Foil thickness is near 11% for the same reason. Reynolds number is not found only on boxes of aluminum wrap! Incidence is low, as is stab area, but it's placed way back. That's why no down-thrust is needed. Aft fin is used because it looks better than underslung and is less likely to be damaged, being light and built-up. The fin is thick to allow for better alignment and less critical tab adjustment. CG position is moderate (75%-80%), and tail moment is long. Left thrust is required for VTO stability, and wash-in is used in the right main wing panel to keep it up in the power phase. Parabolic surfaces are used because of their warp resistance, their ease of plotting, and their extra 5% of area over an equivalent ellipse. Also I think they're pretty. I like to cant the engine to keep exhaust glop off the timer(s) and/or fuse. The big pylon makes a nifty baffle. Finally, a pres-



"When my fillings rattle, I know I've got at least 24,000 rpm."



FULL SIZE PLANS AVAILABLE — SEE PAGE 88



surized fuel system is pretty well necessary for consistency.

Construction is very simple, since it's lifted off Tom Hutchinson and salted with Satellite dust! It's best to build the flying surfaces first as they can stay pinned down for a couple of days. That's right . . . days! I like pretzels too, but to chomp, not fly. Since this is not a beginner's bird, I'll only bore you with the fussy stuff.

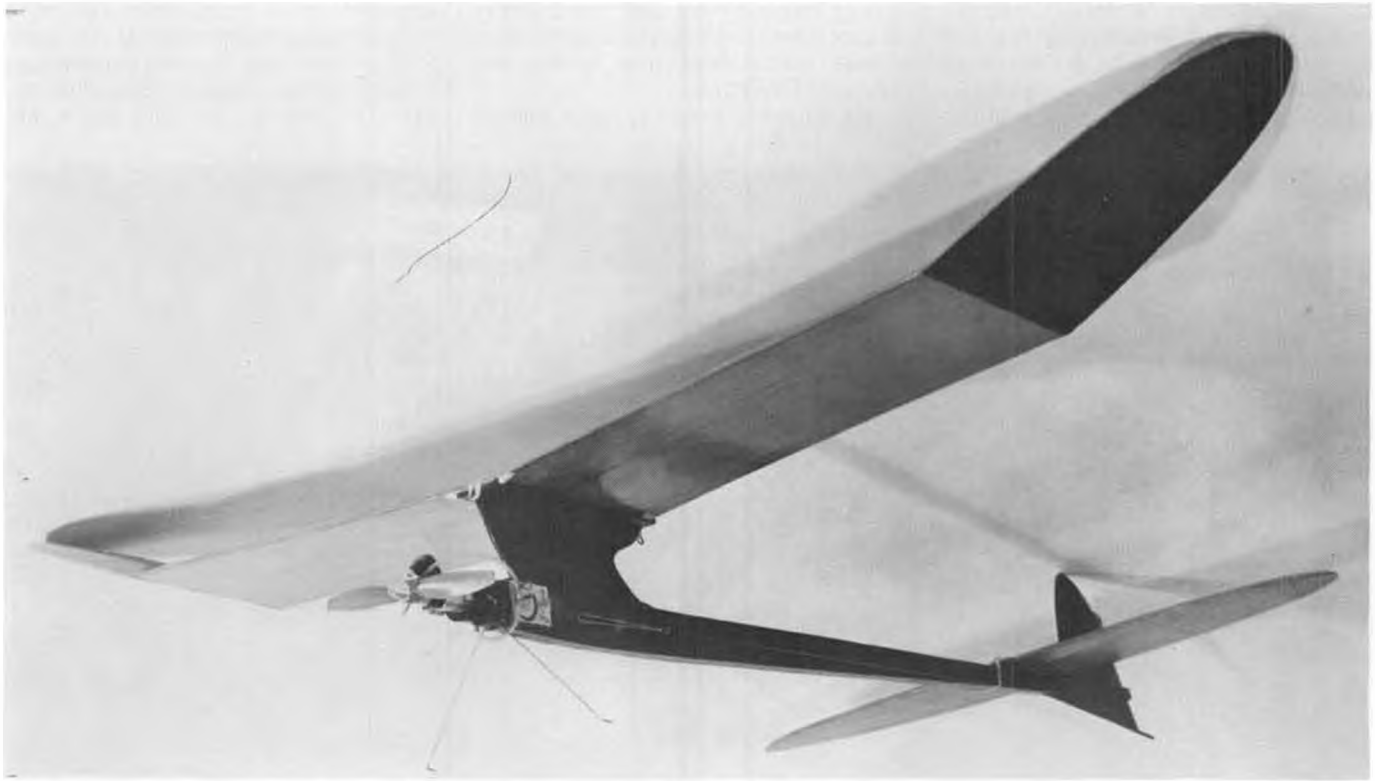
The stab should be built using epoxy for light weight and high strength. A little dab'll do ya. The turbulator spar notches are cut after the ribs and top spar are fitted. Let the completed structure dry pinned down for at least 24 hours. The diagonals are optional, I didn't use them. The tapering outline provides lots of stiffness. When thoroughly dry, sand and apply two coats of unthinned dope to edges, then sand off fuzz and set aside.

The fin can be built with epoxy or old-type model cement. Glue and pin both ribs in place and, when dry, sand edges to mate with the other side. You can try a sheet fin if you like, but dig a fox-hole first! Sand the fin edges smooth, but don't pre-dope it.

The only flat panel in the wing is the left main. The right main and both tips have build-in warps. To make sure the warps stay in, follow the sequence. Pin down leading and trailing edges and bottom spar. Fit and glue the ribs and let dry (don't install dihedral break ribs yet). On the right main panel, remove the pins from the leading edge, except for one at the root. Block up the leading edge at the tip dihedral break 3/16 inch, and slip a 3/32 shim under the leading edge at the mid-point. Now pin the leading edge down against the shims, install upper main spar and fit and glue the diagonal ribs. On the tip panels, unpin the trailing edge, except at the inboard end, and shim up 3/32 at the point indicated. Pin at this point and finish assembly. When all panels have dried at least 24 hours, remove and trim spar ends to dihedral angle. Fit dihedral ribs and epoxy panels together, blocked to correct angle. Again, let set as long as possible. When thoroughly dry, remove and epoxy in gussets. If you fly over hard ground, a piece of 1/32 ply backing up the top main spar at the center dihedral break will help absorb DT shock. Finally, install turbulator spars and hold-down rubber braces. Carve and sand leading edge and tips and apply two coats of unthinned dope to the edges.

The fuselage is of the familiar profile type, but is deeper than average because the greater cross-section is more warp-resistant. The little beast is looong. The nose length and shape depends on the type of mount used. Use epoxy to install the pylon and laminated firewalls. Sand in at least 1^{o} of left thrust before installing firewall. Epoxy a bit of 1/2 inch nylon or fiberglass tape around the firewall and cheek fronts. Once again, leave the structure pinned down for at least 24 hours, especially if white glue is used.

Continued on page 86



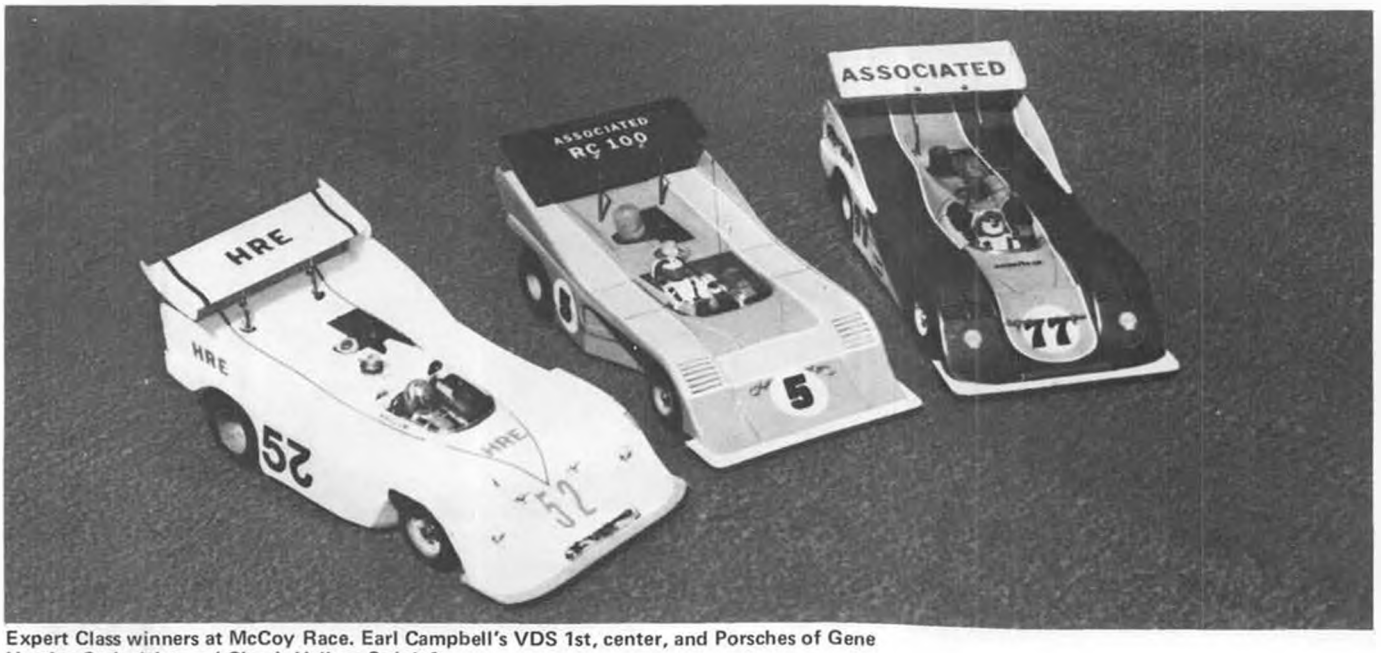
Sprint car by Jim Aubrey. Shocks, Pitman arm (movable) and stacks for appearance. Exhaust goes out bottom.

R/C AUTO NEWS

By CHUCK HALLUM

• The Third Annual McCoy race was held in Anaheim, CA on June 22, 1975. What a race! There were 68 entries, including several from Northern California, and Arizona. Just about every brand of car was represented, with the exception of Marker. All of the cars seemed to have lots of go-power, and many sounded like they were over the ROAR noise level limit. We've got to get a workable tech system to check the sound level of at least the main event cars. The majority of cars were in the Novice and Amateur classes, several Sportsman drivers, and 17 in the Expert class.

At Saturday practice, there were at least 30 cars out to check set-up and get a feel for the track. Several Northern California drivers were out, and the locals appeared to be letting them run more (the Arizona group showed up very early Sunday morning). The best running cars on Saturday belonged to Gene Husting, Bob Titterington, and Bill Jianis. My



Expert Class winners at McCoy Race. Earl Campbell's VDS 1st, center, and Porsches of Gene Husting 2nd, right, and Chuck Hallum 3rd, left.

car was running about as fast as Jianis', but seemed down on horsepower.

Sunday came and so did the racers. The pits for the cars extended about 2/3 around the track and were two deep behind the start-finish area. Because of the turnout, there was only one 5 minute round of practice for all drivers, and then right into racing. The race schedule for each driver class was two 10-lap heat races, with the top three qualifiers going to the main, and many of the better times going into the semi-main and the top finishers of the semi moving into the main. So there were about 30 heat races, 4 semi-mains, and 4 main events, with 7 to 10 cars in each main. The heat racing started about 10 am. The weather was great, with a slight overcast, clearing about 10 am, and afternoon temperature about 80°F.

Just before the heat races, Concours was judged. Earl Campbell took top honors with his great looking VDS painted in McLaren orange and black. Then the racing started. When the sounds quieted and the rubber and exhaust cloud cleared, Earl Campbell was top qualifier. In all of the main events that followed no one seemed to have a clear cut advantage in any class except Expert. There again, Campbell seemed to have it his way. I could hear him talking during the race, just waiting for the right opportunity to pass.

So in the end, Earl Campbell won expert main, with Gene Husting second and myself third, all with 60 laps. Gene and I had quite a race for second. We were going at each other, mostly Gene trying to pass me, for 5 to 10 laps at a time. The only thing that kept me in the race was one fuel stop versus two for most of the top finishers. The top finishers in each class are tabulated below.

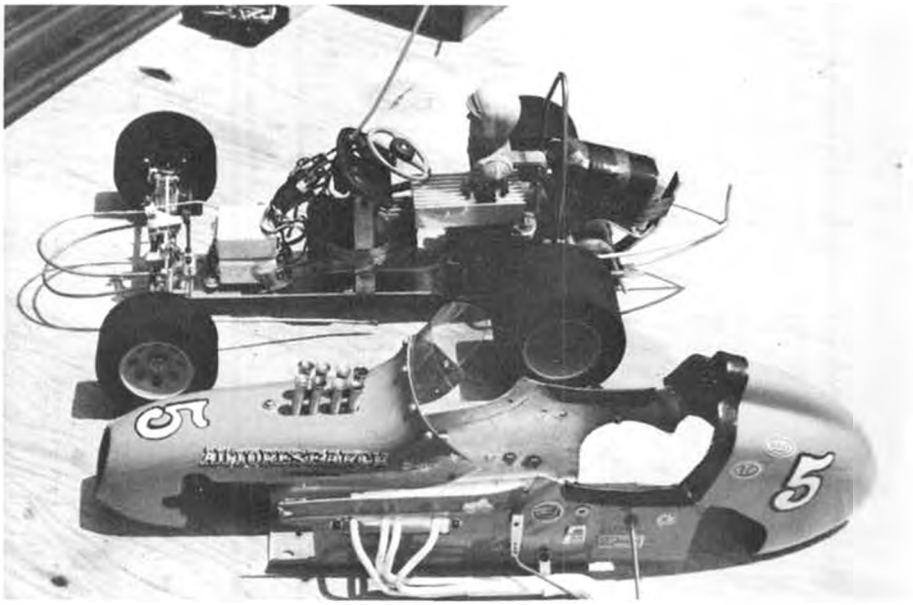
Novice Main
1. Darrell Smith
2. Hary Huot
3. Curtis Husting
4. Gene Elgas
5. Don Freeman
6. Don Stewart

Amateur Main
1. Jeff Thompson
2. Gary Swain
3. Mike Aguirre
4. Don Newberger
5. Glen Stone
6. Jeff Rold

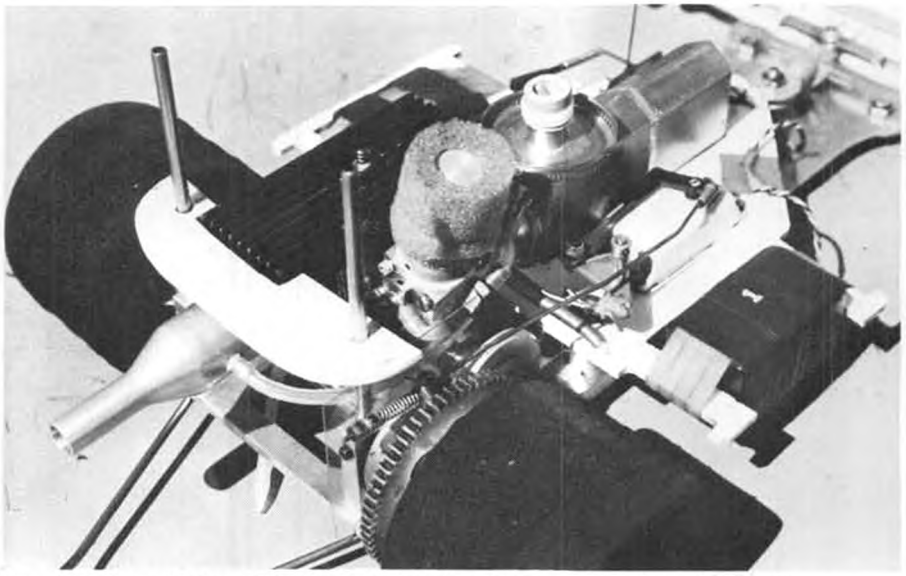
Sportsman Main
1. Jerry Thompson
2. Jim Cade
3. Dennis Dean
4. Bill Steele
5. Dennis Towry
6. Bill Watson

Expert Main
6. John Thorp

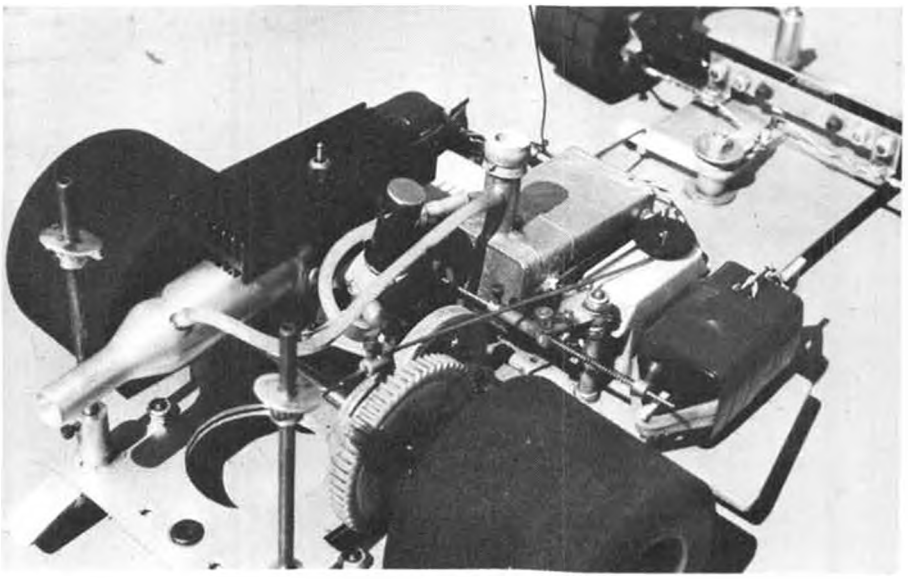
Trophies were presented down to fifth place in each class. The trophies were terrific, with a 1/32 scale Porsche



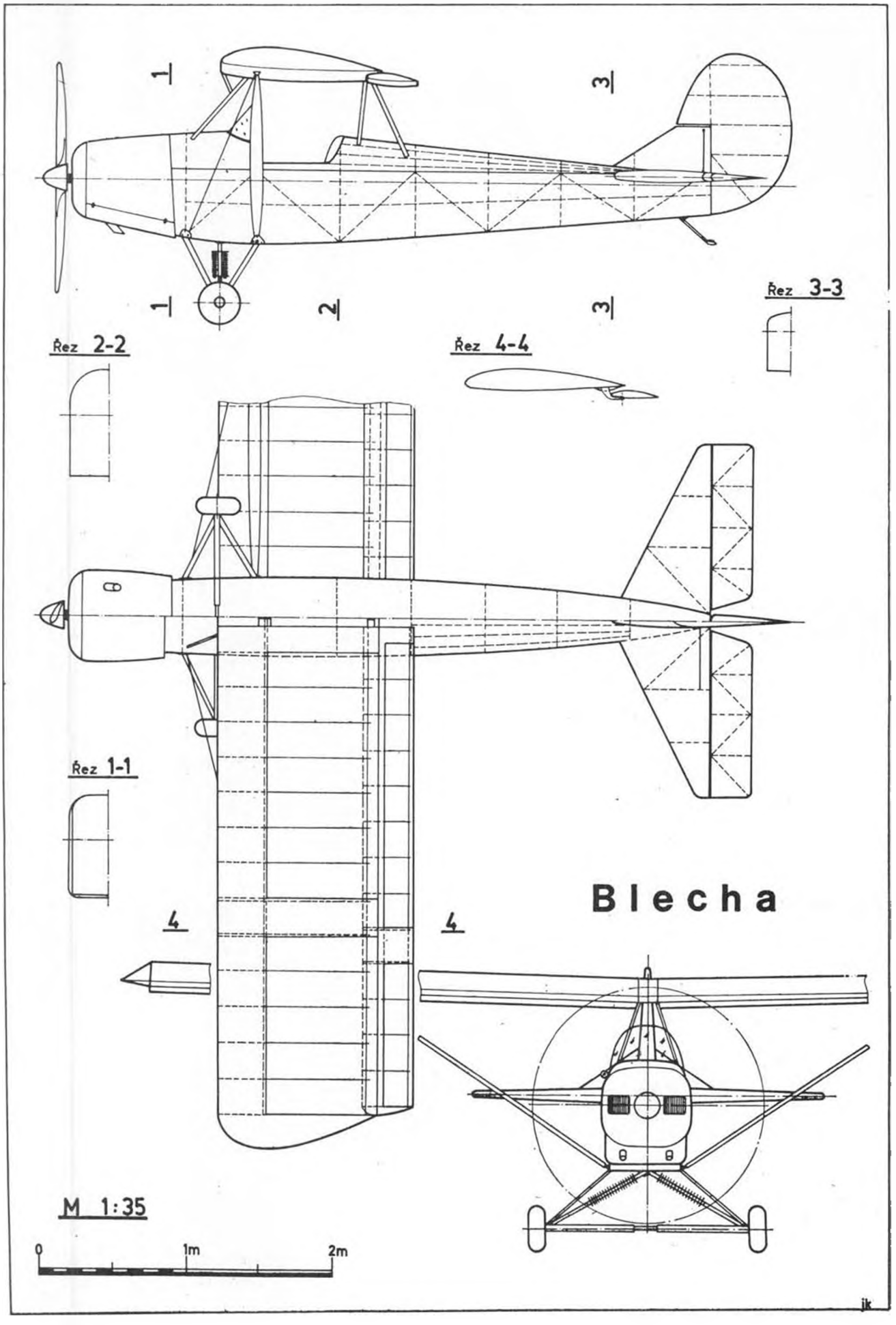
Body for Jim Aubrey sprint car was made by full scale midget car builder, Don Edmunds, of Autoresearch. Servos actuate through cables.



Campbell's Veco-McCoy powered carburetor! It's a huge Kavan 45 (bore about as big as a Perry 60).



Hallum's Veco-McCoy with Perry 40 carburetor. Doesn't give much away on power, but gets better mileage. Note pressure connection to muffler.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The MonoKote® Squadron

No plane goes through more grueling workouts and trials than the ones that belong to the AMA Show Team.

These modelers are hard-driving experts and their planes are the Superstars of the flying world. They get put through countless public shows, often performing acrobatics and stunts that real aircraft couldn't begin to do. And, of course, they have to be kept in prime condition and appearance.

So, when we found out that the AMA team members individually chose SUPER MONOKOTE for their models, without any form of solicitation, we were a little flattered . . . But, we weren't surprised.

Because, for years, we've been telling modelers that SUPER MONOKOTE was the truly professional finish and this just proves our point.

There's no other finish that goes on as fast and easy. It doesn't even require any special skills. And, best yet, it puts a welcome end to sealing, doping, sanding and polishing. Besides, it's moisture-proof, fuel-proof, stain-proof and fade-proof.

So, if you'd like to give a professional finish to your model, join the professionals of the AMA Show Team . . . SUPER MONOKOTE *YOUR* next plane.

TOP FLITE

Top Flite Models, Inc., 2635 S. Wabash Ave., Chicago, Ill.

917-10 crowning the variable height pedestals. The track closed at 7:10 pm, a long race day.

I'd like to thank the Anaheim Roadrunners, Russ Camp, and all the race crew for putting on a great race.

Now on to a few words about suspension systems for R/C cars.

Have you ever really listened to the super R/C cars during a race? If you have, I'm sure you hear the same thing I do. In the high speed corners and straights, the engine speed is not constant or uniformly increasing, but rather, it is peaking and loading down as the car bounces over the imperfections in the track surface, losing cornering ability and speed. You probably also notice that most cars have low speed power oversteer. Both of these conditions can be improved by the use of good suspension systems. In general, suspension systems are supposed to improve overall traction by keeping the tires on the track surface and providing more uniform loading. But it's more easily said than done.

When I first got into R/C car racing in 1971, the above thoughts were already going through my head. The cars that were going fast were using the simple plate-type chassis. The RaCar and Dynamic suspension system cars were too fragile and also came apart during races. RaCar even had a two-speed transmission.

The originators of R/C car racing (George Siposs, Norb Meyers, et al) were quite the purists, and followed the current automotive design trends. Just building a car and seeing it run was exciting. Then a few more people caught the R/C car bug. Now there were enough people to have a RACE. I saw my first race in about 1969. There were numerous spin-outs and many break-downs. I thought, this is interesting, but you can't really race. I decided I'd wait until the cars got more reliable and practical before getting into the R/C car hobby.

So anyway, about 1-1/2 yrs. to 2 yrs. later, in 1971, I went to see my second R/C car race. What a change. These cars were really racing and appeared to be staying together. The two cars that were doing the best were Associated and Delta. Two new names to me. Upon inspection, I found simple plate type chassis with no suspension and a centrifugal clutch as the drive train. A simple band around the clutch bell provided braking.

My first thoughts at this race were, how a simple rear suspension system would really improve the car handling, and that I was going to get into this hobby! But how could I get into this hobby without spending much money? At the time, I was doing some consulting work on the side for Mickey Thompson, Titanium Racing Components (Ti-22 Can-Am), Chaparral Cars (Jim Hall), and L.M. Cox. TRC expressed an interest in entering the R/C car field, so I wrote a proposal to evaluate, compare and design them an R/C car, with rear suspension. The deal fell through as TRC was sold and then went out of business. But I had the bug. I used my hard earned money and bought an Associated car and Cox gave me a few .15 engines.

After I had run R/C cars for about a year, I decided to start on a rear suspension (RS) car. But instead, a situation came up where I could get my own R/C car company started and the RS car went on the back burner until a basic car could be developed and marketed. In mid '74, I had an RS car going, good, too, but it was not strong enough (same problems as years ago). Now, in '75, I think the answer is finally about here. So you can see I've thought about suspension systems for quite some time. And their time (suspension systems) will be here shortly.

I didn't mean to reminisce quite so much, but that's the way it came out. Anyway, my next article(s) will go into the basic requirements of suspension systems, reasons for suspension, current front suspension systems, current rear semi-suspension (rocker rear ends), rear suspension, old suspension systems and

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Designed and built by Boeing Aircraft Company, the legendary B17 Flying Fortress was "the guts and backbone of our aerial offensive" as General Hap Arnold put it. The tremendous fire power of its thirteen 50 caliber Machine Guns and the special formation flying, enabled the Squadron to penetrate enemy territory without fighter escort. Our Model is a faithful and highly detailed replica of the Prototype. Frame members are accurately Die-Cut from finest quality Balsa and every part numbered to insure fast accurate assembly as shown on the Step-by-Step Plans and instructions. Many highly detailed and Plastic Parts simplify assembly. Included are Chin Turret, Nose Canopy, Top Canopy, Navigator's Bubble, Top Turret, Ball Turret, Tail Canopy, Tail Gunner Enclosure, Cowlings and Nacelles. Also included is Covering Material, Formed Wire Parts, Wheels, Authentic Decals, Hardware (that includes Control Line Parts) etc. etc. Kit can be built many ways: Rubber Powered (as supplied), Gas, CO_2 Engine, or Electric Motor For Free Flight, Control Line or Radio Control or Static Scale.* Any version makes a Museum-like Model

SCALE: 3/8" = 1 FT. SPAN 39" LENGTH 28½"

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

HEIGHT 8" LENGTH 14"

KING FISH

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

KIT B24 $24.95

HEIGHT 43"

LENGTH 34"

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suspension system problems. This presentation of suspension systems cannot really be concluded until a working and proven system is developed for R/C cars. I have had personal experience with a rear suspension system (1974) and rocker rear ends (1975), but can only give you my impressions of front suspension systems, since I've never used any.

That's it for now. Hope to see you all at the 1975 ROAR nationals Aug. 20 to Aug. 24, 1975, at Rattey's Raceway in N. Attleboro, Mass. I've heard some interesting things about the track . . . banked turns, WOW! Hope the locals don't chew us up into little pieces! ●

Workbench . . . . *Continued from page 4*

readers . . . and advertisers, who have taken the time to offer constructive criticism. We haven't adopted all of the ideas, but we've sure considered all of them. It's nice to know that there are people who care enough to compliment us on our efforts . . . it's much easier to issue complaints . . . or nothing at all. We have the feeling that many of you consider MODEL BUILDER to be *your* magazine . . . and we can't think of a better compliment than that.

WHERE HAS IT GONE?

Way back in February of 1967, the Valley Forge Signal Seekers, an R/C club of suburban Philadelphia, Pa., published in their "Hear Ye" newsletter, then edited by Bob Lamey, the following article. It was originally (as far as we know) printed in the Nov./Dec. 1966 issue of "United Shield," a magazine published for United Airlines employees and their families. Bob "swiped" it from an office magazine rack and obtained permission to reprint the article. We have kept it in our files ever since, and have, on various occasions, reread it word for word. Each time we do, it captivates our mind all over again . . . as if we were reading it for the first time . . . and each time, as we read the closing paragraph, the familiar lump comes up in our throat.

The article is entitled "Where Has It Gone?" The author was Capt. John Wisda, Los Angeles Flight Operations, and wherever he is today, we'd like him to know that we admire this piece of material more than anything else we have ever read.

In our business, we concentrate upon riveting metal to metal and wood . . . forming pipes, tubes and conduits to designated shapes . . . adding miles of wire in planned systems . . . designing dials, knobs, switches, levers and pumps for definite purposes . . . and then bolting the whole mass together in a single unit.

Then we take this object—an airplane—and shove it through the air as fast as it will safely go. (When this is accomplished, we design one even more complex and push it even faster).

The route along which this machine travels is determined by computer; the altitude is chosen by schedule and economy; the grace to go is given by the friendly Aviators Association.

A massive, mechanized operation but with the one component missing that made flying the wonderful thing it is. Romance, I guess you could call it.

Last week, a seven-year-old boy on the airplane turned to his mother as I walked by and said: "Mother, is that the driver?"

"Driver?" I thought. "Driver! Where has the time gone when every seven-year-old boy around called a pilot a pilot—and with a capital P?

"How long ago was it when the pilot sat tall in the cockpit of his open biplane, with all the young lads hanging on the airport fence, open-mouthed in complete awe? How long ago, when, bumping over the dusty tarmac and climbing into the sweet, pure air over the windsock and battered hangars, the flimsy crate of wood and cloth was transformed into a thing of magic by the pilot at the controls?" *

A man's reflections often return to his years as a small lad. Mine concern the early 1920's, in the small town of Rawlins, Wyoming. Located along the Union Pacific railroad and the Lincoln highway, it was also on the old air mail route.

On many a clear day, in our knickers and sheepskin coats, we would climb the hill behind my home to be closer to the mail plane as it soared overhead in the afternoon. A boy's mind could be easily mesmerized by the sun bathing the propeller in a translucent whirl. The sound of the old Liberty engine, the hum of the flying wires and the view of the pilot in the cockpit were unforgettable. Occasionally the pilot would wave and we would wave back. The day was complete.

On cold wintry days when the wind was whistling and the snow was polluting visibility, obscuring all except short distances, we would go with our dads to the train depot. At the scheduled time or, sometimes, later, we would see that same biplane with frozen pilot, crouched

down out of the raging weather, threading his way right on top of the railroad—the old "iron compass"—flying so low that he had to increase altitude to miss the semaphores. Completely dedicated to his profession . . . loving it . . . absorbed in trying to stay alive.

Later, I learned that those pilots knew every bend in the railroad, the location of each semaphore and the altitude in feet—not hundreds of feet but feet—of every mile of track along the route. They had to.

(It was cold in those cockpits. The only heater was the alcohol heater. A trip from Laramie to Rock Springs consumed a fifth).

Then the era began to change, first slowly and then rapidly with the advent of light beacons, radio, closed cabins, de-icers, retractable gear and on and on. With each change, it seemed, a little bit of the romance began to die.

What excitement there still was, though, in the early days of the DC-3, with the primitive ranges, inadequate de-icers, short runways and the like. To make an instrument approach on a snowy day had its most interesting moments:

"A" is on the left, "N" is on the right. Initial approach over the radio range is 3,000 feet. Check over the range, gear down, green light, pressure up, hydraulic fuel okay, one-quarter flaps. How much ice is on the wings?

Carburetor heat 75 degrees, speed 120 mph. Fly out for the procedure turn. "A" is now on the right. Make the turn and let down to 1,900 feet. Now "A" is back on the left again.

Is there more ice on the wings? Recheck the altimeter, hold 7 degrees left crab. Open the window, scrape the ice off the windshield with the putty knife. Are the de-icers working? Ice thrown from the propellers is hammering the fuselage.

Over the radio range again, final approach. Three-quarter flaps, speed 100 mph, let down to 1,100 feet, turn to a heading of 020 degrees, count off the seconds to 19.

How much snow is on the runway? How high are the snowbanks along the sides? Will the cross-wind force me sideways into one? Will the braking be good enough to get this thing stopped? There's 19 seconds—where's the field?

There it is! Full flap, power off, slip it a little, wing down on the left and now slide sideways down the runway. The fence is getting bigger as she slows—and then all motion stops in time. Whew!

It was customary then to walk into the office and, when the dispatcher asked "Rather rough today?" reply "I couldn't really say. I slept through most of it, the stewardess made the landing."

And those massive, beautiful thunderstorms, expressing the power of 50 atomic bombs. Hail bounding off the tin, St. Elmo's fire ringing 'round the propellers, bolts of lightning dancing across the sky. All the fury of the Almighty shaking our toy airplane like a baby's rattle. Pencils and flashlights flying around the cockpit; radio too full of static to be of any use. So, down on the deck, 1,000 feet above the ground—and you'd better know how high the ground is.

Follow the light beacons. Where is the railroad? Stay on the right because there goes another airplane . . . and another. A light in a farm house down below . . . probably some farmer reading his evening paper. I wish it was me!

During a lull, I make a trip to the passenger cabin to survey the damage. A little old lady asks "Can't you do something about this rough air?" And I reply "Ma'am, there is only one Being who can do anything about it and I have just had a long talk with Him."

So here we are, in a pressurized cabin six miles above the earth. The storms and ice and hail are far below. The steak is too well done, the wine is the wrong vintage and the air was a little choppy for 10 minutes about three hours ago.

Beneath us is the Platte River along which lies the whole history of travel across our great nation. The Oregon Trail—we go farther in one minute than they did in one day—then the Pony Express, followed by the stagecoach, the railroad, the open biplanes and now us.

because surprisingly enough, there are a number of reader letters, and especially club newsletters, that are still addressed to MB at 12552 Del Ray. It is only because our personal mailman, Roy, recognizes the problem, that we still get this mail and tote it to the office the next day.

Obviously, when we move away from Santa Ana, and into a new postal district, the P.O. cannot be expected to forward mail from an address that was changed 2-1/2 hears ago! Please folks, MODEL BUILDER is at Box 4336, 1105 Spurgeon St., Santa Ana, CA. 92702.

DIRTY DAN TAKES OVER

Beginning in this issue, we have a new Control Line editor, Dan Rutherford, 920 240th St. S.E. No. 1, Bothell, Washington 98011, a suburb of Seattle.

Known as "Dirty Dan" by his associates, not because of his personal cleanliness or dressing habits, but for his ruthless tactics in Combat, he is an active yo-yo flyer and is in constant touch with his compatriots around the country. He is also the Control Line Contest Board representative for District XI.

Dan has some great projects in the works for future columns. Also, he would like to hear from our readers, especially those with interesting photos to share with others. Write to him directly at the above address, or c/o MODEL BUILDER. •

Ms. Only . . . . . *Continued from page 24*

What comes next is conjecture.

The vehicles of travel were important and so were the men who handled them. Each complemented the other; one without the other was nothing. First the oxen driver, then the stagecoach driver, then the pilot and now the airplane driver.

It all passes, as we too must pass. I can only say that when I make my last flight West I will know that I was a part of it—and it was a part of me.

ABOUT THOSE EARLY NATS

Following our editorial concerning what year the Nationals actually started, we received the following letter from John Worth, AMA's Executive Director: "Dear Bill,

Your July 'Workbench' is misleading concerning what AMA claims as the first Nats. We don't say Detroit in '28 was the first . . . we say 1923, just like Bert Pond claims . . .

"There *is* a problem, however, concerning what happened between 1923 and about 1935. For example, an excerpt from National Aeronautics magazine for June 1937 says that the '37 Nats was the 12th annual. And the late Willis Brown, who was AMA Historian, has the 1937 Nats listed as the 10th. But Bert Pond, who took in all or most of the earliest Nats, says that 1937 was the 15th! *(that sure counts up right. wcn)*

"We're researching to find out who's right, but there may never be a clear cut answer because it seems to depend upon various definitions of what event was properly called the Nats. Anything before 1936 was before AMA existed. NAA (National Aeronautic Assn.) was the governing authority then so we're digging further into their records to find a better answer.

"In the meantime, the 1975 Nats is being recorded as the 44th at present since that number is consistent with all our past WWII records."

WE'RE PACKING

Hopefully, by the time you're reading this, MB's editor and his family will have moved to a new address in Newport Beach, California.

The main reason for bringing this more or less personal business to the attention of our readers has to do with the forwarding of mail. MODEL BUILDER Magazine was born in the family room of our residence at 12552 Del Rey Dr., Santa Ana, California. As it grew, it spread to the living room, and finally to all but one bedroom . . . and then, along came Belinda. In February of 1973, MB was moved out of the house and into offices at 1900 East Edinger, Santa Ana. A year later, it again moved to its own building, where it still is today. (Though things are once more getting somewhat cramped).

We mention the forwarding of mail, by the many spikelets, the longest of which is called an awn. Mr. Nelson at the Center . . . he happens to be a grasses buff . . . showed me drawings and gave me information galore about the offender. Finally he put a Hystrix patula under his microscope to show me the barb on the awn and the saw-like edges on the spikelets. No wonder getting them out is all handwork! I was disappointed that this little rascal is found only east of the Mississippi. Again Mr. Nelson came to my rescue and assured me on the other side of the Mississippi you have a grass of the same genus called Hystrix californica. The only difference is this has the barb on the point. So they get you coming or going all over the United States!

When I was first married, I picked all these little nature things out and off. After a few years of this, plus a generally rotten day, I decided the heck with it. I threw the clothes in the washer . . . seeds, stickers, burrs and all. Everything came out beautifully, Old Hystrix was right there, dust free and glossy, embedded deeper than ever. Maybe you've done the same thing and you begin feeling remorseful and don't have the heart to put the pickery things in his sock drawer. I did.

Something happened later that night to make me realize I had to go back to my picking. I was lamenting my short supply of liquid stuff needed to remove

my artificial finger nails. I had six off and four to go. It was Sunday night. Nothing was open. Bill sniffed my little empty bottle and nodded. He produced a gallon of Sig dope thinner that worked beautifully. We were buddies again. I hurried right to the bureau and did a fast sock job.

One other time I had a major run-in with my friend Hystrix. I was sitting on the floor near the washing machine preparing to "pick socks," as I call it. Because of my near sighted problem, I had my glasses off and a sock very close to my face. I was having a daydream somewhere between being an Indian Squaw and being in the Little Red Riding Hood Fairy tale. I was thinking, "The better to see you, my dear Hystrix, ugh!" Suddenly my son, who was supposed to be at college, appeared in the doorway with several "house guests" and said, " . . . and this is my Mother."

But you can't go on feeling sorry for yourself for ever. I'll admit that sometimes I'm struck with a definite feeling of jealousy. At these moments I wish and long and hunt for a hobby that will consume me. "Why can't I," I ask myself, "be crazy wild about something?" I do have this thing about eating out, but one could hardly call that a hobby. I have lots of things I like to dabble in, but I simply cannot stretch them into anything that would remotely compare with my husband's love affair with modeling.

I thought nature study was going to be the answer. At every contest, shortly after the first crash, I'd strike off down the little road or through the woods to observe nature. Sometimes nature happens right before your eyes on the contest field. I witnessed a spider hatch, where billions of minute spiders were throwing themselves about on tiny gossamer threads. I was off to the Nature Center again, but the patient Mr. Nelson told me all spiders do this, and the only amazing thing was that I hadn't witnessed it before. I have the distinct feeling that if he sees my orange car pull up again he'll be out the back door and down the wilderness trail muttering, "Flake!"

During my nature phase, I made several attempts toward starting a Critter Race at our local contest. This is an outright steal from the Mint Julep contest held each May in Rough River, Kentucky. All my tries were failures. We either had kids aplenty (mostly boys) but only a handful of critters, or we were loaded with critters, but only a few willing kids. Have you ever been in a field that's the home of countless caterpillars? They were in our hair, in our food, on the lawn chairs and even in the impound area, without a frequency clip. They collected them by the paper cupful and deposited them where they would evoke the shrillest screams. But alas, the furry things are poor and sluggish racers and the kids went happily back to jumping over wings in the pit area.

Cheryl's philosphy is the best. Enjoy. Have you never dreamed about taking over the controls? I have. I picture myself on the top of our local great sand hill at Warren Dunes State Park. Many of Bill's glider pilot friends are there watching him expertly hunt the lift with his King Kong. In my minds-eye it is always a very windy day. Small People Warnings are out! I step up casually and say, "I'll fly for awhile, Bill." Bill smiles and confidently hands me the transmitter. Somehow it's very hard for me to daydream beyond this point. One thing I know for sure. If I were standing in his shoes, or I should say socks, I'd know enough to stay way back from the Hystrix patula! •

Remotely . . . . *Continued from page 16*

decorations, swimming, fresh pineapple from Hawaii, real rocket style fireworks, and over 100 guests.

"By Saturday morning the lovely ladies in the concession stand looked like angels from heaven as contestants preparing for the Quicky races viewed them behind the coffee pot through their road map covered eyes. Five rounds of racing took place for 43 flyers, and the lunch break was highlighted by a Bicentennial flag ceremony before a gathering of spectators to commemorate the beginning of a year-long series of

anniversary happenings planned through 1976.

"The final gathering for the awards banquet at the Latitude 20 was a fitting climax to months of hard work and a week of good fellowship and competition. Carson Parks and Recreation Director Howard Homan and Recreation Superintendent Ed Ricci were among the distinguished guests, and Mr. Homan told the 140 people present how he had literally laid his job on the line to help us retain our flying facility in the face of pressures and complaints from a few local residents.

"Everyone went wild over the beautiful and unique hand-painted statue-like trophies that were sponsored by Bill and Anita Northrop and MODEL BUILDER Magazine. First place statues had the added dimension of utility, as they were crowned with electrical works and a lamp shade.

"Before the Latitude 20 floor show started, Larry Jenno announced next year's Annual Vacation Fun Fly, which is guaranteed to surpass your wildest dreams. Start saving and planning now, and watch these pages for an announcement of the dates and details. Destination . . . JAMAICA! See you there!"

ON QUARTER MIDGETS

We think the following letter from Bill Cooper, Quarter Midget Vice-President of the NMPRA, addressed to George Zink, editor of the Metropolitan Air Racing Association (New York) newsletter, says quite a lot, and we quote it completely.

"Dear George

"I would like to comment on some general beliefs and what I consider misconceptions about the 'real experts' in Quarter Midget competition. These were manifest in your article about the recent protest at the MARA event.

"As you know, I am 100% in favor of some method of determining whether or not an engine is stock. We have enforced this rule for 2 years at the QM Nats at Rough River (We disassemble top five places). What concerns me is that it is always the winner or the guy with the fastest time who bears the brunt, whether it is a legitimate inquiry or a jealous loser. We need the control, but a simple RPM check with a common prop might be a faster way to do a preliminary engine check. A nitro check directly following a fast time will catch more cheaters in QM than everything else together.

"I am not saying eliminate this control, but use it with other measures: For example, a steward (he could be the Starter) who checks props before each heat, and one person to fuel and defuel each competitor between the pits and the line. There is no complete answer, but believe me, there is more to cheating than souping up engines. The average guy doesn't know how, and the real experts can do plenty that is not readily noticed.

"I would like to bet that there are more rule-benders in the 4th, 5th, and 6th place categories than the names you see finishing 1st, 2nd, 3rd with regularity. Watch how often a fly-off for the lower places will result in a drastically reduced time for one of the competitors, with no obvious decrease in pilot performance. Watch for the guy with the squeeze bulb in the pits and shiney props, in addition to the winners and runners-up.

"One final observation regarding good engines 'falling' into the hands of the experts. George, I don't really think this happens. My 1:47 was turned with an engine that turns a 7-5 Rev-Up 17,200 to 17,700. Right after I flew a 1:56 (for 11 laps) at Rough River last year, I was confronted with an RPM check (idle *and* top end) even though a power on landing was made. Idle: 3800, top end 16,800. One of the contestants could not believe it, and in fact borrowed another tach to verify it. My point is this, the real winners in QM (Austin Leftwich, Fred Reese, Dan Kane, Bob Blouch, Gail Jacobsen, and many,

many others) do it *not* by modifying engines, but by very patient engine break-in, hours of selecting proper props (I personally spend more time selecting props and recording values than I do building), and building superior aircraft that will go fast with mediocre engines. They also fly very close to the pylons. All things being equal, the proper prop selection separates the men from the boys in QM, not the other things. There too many good aircraft designs and superior pilots of equal ability."

* * *

The following report comes from Dick Scamehorn, editor for the F.O.R.K.S.:

"The Fairfield Ohio Radio Kontrol Society (F.O.R.K.S), an A.M.A. chartered club located in Lancaster, Ohio, held its annual Invitational Quarter Midget Pylon race on Sunday, June 1, 1975. Jim Slater, well known as an active R/C'er, was contest director. Competitors this year included representatives of the Delaware Model Airplane Club (Delaware MAC), Mentor (Ohio) Area Radio Control Society (MARCS), Fort Wayne (Indiana) Flying Circuits and local members from the F.O.R.K.S. This one day event in the past has had several dozen contestants, however, severe thunderstorms on the preceding day and evening limited the contestants this year to a total of ten.

"The race was staged in ten rounds with three heats per round, racing the standard two mile pylon course. Three planes were competing in each heat, with a maximum of three points for first place, providing the winner made a smooth landing with engine idling. Unacceptable or dead stick landings resulted in a deduction of 1/2 point.

"Bill Weesner, from the Ft. Wayne Flying Circuits, took first place honors, edging out Don Love, from F.O.R.K.S., by a narrow margin, as Bill won his ninth round heat, head-on-head against Don. A.E. (Ed) Nobora, from MARCS, captured third place. Weesner's hottest single lap as 11.1 seconds, or a lap speed exceeding 65 mph. But that wasn't Bill's 'big show' of the day. Going into the tenth round, Bill needed only a 1/2 point to tie Don Love; which he could get by just finishing in 3rd place, even with dead-stick landing. A third place with 1/2 point for landing or a second place would win the meet for Bill. Well, Bill won his tenth round heat, took a 180° turn to line up for a victory roll over the field . . . and his plane crashed . . . the airborne battery pack was dead! All the observers agreed, Bill couldn't have made another lap if he had to make up a cut. Bill's flying, not luck, won the match; but his bad luck came just late enough so it wasn't a problem." •

Pursuiteer . . . . *Continued from page 31*

signed and built almost 40 years ago (when published, it had been around for two years), it is probably one of the most "R/C-able" old timers ever to appear.

Activating the tail surfaces is a simple matter of substituting two 3/16 sheet spars in place of the single 1/16 sheet spar shown. Build the surfaces in one piece, placing the spars 1/16 inch apart, and cut them apart after the glue is dry. Fill in between the sheets where you intend to put control horns.

As for the wing, the box spar is, in effect, a top and bottom spar, with webbing front and rear. We'd be tempted to increase the top and bottom pieces with hard 1/8 sheet balsa stock. Also, if only to help support the wing hold-down rubber bands, undercut the center and first ribs 1/16 inch so that the first bay can be sheeted.

We'd also suggest adding a filler piece to the trailing edge where it is held down by the wing rubber bands, otherwise the "reflexed" airfoil could be damaged by rubber tension.

The "Pursuiteer" suffers a little as far as the O.T. rules for glow powered models. According to the .10 cubic inch/225 sq. in. rule, the max displacement allowed is .249 (a Veco 19 or ST 23), which ain't very much for a plane this size . . . In fact, it's downright un-

reasonable! One solution would be to add one rib bay to each panel, or 50 sq. in. This would allow a reasonably sized .29 or .30 to be used.

Close inspection of the photo would seem to indicate that the landing gear was shortened some when the final plans were drawn. The struts do look a little long, so this is a worthwhile change.

Old Timer Pylon Races anyone? •

Plug Sparks . . . *Continued from page 31*

for) and this system proved much easier on everyone's physical stamina, not to mention nerves.

In a review of the places taken, Bob Oslan did very well, with first in .020 Replica, second in 30 sec. Antique, third in Class C, and first in rubber. Wow! Some guys are rough. Between Norman and Oslan, they took home over 1/3 of the trophies!

One sad note to report at this contest was the absence of "King Otto" Bernhardt, as he is affectionately called by his myriad admirers. It appears that the "King" will have to undergo immediate surgery, thus cancelling all his and the family's plans for the trip to the SAM Championships at Denver. We all hope to see Otto on the field in time for the SCIF meet on August 22.

FUELING AROUND

Since the columnist has written sev-

eral articles about ignition and the possible fuels and oils to use, he has been receiving quite a bit of commentary.

The latest letter (and package!) contained various type oils and directions for their uses. Seems that Bob "Fritz" Schafer, former SF Vulture, and Jr Pterodactly Club member, now residing in Spokane, Washington, mixed up some various synthetic oils to attain an approximate SAE 70 wt. oil. He calls it the Schafer Super-Slick oil, and it really lives up to its name.

Tried as directed, in three-to-one and four-to-one mixes, the writer's Veco 50 converted-to-ignition engine ran and idled as never before. Best part about it all was that the engine did not sag in power nor fail to use all of the fuel.

Fritz is a Chemical Engineer with Standard Oil and in his position of research in the laboratory, he has been able to draw some excellent conclusions.

First off, regardless of all other claims, standard unleaded gas is the best for power and economy in ignition engines. He looks in askance at Coleman lantern fuel, as it has a lower boiling point, hence a lower Higher Heating Value, the factor that tells you how much energy you get out of a given fuel.

He also recommends, if you are really interested in getting longer motor runs from a given amount of fuel, that you try Solvent 51L, which is an industrial grade of Tuolene. With a boiling range of 223-250°F, and 91% acromates, Fritz guarantees that if used up to 20% with unleaded gas, you can't help but get longer runs.

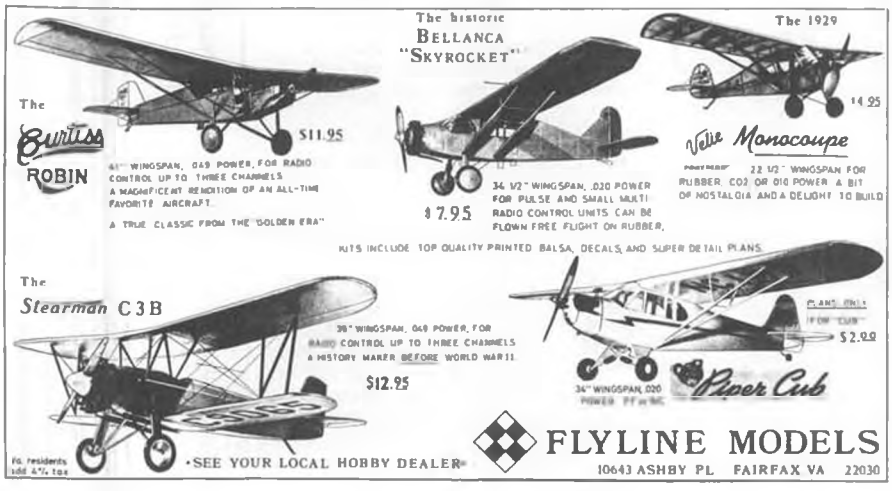
This brings up an interesting point in the gas and oil controversy. The writer has seen naptha and other type fuels used in ignition. The question now comes, are additives derived from petroleum eligible for use in gas and oil mixes? If not, who is to tell when such an additive is present?

Before everyone gets up on their high soap box and starts expounding about rule benders, let the columnist state that in economy tests, no great advantage was obtained. Matter of fact, the writer thought the economy was not as good, however, that is not to say, the engine was enjoying its best needle valve setting. Anyway, think about it, fellas!

TRANSISTORIZED IGNITION

Although a considerable number of systems have been designed for running ignition engines, none has been developed for use with radio. Tom Bristol has enthusiastically tackled this problem in conjunction with the writer.

Using an old Bob Long Cabin model of seven foot wingspan as a test bed, a Dennymite engine, and a Kraft Sport series have been installed. This is probably the worst combination you could arrive at; a Dennymite has a terrible open air point system for electrical noise, and the Kraft is one of the most sensitive sets to ignition disturbances. If we



can get this combination to work satisfactory at 1000 feet (with engine running) then Tom will share his hot circuitry with everyone else.

Incidentally, early tests without a shielded high tension lead to the spark plug showed the Kraft set being bothered. As reported in this column many months ago, the shielded cable RG-58-U was then employed, with excellent close up results. Now to try it at all altitudes!

To top the cake off with real whipped cream, Bristol has incorporated in the schematic, a "flip-flop" circuit that will prevent batteries from being shorted out when the propeller stops in that awkward position with the points closed (dead short!). This circuit can be used with any ignition system regardless of whether it is for radio assist or true free flight.

When the circuitry has been thoroughly "debugged," we'll run an article in your favorite magazine (MODEL BUILDER, what else?).

SPOT SHOTS

That doll, Randy Carmen, reports again on the doings of the Society for the Preservation of Old Timers (SPOTS), stating the "business" meetings are more fun-filled than the get togethers on the field.

Their latest First Annual Feminine Fun Fly was actually held at the field, rather than the back yard as done previously. As Randy sez, it was indeed a sight to see ten women in the middle of an R/C field, flying "Stringless Wonders." Not one model flew in a circle, making the scene appear like a Keystone Cop comedy with everyone rushing around in a different direction. To show that the club reporter was no slouch, Randy copped a first with Betty Schaible, second, and Marianne Clark in third place. Next year, they expect to use twin pushers! (Boy, are they in for a surprise at the performance of this type model!)

Following the contest, a victory barbecue was held at Bobby Haley's place. Wotta feed! What a way to go!

SAM 7 SHENANIGANS

Received the latest SAM 7 Newsletter, as edited by Carmen Botticello, from Tom Lucas. The commentary on the Spring Rally was nothing short of hilarious.

It appears that Tom Lucas was trying to outdo Pond's fantastic reduction of his Playboy Cabin to kit form at Lakehurst. Feeling that spring plowing was in order, he ran the model through a freshly plowed cornfield upon the completion of a beautiful loop. Would you believe, after extracting the model from terra firma, he proceeded to win the Cabin ignition event!?

It seems Lucas has the "magic" touch, like assisting Jack Whittles to launch his Thermic 70 towline glider into the top of the nearest tree! Undaunted, our heroes employed Robin Hood, (otherwise known as Ed Novak) to retrieve the model. Cleverly looping the string over the tree, Ed walked the string around the tree and removed the glider. However, the tow hook caught and the model slid down the string until sufficient speed was built up to release itself. Clever! Problem was that the model promptly circled back and again embedded itself in the tree 40 feet from the ground!

After several arrows pierced the model with no effect, George Judd took pity on Jack and climbed the tree to recover the model. After a successful recovery, he found, upon arriving at the base of the tree that he had lost his wallet and glasses in the high grass! Believe it or not, the next day, the boys, armed with scythes, cut all the grass and found the lost items!

Carmen also noted that the mylar covering on Ted Patriola's Sailplane (winner, Pylon Gas) was just the thing for the rain, shedding water like the proverbial duck. Most models exposed to the weather looked like dried prunes (lotsa wrinkles). Without a doubt, the weather held down the entries, as many came over a hundred miles only to pass up the chance to collect some hardware. Anyway, everyone had a great time just being there.

DON QUIXOTE RE-PLAY

Received a most amusing letter from Frank Stotler of Portland, Texas. Seems that his Blue Star (remember that racey one kitted by James Motors?) which had better than 200 successful flights, jousted rather successfully with the local farmer's windmill.

The windmill fan was turning pretty rapidly and when struck by the model, sort of disintegrated by itself from the vibration of an unbalanced fan. As Frank sez, "Was that farmer mad!"

Although Frank regards the situation as humorous, the bill came to over $300.00! Moral of the story is to make sure your insurance is current when you fly. The model is being rebuilt by Frank and the writer is hopeful he may be able to get some sketches of this very rare design.

40th ANNIVERSARY BROWN JR

Although an announcement was made in the last column, the writer feels he may have glossed over this subject too lightly.

Actually, what has happened, is that Herb Wahl, who has been running a motor repair service for Hurleman and Brown Jr. motors, has gotten together with Bill Brown to produce a "new" Brown Jr. This will commemorate Bill Brown's motor achievement 40 years ago (while still in high school) and will be faithful in every detail to the old, long stroke Brown Jr. first produced way back then.

According to Herb, orders will be accepted up to October 31, 1975, at which time the production limit will be

set and orders closed. The price will be $150.00. Sounds high? No way! Each engine is hand fitted, test run, and extensively engraved. The motors will be serial numbered (engine collectors will love this!), registered in the original owner's name, accompanied with an authentication certificate signed by Bill Brown himself!

All features of the engine have been personally approved by Bill Brown. So, if you are looking for a gleaming chrome plated engine fully covered with parts and service warranty, write to Herb's Model Motors, P.O. Box 31, Crum Lynne, Pa. 19022.

Want more than one? Okay, and you save money with a three engine order being priced at $150.00 for the first, $140.00 for the second, and $130 for the third. Heck! It's worth the speculation alone!

KLONDYKE ENGINES

The "Klondyke" engines (K&B Torpedo conversions to ignition) are being temporarily discontinued until the early spring of 1976. Mark Fechner says he has so many requests you wouldn't believe it. When he finally gets caught up, he will announce resumption of the Klondyke engines.

SLAM SIGNALS

The Saltair O/T Champs held at the salt flats near Salt Lake City was a great contest, according to Nicki Fechner, the "Contest Directors-Director." Nothing like a backup, eh, men?

Jerry Sanford was the big winner, taking two firsts, one second, and one third! An old timer hand launched glider event was held for the first time, with Mark Fechner coming out on top flying a Charlie Belsky design (lives in So. Cal. now under Charles Bell). Lin Haslan proved it was a good design by using the same one to nose out a Joe Hervat design for second place. They should call Jay Jackson, "me too" as he came in second three times! Gotta change your luck.

Rolf Onrstog came over the hills from Denver to win Antique, but unfortunately lost his Clipper over the Salt Lake. Mark Fechner will be flying with Jim Womack to find lost models and then using a salt water boat to get it. Lotsa luck!

NORTHWEST "BIGGIE"

Almost overlooked the announcement in the Willamette Model Club "Patter" Newsletter sent out by Al Grell, of the big Northwest O/T Champs on Sept. 14. There will be nine events, with trophies to third plus merchandise. A feature of the contest is the noon time break for lunch, pictures, and the special Beauty event. Contest will be preceded by the 4th Annual MECA Collectogether and Old Timer night. This is a must! For dope, entry blanks, etc., write Jack Shafer, C.D., P.O. Box 322, Dallas, Oregon 97338.

Bob Stalick has gone out on a limb and said it is about time we had some good weather. He has put in a reservation with Jupiter Pluvius to rain elsewhere, so come one, come all!

. . . AND NOW FOR THE GOOD NEWS . . .

Just before going to press, Marge Bernhardt called to say it is not time for the toast, "Long Live the King." A successful operation showed the black spot on the colon to be benign! Best news this reporter has had in years. The good Lord has seen fit to spare one of the righteous in modeling; what else but a leader in old timer free flight! Amen! ●

F/F Scale . . . . *Continued from page 41*

solder these onto the motor case in a triangular configuration (the apex of the triangle at the bottom). Follow by soldering 1/2 inch lengths of 1/8 inch brass tubing on top of these channels, letting them protrude a fraction beyond the back of the motor case. Retain the prop shaft using a wheel collet. The wiring is straight forward and shouldn't be a problem. However, I would recommend using lamp wire, otherwise the resistance could be great enough to affect the power of the motor. Keep the wiring as short as possible, yet provide enough length so that the batteries can be moved

fore and aft for CG location.

The mounting of the motor in your model is accomplished by using 2-56 screws and blind nuts. Note that there is a small rubber grommet sandwiched between two washers at each mount. This provides somewhat of a shock mount, but is primarily an easy way to make thrust adjustments.

The next little gimmick involves using VL's Hytork motor and planetary gear unit. I had built a French Caudron, and for "scale effect," I wanted it to have a three cylinder Anzani engine out front. My first thought was that I could convert William Bros. Le Rhone cylinders and attach them directly onto the Hytork motor. The more I studied the situation, the more I realized that it would be nearly impossible to keep the cylinders attached in this manner. After some scrounging around my workshop, I found just what I needed to make an Anzani crankcase . . . a plastic container used by coin collectors, the one for quarters. I cut it to length and drilled a hole in the bottom for the prop shaft to go through. I measured for three holes along the sides of the cylinder 120° apart from each other. I started the holes using a center drill. Since I was using the 1-1/2 inch scale cylinders, I followed by using a half-inch drill. A shallow tapered reamer was then used to get the holes exactly the size required by this size of cylinder. The exhaust stacks as they come with each cylinder were cut to resemble those found on the Anzani.

I personally feel that electric will advance considerably as more and more modelers tinker with this mode of power. Presently, modelers have to acquaint themselves with the quirks and choose designs and size that is best suited for electric power. I'll keep you posted as I encounter developments made to further our scale cause.

One other hint that I would like to pass along has nothing to do with electric motors, but I hope it is one that you can use. I have been using .008 Pylon Brand control line wire (braided) for rigging biplanes, or models like the Caudron. That in itself isn't all that spectacular, but rather, the way that it is attached to the model. Typically, one common way to use this type of material is to use 1/16 aluminum tubing, say about 1/4 inch long, slip one end of the cable through the tube, the same cable end around an attach point, then back into the tube, then the tube is crimped. The same is done to the opposite end, pulling the cable taut before crimping. Well, I've modified this same procedure by using very small wire insulation instead of the aluminum tubing. You obviously can't crimp this material, but a drop of Hot Stuff on the wire and tube keeps it locked forever. The reason that I like it so well is that the insulation material is so much smaller that it does give a "turnbuckle" effect.

One other thing I have found, is that when cutting the cable, it tends to unravel. A simple solution is to drop some Hot Stuff where you want to cut, and let it dry for 30 seconds, or so, then cut. Soldering accomplishes the same thing but takes much longer to do. Once all the rigging is done, I paint the insulation material, using Floquil's gun-metal. This seems to give it the right shade. Some may want to use a more silvery color to match the cable.

I've used this system with .049 models down to the .020's with successful results, and it certainly beats using thread!

One last hint is the use of welding rod for making cabanes on biplanes and parasols. At first glance this may seem ridiculous, but hear me out! I was in the middle of a project bending 1/16 piano wire until I ran out. It was late at night and I wanted to finish (the old familiar story), so I looked around the barn when my eye caught this large bundle of 1/16 welding rod on my welding cart. I had nothing to lose, so I gave it a try. The first thing I found out was that it was certainly a lot easier to bend than is piano wire. Once bent to shape, the rigidity wasn't too bad at all. In fact, I've been using it for quite some time.

By the time you solder the "X" bracing between the cabanes, and add the balsa or hardwood farings, the center section is plenty secure. It is just another easy way to make our modeling just a little more pleasant.

Painting was done before assembly. I have been using a product for quite sometime called Liqu-a-plate. This paint is unbelievable for plastic. It comes in four shades of aluminum, numbered 1 through 4. With one being bright and the others progressively darker. I used number 4 for the cylinders and this is the best color I have seen for engine cylinders. The crankcase was painted with the bright silver. These paints have to be airbrushed. A sealer has to be sprayed over Liqu-a-plate, otherwise it will come off with repeated handling, but it is still

worth the effort. One interesting thing that can be done with this product, which the plastic fraternity does quite often, is that Liqu-a-plate can be rubbed to whatever degree of sheen or shine you want. On plastic, it truly looks like metal. You ought to try to get a hold of some of this unique paint and experiment with it. I have used it over doped tissue with excellent results. It is extremely light, considering that it takes very little material to cover a job.

Once painted and dry, each cylinder was Hot-Stuffed onto the "crankcase" (exhaust forward) followed with some epoxy for good measure. The engine was attached to the Hytork motor using a contact type cement. I did have to make a small extension for the prop-shaft since the exhausts were in the way. I did this quickly on my Shureline lathe, but using a piece of brass tubing and a couple of washers would work just as well. Rubber grommets at each screw location can be used, or even an "O" ring slipped over the rear of the motor would work for easy thrust adjustments.

In the "what's new" department, both Sig and Peck-Polymers have colored Japanese tissue. This is the good kind. How long the supply lasts is not known. Therefore, it would be a good idea to write to them for further information as to color and price.

Vintage Aero has added several 12 inch span Peanut scale models initially designed by Megow, National, Dallaire, etc. These are actually plan/printwood packs and include the following designs: Gulfhawk biplane, Fleet Trainer, Curtiss Swift Pursuit, Spad, V-100 Vought Corsair bipe, and the Fokker DVII biplane. These are priced from $1.25 to $1.79.

Write to Vintage Aero (1 The Glen, Tenafly, New Jersey) for their 24 page catalog of unbelievable goodies. The cost is one dollar. •

Choppers . . . . . *Continued from page 21*

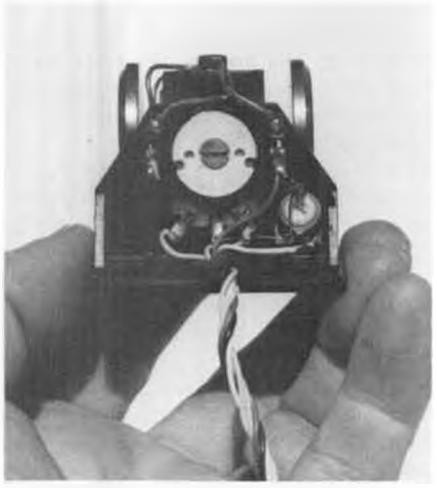
the earth, may be explained by application of the same fundamental laws of motion, for the earth is similar to a huge gyroscope rotor spinning freely in space about an axis through its poles. By reason of the earth's rapid rotation, its axis points approximately in a constant direction in space the same as the axis of a spinning gyroscope rotor maintains its direction in space. This particular fundamental of a gyroscope is called "rigidity in space," which simply means that a spinning rotor (or wheel) will tend to maintain its same plane of rotation unless acted upon by an outside force. Whenever such an outside force is applied to the gyro, it "precesses" (in a peculiar fashion) to a new position. Precession is the second fundamental principle of a gyroscope. Everyday applications of these two principles can be observed by watching the toy gyros, the children's spinning tops, and the bicycle. Have you ever noticed that while riding a "bike" if you want to turn to the left, you must actually move the handle-bars to the right? Try it if you don't believe me . . . it's true. To make it go left, the spinning wheels (gyros) must be "precessed" to the right . . . think about that!

By refering to the drawing, we can see just what the reaction of a spinning gyro will be to an applied force. The axis of rotor rotation will be called "Y," the axis of the gimbal frame "X," and the vertical (or turning) axis "Z." The gyro rotates at high speed as indicated by the arrow "a." When the helicopter is turning, for example, to the left, the entire gyro assembly is rotated as indicated by arrow "b." This rotation applies a "force" to the rim of the gyros and the "reaction" is 90 degrees in the direction of rotation of the gyro as indicated. As a result, when the helicopter turns left, the gimbal frame dips in the opposite direction. This dip is limited to approximately 45 degrees and stretches one of the centralizing springs which serves a double purpose of creating a force which balances gyroscopic reaction during the turn and also recenters the entire assembly to its neutral position as soon as straight flight is achieved.

The size or mass of the gyro rotor, as well as its rotational speed, determines the amount of precession for a given turn rate. The greater the mass or the higher the speed will make the precession much stronger. Weakening the centralizing springs will also have the same effect, however, certainly isn't recommended. In fact, about the only thing you can do is boost your voltage to the motor to make it run faster. Do not exceed the 6 volt rating, unless you are certain you have the very latest motor which can be boosted a couple of volts without burning up.

Electrically, you need to provide a separate 4.8 volt, 500 mA power pack to drive the electric motor. The motor leads are red and black . . . black is negative and red is plus, however, if after installation, you get reversed motion in

the tail rotor movement, simply reverse the direction of motor rotation by changing the battery connections around. By the way, don't try to guess the way the tail is going to react until you have completed the installation and have compared the gyro's action to the proper turning action on the chopper. Remember, the gyro opposes the direction of yaw and should send a corrective signal in the opposite direction. It is also possible (with reversed motor wires) for the gyro to send an assisting signal which will cause the helicopter to rotate violently.



The Kavan Gyro with the lid removed. Hand gives idea of its small size.

As stated in the instructions, it is wise to experiment with the gyro a little in order to get the feel of its action. It won't hurt anything if you carefully remove the cover and observe the spinning gyro in your hand as you turn it and watch the gimbal frame dip. At this time, you can observe the action of the wiper disc on the main pot. This wiper disc will later be adjusted in accordance with the directions to make the servo stay centered whether or not the gyro is plugged into the circuit. If, at some future time, your gyro refuses to send a signal to the servo, it will probably be because the wiper arms are not contacting the conducting ring which lies directly beneath the disc and may have to be readjusted slightly to do so. The gyro pots are connected in such a way that the main pot centers the servo motor in harmony with the gyro and the smaller pot provides a sensitivity adjustment. Turning this smaller pot clockwise increases sensitivity and produces very large servo movements from either gyro or transmitter inputs. Counter-clockwise adjustment reduces the servo sensitivity and movement of controls. You'll just have to experiment to find which is the best for you . . . I prefer a fairly large input which makes the helicopter very directionally stable with lots of potential transmitter input, (be careful you don't overdo it tho). When all else fails, reread the instructions, since they are pretty good.

As far as mounting the cube in your helicopter, it doesn't make a bit of difference which direction it points, nor where it sits. Just be sure that the base is parallel to the floor, otherwise it will sense motion about another axis, and correct for these motions by signaling the tail rotor (and you certainly don't need that).

The KAVAN gyro will detect *only* turning motion about its vertical axis. It will not respond to pitch up or down, nor to banking left and right, provided it is mounted "flat." It will not respond to ascent and descent modes of operation either. The turning motion about the vertical axis causes precession according to the *rate of turn* and not in accord to the amount of turn. Therefore it can be mounted almost anywhere in the machine and it will do the proper job. For a given rate of turn (say 20 degrees per second) the gyro will lean a given amount regardless of its location in respect to the main rotor shaft. The natural conclusion is that if it is mounted in either the nose or tail, it would have a greater movement and hence a greater reaction than if it were mounted near the center of the helicopter. Not true . . . it measures *rate*, not distance travelled, remember? What if the cube is mounted with the arrow pointed sideways, won't

it give a false reading? Wrong again, it still senses rate of turn regardless of which direction it is pointing!

Now that you're really confused, I guess this would be a good time to tell you that it could be mounted on its side, in which case it could be used to detect pitch up and down motions and thereby send corrective signals to the pitch (elevator) servo. Or, it might be mounted on its side in a cross-wise direction, then it could be used to detect lateral roll and correct the roll (aileron) servo. Perhaps you want a full-house autopilot; all you have to do is buy 3 gyros and locate them as described above and connect them to the appropriate servos and away you go!!! Before you go to all this bother, however, let me caution you that it wouldn't be practical for the simple reason that none of the gyros would return the helicopter to a level position in respect to the ground, and that's where it's at!

Although the gyro does correct for an unwanted motion and attempts to bring the motion to a stop, it does not *return* it to its former position. In the case of the directional yaw, it will stop the turn even though you might be on a different heading. This doesn't make for violent headaches 'cause you simply turn it back to where you want to go, or leave it where it stops. I'm afraid, however, that if it pitched up and the gyro "locked" it in this new attitude, you might find yourself working harder to correct back to level than if you had let the natural stability of the helicopter do it for you. Well, it would be an interesting experiment, and I'm sure someone will try it one of these days. Just make sure you let me know how it works out, cause I've been thinking along these lines myself. Ha! Before we leave the gyro and get engrossed in another subject, consider the possibilities of installing the unit in race cars for better tracking? Or model speed-boats? Even R/C airplanes and gliders might take advantage of the gyro's unique capabilities.

HELI-BABY FLIGHT TESTS

Last month we reported on the SCHLUTER Heli-Baby and what a fine machine it was to assemble and fly. Well, we haven't changed our mind, however, did discover a certain basic problem area that had to be resolved before I could call it an unqualified success. After a few very fine flights, I noticed that I was losing directional control in certain maneuvers. Not being too bright, I continued flying it until I eventually lost all control and wiped out a set of rotor blades. Actually, I experienced a complete control reversal on the tail rotor.

After installing new blades (and still not being too bright) I flew again and experienced the same problem. Suddenly, it dawned on me that the plastic belt that drives the tail rotor was slipping and when I applied too much control, the drag of the tail rotor caused the belt to be absolutely ineffective and torque took over in the opposite direction. As I mentioned earlier, I reread the instruction booklet which pointed

Top view showing Tucker's mechanical modification of the Schluter "Heli-Baby."

out (carefully disguised) that the belt could be shortened by cutting out a section and heat-welding it back together. I tried that with very little success in either the welding process or the net results. By carefully setting up a jig with holes drilled to hold the belt ends in alignment, I managed to get the weld to hold, provided I permitted it to cure for a couple of hours. Didn't do much good though, 'cause it started slipping on the very next flight.

There was only one answer left and that was to gear-drive the tail rotor. This was accomplished without too much fuss, however, I had most of the parts on hand when I began the conversion. I first sawed off the existing tail drive unit (pulley, shaft, etc.) and then easily inserted a KALT tail rotor assembly into the tail boom and clamped it in place with a small automotive hose clamp. The KALT unit fits perfectly without any other modifications necessary to the tail end . . . even the rear skid adapts the same way as originally mounted.

The front end was not quite as simple, since a pair of bevel gears had to be set into place. I started this project by removing the clutch-housing shaft and removing the pulley from its end. I next turned down the end a slight amount in my lathe to make it accept a KAVAN bevel gear. This installed, I then purchased a KAVAN bevel gear transmission (part #3105) and proceeded to mill off the base portion and the sides until it was a snug fit between the fuselage sides. This was bolted in place (same way as other parts in fuselage sides) so that the two bevel gears mated at 90 degrees. By turning a small adapter for the tail rotor drive, I was able to use a standard KAVAN drive shaft (cut shorter) to connect the two together. And that did it! I later added a conventional starter belt for ease of starting . . . that pulling on a rope gets to be old stuff after awhile, especially after you whip your arms 'till they are black and blue! Ha! and, of course, I installed a KAVAN gyro on the landing gear by shock mounting a plywood plate across the struts. No further problems, and it really has become a sweetheart in my growing stable of birds!

Postscript: The latest word is that the factory is now considering a pair of slightly larger pulleys and a different type of "flat" belt for much better traction. If this simple modification works, it certainly would be preferable to the more expensive gear-drive as described above. Watch for further developments.

TAPERED ROTOR BLADE EXPERIMENT

While we're looking back for a bit, let's look at the "LARK" R/C helicop-

MODEL R/C HELICOPTER DATA CARD

Complete and return to: MODEL BUILDER/CHOPPER CHATTER
1105 Spurgeon Street, Box 4336,
Santa Ana, California 92702

Name: _____ **Phone:** _____

Address : _____ **Age:** ____

R/C Helicopters: Interest only ☐ **Building** ☐ **Completed** ☐

Type model or kit: _____

Areas where help is needed: _____

List special skills you might share: _____

Remarks: _____

ter, the very popular British entry. I read last month about experiments which were being conducted with tapered rotor blades for the LARK, which suggest that this shape of blade might have advantages over the constant chord design. This whetted my interest, particularly when I was about ready to do a new set for the Heli-Baby anyway! The results were exciting enough for me to make another set for the LARK and see what they would do on that chopper.

Well, I have to agree with David Boddington that, from my observations, I believe they do have good (or better) characteristics, however, will leave it up to the scientists and aerodynamists to explain the merits and the whys. Our tests indicated that the engines did not have to work as hard to develop the same amount of lift as with the more conventional blades, probably because the mass and drag is moved closer to the center of the rotor disc.

Perhaps I should clarify that a bit more . . . the engines appeared to accelerate faster and smoother and produced a higher blade RPM, which would account for the increased lift capability.

Control response on both choppers increased considerably, with the net result that overall maneuverability was only a little short of fantastic. We have no conclusions as to firm dimensions and taper ratios, however, will pass on to you the details of the blades we used on our respective choppers. Leading edges were shaped out of ramin wood or ash, with the ramin being the best in my opinion since it's easier to shape and very light. Medium to hard balsa trailing edge stock was cemented to the leading edge and the whole blade sanded to a conventional airfoil shape. We made no attempt to thin down the leading edge section at the tips, and held a constant thickness throughout the blade length. Covering and balancing was accomplished in a conventional manner. As we get the time to build more blades, we may find all sorts of weird shapes that will outperform the regular blades. Charlie Gilbert, at last report, was working on sume super flexible, helical shaped blades made out of some new space-age material . . . maybe that's the answer.

One thing for sure, I've run out of time for this month. Next month we'll cover a complete rundown of the modifications and changes to the KAVAN Jet Ranger, since its beginning up to the present time. If flight testing is completed in time, we'll also have a report on the latest factory modifications for the Micro-Mold Lark, including the new teetering rotor head conversion.

POSTSCRIPT: The following note comes from Dieter Schluter, manufacturer of

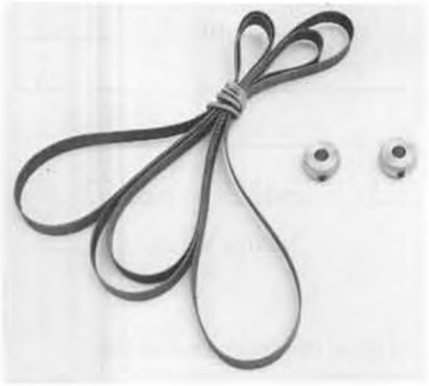
the "Heli-Baby:"

"Dear Modeler,

"During production of the belt for the tail rotor drive of the helicopter 'Heli-Baby,' it was found that in the initial production series, a great difference in belt quality existed which diversely affected prestress and transmission.

"Duly, as a technical improvement, the belt has been replaced by another with a gauze insertion and the pulleys have also been altered accordingly. Two pulleys of the same size will now have to be mounted.

"Each tail rotor blade is to be shortened by 10 mm, as against the length shown in the building plan, so that the total diameter of the tail rotor is reduced by 20 mm.



"The belt prestress can be regulated by sliding the tail boom so that, when placing the belt over the front pulley, it is necessary to stretch it tautly a further 6-8 mm. Make sure that the gauze size runs on the outside. The belt prestress should be checked once in a while, just before flying and when necessary, readjusted.

"For the first series of "Heli-Baby" equipped with the old type of belt, the resulting technical improvements will be regarded as customer service and free of charge. All following series have already been equipped with the improved drive belt."

And for those who have already purchased a "Heli-Baby" kit with the old type belt, you can get the complete 'flat-belt' conversion kit directly from the US supplier, MRC (see ad on back cover). West Coast modelers can get theirs from J&J Distributors, 26071 Via Viento, Mission Viejo, CA. 92675, phone (714) 837-2676. ●

Hannan . . . . . *Continued from page 42*

ing disadvantage in our favor, however, one might think in terms of using this principle to deliberately enlarge 3-views to Peanut Scale size!

UNITED STATES AIR SERVICE, 1920 STYLE

Fudo Takagi brought an issue of "The Medallion" into the Hangar recently, which featured a reprint of some early Air Service flying regulations, from which we have abstracted the following:

"Don't take the machine into the air unless you are satisfied it will fly."

"Never leave the ground with the motor leaking."

"Pilots should carry hankies in a handy position to wipe off goggles."

"Riding on the steps, wings or tail of a machine is prohibited."

"Do not trust altitude instruments."

"If you see another machine near you, get out of its way."

"No two cadets should ever ride together in the same machine."

"No spins on back or tail slides will be indulged in as they unnecessarily strain the machine."

"If flying against the wind, and you wish to turn and fly with the wind, don't make a sharp turn near the ground. You might crash."

"Don't attempt to force machine onto ground with more than flying speed. The result is bouncing and richocheting."

"Pilots will not wear spurs while flying."

"You must not take off or land closer than 50 feet to the hangar."

"If emergency occurs while flying, land as soon as you can."

SOOPER REVIEW

All scale modelers should appreciate this product review, by Ray Smith of

the IPMS:

ITCHI-GOOMA of Skidishima, Japan, has offered as their first rendition, a kit of plastic scale rivets! Scale rivets have long been the ultimate dream of the master modeler, and now they are available! Each rivet, and there are 10,000 in the kit, has been made with true fidelity to detail. Each of these gems is individually wrapped in a protective plastic bag. The kit comes complete with tube cement, and a set of plastic tweezers. Sold under the trade name SOOPER RIVETS, they should be available in better hobby shops everywhere. Better reserve yours now!

When examined in detail, they were found to scale out closer to 1/70. However, this is a minor imperfection which can easily be cured by three buffs (lightly) with slightly moist 0400 size wet or dry emery paper. This will reduce them exactly to 1/72 scale if done carefully. At first, some difficulty was experienced with the tube cement, but with practice, the experienced modeler can master the technique.

Rumor has it that this same firm will shortly market a rivet gun which will operate on hot compressed air, and that they are seriously thinking about entering the 1/32 scale market. We can hardly wait!

THE HANGAR PILOT

More gems from the pen of Dr. John Martin, editor of this most enlightening Florida newsletter:

"News from the Flying Aces Club: This is the King Kong of the fun clubs, and I get the impression that at every fly-in the members belabor each other with inflated pig bladders, and electric cattle prods, to say nothing of seltzer bottles and custard pies. Get the idea? Any super-serious guy gets flung out, I think.

"John has also taken a searching look at the problem faced by most clubs . . . that of the inactive (but usually highly vocal) club members: "How about all you hangar pilots who haven't supported the club this year coming out with *something*, and flying it at this last contest?? Thanks!"

Dr. Martin goes so far as to publish a "Purple Onion" and "Gold Garlic" award list of non-supporting members. He follows these up with an honor-member list, composed of those who have "Struggled to earn a point or two and sent his creation into the air during a contest." Food for thought. •

Peanut . . . . . *Continued from page 43*

Being somewhat partial to radial engine scale models, the D.11 in my mind, made an excellent choice for a peanut subject. The construction is rather conventional so only details of unusual features will be enumerated.

One of the important aspects for realism is the engine. The model shown is a result of an attempt to achieve this realism with a minimum amount of work. The engine is made by first making the crankcase of a 7/16 inch diameter hardwood dowel 1/4 inch long. A 1/4 inch hole in the crankcase provides for the nose plug and prop shaft access. The cylinders are made of 1/4 inch long pieces of 8-32 black nylon bolts glued to the crankcase. Push rods are simulated by pieces of straight pins inserted into the crankcase. Details of the cylinder heads are omitted, since the plastic cowl prevents direct viewing of these parts. Upon completion of the engine the crankcase is glued to F_1. The cowl was made by forming plastic over a hardwood mold using a Vac-u-form. The two cowl halves are cemented together, painted, and glued to C_2.

The landing gear is formed of .020 music wire and wrapped with thread, as shown, to the wing structure. Balsa fairings are added after covering the wing. This provides a good rugged landing gear with good torsional spring action. The wheels are formed in two identical halves from plastic, using the Vac-u-form.

The remainder of the construction is evident from the drawing. The only deviation from the drawing which is helpful during the trimming process would be the addition of soft wire hinges to the rudder and elevator. Close inspection of the skeleton photo of a Jodel built by one of my flying buddies shows this modification.

The prop was constructed in Easy B indoor fashion and has been found to be just as good as a carved prop and much quicker to build.

The original model was covered with yellow tissue and Lite-Coat dope, black numerals, and a red fuselage stripe. Since the airplane was primarily a homebuilt with several hundred kits sold, I'm sure almost any color scheme could be found.

Sailing . . . . . . *Continued from page 27*

heavy work, that of trimming the sheets, is left up to the fully proportional sail control system produced by SAIL ENGINEERING. It plugs right into the receiver. Three channels does everything necessary to keep her sailing. This photo also shows a top view of the traveller. The lanyard limits the amount of travel allowed to port and starboard.

Photo No. 11: WHAT A RIDE! This shot was taken at the Second Annual Marblehead Colonial Regatta in Pitman, N.J., April 27, 1975. Strong winds, good skippers competing, and a fourth place finish for YANKEE DOODLE.

Now that you're all excited about building an R/C yacht, the first step is to join the American Model Yachting Association. Send $5.00 to Mr. Bud Salika, 3917 Sunnyside Ave., Brookfield, Illinois 60513. The $5.00 will be some of the best spent money to start in R/C YACHTING!

R/C Soaring . . . *Continued from page 19*

scale at the Nats with his Bowlus Baby Albatross . . . and do you know what? He did! The Bowlus construction article is featured elsewhere in this issue. Just le me say here that the Bowlus flew beautifully and won the static judging . . . just what it takes to win overall. The scale event was flown to the new A.M.A. provisional rules which called for a 3-1/2 minute max. The new rules are clearly slanted toward the more scale "museum piece" type ships.

Probably the high point of the scale flying was Doc Hall's first-day flight of his SG-38 Schulgleiter. Doc built a much larger version of the ship he entered last year, and then had the misfortune of wiping it out in a practice flight one week before the S.O.A.R. Nats. Regardless of his bad luck, Doc wanted to fly in the scale competition, so he cleaned up last year's Schulgleiter (a post WW I primary trainer) and entered it. In the first round of scale flying, Doc's luck changed . . . he launched into a booming thermal! Three and a half minutes later he had his max, a grin spread from ear to ear, and an official timer who was trying to convince him that he didn't get any points for flying more than three and a half minutes. Doc, who says the SG-38 usually glides only slightly better than his toolbox, reluctantly forced the bird down out of the thermal . . . and spent the rest of that day and most of the next, grinning . . . and grinning . . . and grinning.

The University of Michigan Aeronautical Engineering Department once again presented its Felix Pawlawski Memorial Scholarship award for aeronautical know-how and soaring competition excellence. During the three days of competition, the juniors (under eighteen) are given a written test of their knowledge of aerodynamics and related material. The test is given under an honor system that the junior will not accept any outside help in answering the questions (and having seen the questions, I seriously doubt that anyone other than an aeronautical engineer would be of help anyway!). Based on the answers to the quiz, plus performance in the contest, a $500 scholarship and a distinctive trophy are awarded to the winner. This year, Peter Rambo of Camarillo, California (who was 2nd overall in Standard class), was the deserving recipient of the award.

Although I don't want this column to become a "soapbox" for my own personal rose tossing, I would like to relate something that happened to myself and my wife at this year's S.O.A.R. NATS that really conveys the spirit that is present at this meet. My wife, Gwen, launched into a 'wing-ripper' of a thermal along with several other fliers. In a matter of two or three minutes, her Windfree was a speck in the sky, and was drifting downwind at an alarming

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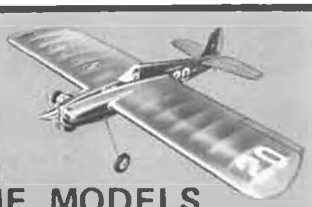

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rate. To make a long story short, she lost her plane downwind. We managed to keep sight of the plane until it disappeared from view behind a building. (We found out later that two other planes had been lost in the same thermal!) Gwen was heartbroken! We drove to the area where the plane had to have gone down . . . and discovered that the area looked like the back side of the moon! There were rivers (complete with barges), cement plants, oil refineries, rock quarries, swamps, trees . . . and no roads. It took us about fifteen minutes to determine that there was little if any hope of finding her plane. But the loss of her plane let me see just how great are the people we fly with!

That night . . . 1) Three different people offered Gwen their back-up airplanes to fly. 2) Kelly Pike, from the Hobie Model Co., came up with a spare Hobie Hawk for her to use to finish the contest . . . 3) Bob Elliot, of E.K. Products, loaned her a radio . . . on her frequency . . . out of his back-up airplane . . . 4) Steve Work, one of the first Level V LSF fliers, started looking for the lost Windfree on foot. 5) With Greg Temple's help, and Jim Simpson's tools, we managed to put together a flyable airplane for Gwen. The next day Steve Work (who was still out looking for lost airplanes during the competition even though he was *strongly in contention)* found Lila Stamm's lost Windrifter. That afternoon, Jason Josaitis (son of AMA District VII V.P. Jack Josaitis) took me up in the family Cessna 180. We flew for more than forty-five minutes, but without any luck, in locating the AWOL Windfree. Finally, Wednesday morning, the missing airplane returned. The workers at the oil refinery had seen the glider *circling the flame* on top of the cracking tower. They had thought that someone was trying to work the lift off the flame! Apparently the Windfree landed nearby . . . somewhat water soaked, but basically intact. There were probably a dozen peopel involved in getting Gwen back into the air, and this spirit of help and cooperation was strong in every contestant almost without exception.

I watched Otto Heithecker launch for a ten minute duration flight, and hit sink for most of a three minute flight. An hour later Otto was coaching three or four other fliers, talking them into the lift zones, knowing full well that each was moving ahead of him on the scoreboard. I know of few contests where the spirit of cooperation is so strong.

Wednesday night saw the traditional awards banquet, with John Nielsen, the smiling Dane, acting as master of ceremonies. After presenting the competition trophies, John saw to the awarding of more than 70 door prizes ranging from radios, glider kits, and balsa wood, to accessory packages, tools, and tool boxes.

The N.S.S. meeting on Thursday, although poorly attended, was interesting. Prior to the general membership meeting, the Board of Directors voted on several written proposals. One of the more significant actions taken by the board was approval of a team selection method for international competition. The selection process, designed by Otto Heithecker, will start in the Spring of 1976 with quarter-final contests to be held by individual clubs. These quarter-finals will be sanctioned by the N.S.S., and will be flown to the F.A.I. rules in effect at that time. An individual may compete in two of the quarter-final contests. A formula was developed to determine the number of fliers from each quarter-final to move on to the semi-final. The semi-finals will be held in six different locations, each to be chosen by the contest directors to be nominated by the membership. Six finalists from each of the semi-finals, plus the three members of the last American F.A.I. team, will compete in the finals to select the three new team members. Tentatively, the finals will be held in Albuquerque, New Mexico. Albuquerque was chosen because of its 5200 feet altitude, closely approximating that of Johannesburg, South Africa, the proposed 1976 World Championship site.

The other significant item to come out of the meeting agenda was the announcement by Dr. Larry Fogel, N.S.S. treasurer, of the tentative approval by the National Science Foundation to allocate funds for a Low Speed Flight Seminar. This seminar will be held January 2, 3, 4 1976, at San Diego State University. Complete transcripts of the talks will be printed and will be available from the N.S.S. The talks will relate to the results of low speed wind tunnel research done under the National Science Foundation grant. This is the first such research to be done in this country, and could prove to be most useful in advancing the state of the art of model aerodynamics.

Other actions taken include a one year moratorium on rules changes. It was felt that it would be in the best interests of the N.S.S. to operate under the existing rules. This, it was felt, will give the organization time to mature, and will

allow time for more careful evaluation of what changes need to be made in the existing rules.

One interesting proposal was made by Dan Pruss, to create a 'stand-way-off' scale event. This would create a special set of awards for a semi-scale sailplane flown against the normal competition aircraft. Static judging would be purely a 'yes-no' type situation, where the model would be compared to three-views or photos of the full size craft and then judged as to whether or not the model was a reasonable representation of the full size aircraft. This type of event could be run by a club without the usual complaints that scale judging was too time consuming, or that adequate judges were not available.

Other items discussed included ways to eliminate 'sandbagging' . . . the deliberate attempts to delay launching by a contestant, to allow time for conditions to improve. No action was taken, although the board heard several suggestions on ways to eliminate this problem.

So in closing, let me say that the S.O.A.R. Nats represented four days of hectic competition, information, headaches, and just plain fun. Special thanks to the Silent Order of Aeromodeling by Radio, and to Dan Pruss . . . one heck of a good contest director.

Now if I just hadn't blown that last round . . . ●

F/F . . . . . *Continued from page 50*

angle into 4 sections. Structural members should be divided equally among the four segments. Figure No. 1, the upper segments contain no spanwise structural members. Therefore the tissue will warp the wing upward. Figures No. 2 and No. 3 have structure somewhat equally divided among the segments. These surface designs should resist tissue shrinkage stresses well.

A side benefit of this kind of spar locating is that not only is warpage reduced but overall wing (or stab) strength is increased. If you have built some of the Spacer or early Starduster series with the single or double bottom spars, you are aware that under load these wings would be apt to break at dihedral joints. The addition of a couple of spars along the top surface will eliminate this problem, as was the case in the Starduster X series when the 3 top turbulator spars were added, or with the Starduster 350 series and the multi-spar arrangement.

SPANWISE STRENGTH DISTRIBUTION

Directly related to balanced wing construction is the issue of spanwise strength distribution (see sketch). Any model wing under load has stresses which are acute near the wing root, but not so much so at the tip. Consequently, the need to have spars and other structural members the same thickness and strength

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at the root as at the tip is not desireable. All of us, probably in our earlier modeling days, suffered the ignomy of having a wing break just at the end of the plywood gussets near the root. This situation can be remedied by constructing the wing so that as the span progresses to the tip, the spars and other structural members decrease in size and strength . . . essentially tapering everything so that at the tip there is nearly a zero strength factor. Any abrupt changes in spar cross section must be eliminated. Plywood doublers should end at different places along the span, so as not to induce stress points, which are waiting for the chance to show you that this is where they will break.

Additionally, a wing (or stab) need only be strong enough to keep from warping and to keep from breaking in normal use. Most of our current structures are over strong . . . usually in the wrong places. The added side-benefits of making tips less strong is that they also become less heavy, which has a payoff in providing better flight characteristics. Looking at the sketch will demonstrate the ideas behind this theory.

Other methodology not apparent in the sketch is to use heavier wood, i.e.: spruce or pine, etc., as spar stock near the root, and balsa in the tips, as well as using lighter and thinner (1/16 sheet vs. 1/8 sheet stock) balsa sheet for wing rib stock when cutting tip ribs.

Planform design provides a similar benefit. A tapered or elliptical type planform includes less material and thereby decreases the amount of weight.

Now, let's take a look at the Three-View of the Month, Ekhtenkov's A/2. He goes to great lengths to produce a wing that is tapered in strength, weight, and rigidity. Instead of constant thickness trailing edge, spars and leading edges, and constant weight ribs on a constant chord wing, the EVG 1172 wing is rigid to prevent flutter when catapault launched. And even with all of those pieces of wood in it, the entire total weight of both wings is 120 grams (4.3 ounces). Not only that, those tips must weigh less than 3/4 ounce covered each, and that will certainly offer a reduction in moment of inertia over the more prosaic constant chord wings of the typical U.S. machine.

The more one looks at the EVG 1172 wing, the more one becomes convinced that here is something very close to the ideal. Tips are not below 90 mm chord, and are therefore still effective at A/2 glide speeds, and the length and taper of the tips gives a reasonably large wing (84 inches) while still retaining a good root chord, and above all, a low moment of inertia.

There is no doubt that a wing like this would be prone to damage from tip-first landings, and tumbles in rough weather. There really is no model or type of construction that can eliminate the possibility of damage from this source, but you will observe that Ekhtenkov has used very large and presumably soft butt-joint ribs at the dihedral break. These will presumably shear in such a crash and could be very easily epoxied in place for the next round.

With a 4.3 ounce wing and 1/3 ounce tail on a built-up fuselage, there must be about 7 or 8 ounces of ballast around the nose of EVG-1172. If this is the case, then it is no wonder the Russian models look so light. Anyone who has added

ballast to the center of a model will attest to the improvement in glide stability.

Now, let me put some of the above into perspective as it applies to A/2 gliders. Take another look at the A/2 three-view. It has the following features:

1. Conservative proportions . . . strength and weight in the right place.

2. Wing section . . . Benedek B-6356b. This section was featured in this column last month, and is one used by nearly all successful European competitors.

3. Built up fuselage with a "keel" area near the nose. This type of construction lends itself to more rigidity and lightness than the typical (and flexible) fiberglass boom of U.S. models.

4. Short tail moment arm . . . to take advantage of light thermal activities.

5. Circle Tow System.

A closer look at the plans will reveal other features which are more subtle, but nonetheless provide even more food for thought.

Three-view provided by Free Flight News and commentary partially obtained from Paul Lagan.

CONJECTURE DEPARTMENT

John Novak wrote recently and posed this problem: If you could go back in time to 1941 to a free flight contest and could take one piece of equipment with you, what would you select? He says he thought about taking a T.D. 049 or a S.T. 15 or a Starduster, but settled on a pack of Sig D.T. fuse material . . . I have thought it over for awhile, and have concluded that my choice would either be one of the super-adhesives that we now have, i.e.: epoxy or Hot-Stuff, or some of the quality balsa wood sheet we now have.

I would be interested in hearing from any of the readers with their choices. Send your suggestions to Bob Stalick, 1120 Shady Lane, Albany, Oregon 97321. Until next time . . . •

Bowlus . . . . . *Continued from page 13*

neat, smooth, joint. If you should drop the wing and break the joints loose, they can be repaired with Super Glue, Hot Stuff, Zap, or one of the other cyanoacrylate miracle glues.

The pod is built up on a spruce crutch. When the formers are in place on the crutch, you can begin planking. The bottom 2 inches of the pod is planked with 1/8 spruce, to give some strength and prevent damage on landings. The remainder of the pod is planked with strips of 1/8 by 3/16 inch balsa. Work slowly and you'll get a smooth, good fitting job. When the planking is finished, sand the pod to get smooth contours and then apply the fiberglass cloth and resin. I used resin over the cloth on the outside, and resin by itself on the inside of the pod for strength. When the resin has cured, lightly sand it to remove the fuzzies, and you are ready to begin the covering.

The vinyl material is cut to shape to simulate the actual seam lines between mahogany panels on the original. Overlap the pieces of vinyl about 1/8 inch to prevent the vinyl from shrinking away from the seams. I pre-shrunk the vinyl with a heat gun while it was still in place on its backing sheet.

I stained the mahogany sheeting on the wings, prior to gluing it in place, in hopes that the mahogany would show through the silk and dope. Unfortunately, after covering, the mahogany took on an ugly mottled appearance. As a result, I used the vinyl material over the silk to get a scale effect. To achieve a realistic doped linen effect, I used four coats of thinned out white lacquer over the doped silk. This gave a dead white color to the open structure sections of the wings and tail surfaces, which is very realistic. The rudder was trimmed with red and blue Super Monokote. The stars were cut from an American flag decal obtained at an auto parts store.

All control rigging is hidden within the structure. To secure the Nyrod tubing inside the tail boom, tie a long string to a ball of kitchen sponge slightly larger than the diameter of the aluminum boom. Soak the sponge in resin and then work it into place at the rear end of the boom with an arrow shaft and the string. Repeat with another sponge ball at the front of the boom. When the resin cures, the tubes will be firmly locked in place. To get a small, neat connection to the flying stab control horn, stiffen the brass cable with solder. When the solder has cooled, make a "Z" bend in the end, and hook it to the nylon control horn. This will enable a solid connection in the narrow confines of the sub-rudder.

Six servos are used to control the Bowlus. One in each wing operates the ailerons. One is used for elevator, and another, coupled into the aileron channel, is used for rudder. A fifth servo controls the dive-brakes, while the sixth is connected to the wheel brake. Most

radio manufacturers will make up a three-way extension cord to allow operating three servos from one receiver channel. I have exercised this system, operating four servos continuously for thirty minutes, and have used only 1/3 capacity of my 500 ma battery pack.

The wing struts are functional . . . as a result, stock K&S streamline tubing is not strong enough. I reinforced the tubing by using a length of 1/8 music wire alongside a length of 3/32 music wire. This combination is epoxied inside the pear shaped tube. Ram a two inch length of hardwood into each end of the tube, and cut the ends to the appropriate angles to meet the fuselage and wing smoothly. Then thread a 4-40 machine screw through the strut ends to attach the struts.

Set up the ailerons with maximum differential. I have approximately 3/4 inch up travel and 1/4 inch down travel. Use maximum rudder travel. This is limited by the cutout in the stab. Use a minimal amount of elevator movement. The tail moment is quite short, and a lot of elevator travel is not necessary. Due to the large stab, the Bowlus is quite stable in the pitch mode . . . if it is left alone.

The C.G. is at 34-1/2% . . . which was achieved with 12 ounces of noseweight. I use two towhooks, one on each side of the pod, to eliminate problems in towing a glider with such a deep fuselage. The hooks are positioned on the centerline of the fuselage pod, on a line angled 60° through the C.G. of the wing. I tow the model with a five foot long bridle attached to a conventional winch line or high-start.

I enlisted Bill Northrop to launch the Bowlus on its maiden flight. All it took was a firm shove, slightly nose down, off the side of our slope soaring hill. The Baby flew fine . . . although at that time it was slightly more nose heavy that it is now. Since that time, I have both high-started and winched the Bowlus without any problems. It soars at a realistic speed and the turns have to be seen to be believed. The coupled aileron and rudder crank the bird around most realistically.

Since I was a teenager in 1937 I've had a running love affair with Baby Bowlus, and at long last I've got her . . . I'm finally able to ride the ridges and hunt the elusive thermal. •

C/L . . . . . . *Continued from page 35*

plane you could fly anything, so why bother with a pokey ol' Stunt plane? But a few of us have been trying to master the Stunt pattern the last few months and I can finally see the challenge. Entered my first Stunt event a couple weeks ago and got a 2nd place in Novice Stunt, so I am primed for building a "For-Real" Stunt plane this next winter. I have been trying to get into Profile Carrier for a couple of years but haven't had a chance to build a plane yet.

Not too much Speed activity up here, so I have never considered building one and probably never will. Same goes for Scale. In fact, I wonder why anyone even bothers with C/L Scale. As far as I am concerned a Scale plane should be either F/F or R/C. Comments, anyone? *(Oh Boy! wcn)*

When starting out on something new, you are supposed to play it safe and say all of the things those before you did. In writing a column for a modeling magazine, this means telling your readers that this is their column and they can make it whatever they want. And you always ask for lots of pictures, newsletters, contest results, handy hints, etc., etc.

You've read it before, right? But you won't read it in this column. First off, this is my column, not yours. I am the one pounding the typewriter, meeting the deadlines (which are quite rigid, incidentally), corresponding with people around the country, and cashing the checks.

I can use good quality black and white pics, but you will send these in if you like the column, so why should I beg for them? Besides, I own a 35mm

camera and know how to use it.

Newsletters can be nice but I don't think too many clubs distribute them very widely. Again, if you like the column, you'll send in your club n/l.

I don't care if I ever get a contest report, unless it is something really big or unusual. Local contests are great fun but this is a national (worldwide yet, Bill?) *(Mais oui! wcn)* magazine and this column just doesn't have room for listing the winners of local meets.

I just read over the above and can see some people getting ticked off at me for coming on kind of heavy. Sorry. I just feel that when a person takes on the responsibility of a monthly column, it is that person's job to make the column interesting. If he has to rely on the readers for all of his material, he is doing something wrong . . . Or should be doing something else. I plan on doing my best to make this column something that you will enjoy. If you enjoy it and want to be a part of it, you will contribute to it without me beating you severely about the head and shoulders for a couple of pictures.

How much would you pay for a glow plug? Latest word from Homer Smith is that you might be paying $12.00 per plug before next season! Hang on a minute. You haven't heard the whole story yet. As far as the whole story goes, I haven't got complete details yet either, but aren't rumors fun? The rumor is that Harry Roe, of Speed fame, is developing a blow-proof glow plug. The plug supposedly withstands 9 volts, and fuel with 5% to 80% nitro. One test of the plug I would have really enjoyed seeing. They ran a Supertigre 15 turning a flywheel at close to 50,000 rpm for nearly a minute before the engine puked. The plug was not damaged. You can imagine what the engine looked like. The plugs won't be available for awhile, so I recommend that you set up a savings account to insure that you have the money to buy them when they are released.

Correction: Since writing the above, the new glow plugs have been released . . . They're not $12.00 per plug, and they're not advertised as blow-proof. Actual price is two for $6.00. Plugs are made by Fusite Division, 6000 Fernview Ave., Cincinnati, Ohio 45212.

I don't know exactly what happened and haven't felt the need to find out, but Gary Frost has had some very serious problems lately and is presently unable to carry on as president of the Miniature Aircraft Combat Association. Rich "von" Lopez is taking over for Gary, so MACA hasn't lost good leadership, the leadership has just changed hands. I know that Rich can do a good job for MACA. In fact, I was the one who nominated Rich for MACA president several months ago. Rich was second to Gary Frost in the election, but it could just as well have been a tie, as both are really into Combat and are willing to do most anything to promote the event.

Right now, Rich is spreading his ideas on a Combat World Champs contest, to be put on by MACA, for 1976. Money, lots of it, if required for a meet like this. And Rich isn't starting out small. He wants to find a large company that will come up with 5,000 to 10,000 bucks and let MACA spend it on the biggest Combat meet ever. A lot of Combat fliers are ready for a World Champs, and it looks as if we are going to have to do it here in the States if it is ever to come off. We could be years waiting for the British or Europeans to add Combat to the Control Line World Championship contests.

Rich is also looking for somebody to sponsor the 1975 MACA Top Twenty t-shirts. Last year I talked AAM into sponsoring the shirts but they went bankrupt before paying the bill, so MACA had to pay for them and it didn't do the treasury any good. For anyone interested in sponsoring the Top Twenty t-shirts, it will probably cost around $140.00 (that's a guess on my part. It cost about $80.00 for 11 shirts last year.) and the name of your company

will be on the shirt. How about it Sig? K&B? Midwest? Fox? World Engines? M&P? Pylon? Model Builder? It's good advertising, as Combat fliers are generally the most visible people at a contest!

Take another look at the Bosta built by Steve Sacco. It's plenty tricky, with a molded fiberglass leading edge, very little center section sheeting, hollow ribs and the engine set back into the leading edge. That is a plane that I would like to have more details on. How about it, Steve?

There are a few people around the country who I would like to hear from. Kernel Rush, the King of Korny Kombat, isn't one to write many letters but I would like to hear from you occasionally, Howard. Also Kit Gearhart, Bill Allen, Phil Cartier, Paul Smith, John Kilsdonk, Tom Southern, Charlie Johnson, Gordon Delaney, Jim Womack and a few others who don't come to mind right away.

Time to go. I just got a call from Gary Stevens (one of my team partners) and he thinks that he is finally ready to beat me in some .049 Combat. I'm gonna go tear him up! See ya next month. •

Firedrake . . . . *Continued from page 53*

When enclosed, it dries very slowly. When dry, add the wing and stab mounts and sand. Epoxy hooks in place and drill holes for DT line-guide eyelet and snuffer tube, if applicable. Finish fuselage by covering with tissue and doping generously. Nose should be epoxy painted to an inch or so aft of the pylon. Dope just won't stop 50% nitro. Cover wing, stab and fin with tissue and apply five or six coats of thinned dope. The last two coats should be plasticized. Now check fuselage for straightness and mount fin in line with the pylon. The thick fin will allow for some bend in the fuselage, but the less the better.

A pressurized engine should be used for top performance. Pitch and balance the prop and buy or mix 50% to 60% nitro fuel with 15% to 17% oil. If you normally use a starter, fit the ship with a pacifier tank. The pacifier can be placed to balance the bird by using water to simulate residual fuel. Or use the engine tap to pressurize a TD tank (mount). Assemble the heap and balance within an 1/8 inch of indicated CG.

Preflight checks at home will save a short day at the field, not to mention your nerves and the little dragon. From the nose back; check for left thrust (some) and down thrust (none). Wing is keyed at 90° to fuselage. Just visible washout in both tips, quite visible washin in right main, flat left main. Flat stab tilted parallel with left main panel. Due to wash-in and left tab, he wants to glide left. Since transition is quite good, I let him. You can force him to turn right, but when he encounters lift he may (and has!) reverse and turn left anyway! Rudder tab a good 1/16 left. It seems a lot but isn't, what with the thick fin. Check timer and DT action, and off to the field.

Hand glide, looking for a very flat glide with a trace of left turn. Adjust glide with nose or tail ballast and stab tilt *only*. No incidence changes were necessary on the original.

Now take a breath and light-off the engine as near full power as you dare. Set the timer for 4 seconds, no more. At this point we aren't worried about transition or the glide. Use a short fuse in case the glide is stally. Point the nose up at about 60° and just let go. It'll go up and right, never fear, but watch how much right. If it starts turning very soon, you need more left thrust. If it moves out in a smooth arc and starts to tighten up at cut off, more left tab is indicated.

Increase engine run in 1 to 2 second increments. Once past 6 seconds or so, the transition will improve. Watch for the right wing dropping and correct with trailing edge shims under the right main panel. Firedrake should make about 1 turn in 10 seconds, transition with no stall, and glide left in 40 to 50 second circles. Treat him with respect and he'll chomp the competition.

HE'S A DRAGON. •

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ILLUSTRATED CATALOG RUBBER PLANS. Peanut, Jumbo scale, intermediate scale, sport. S.A.S.E. to: AERO ERA, c/o Tom Houle, 11333 N. Lake Shore Dr., Mequon, WI. 53092.

SAILPLANE DESIGNER'S HANDBOOK: Design instructions, 180 airfoils, 63 designs, 3rd printing, $4.96. Eric Lister, 953 Klockner Rd., Trenton, N.J. 08619.

HOBBY SHOP . . . in Oceanside, California. Great for retired couple. $19,950. AACTION REALTY 714-722-1421.

HI-FLY ENTERPRISES CONDOR "800," B-C-D free flight, 3 Contest H/L gliders, NEW for "75"; Sparrowhawk, for unlimited rubber, flown by Bob White. FREE catalog. Hobby Fair, 7212 Vassar Ave., Canoga Park, California 91303.

R/C EXACT SCALE PLANS: Curtiss Hawk P6E 2" scale $10.50. Curtiss Hawk P6E 1-1/2" scale $8.00. Curtiss Goshawk F11C-2 2" scale $10.50. Stinson Reliant SR9 2" scale $12.50. Add $1.00 for postage. Richard G. Barron 1213 Holly Spring Lane Grand Blanc, Mich. 48439.

R/C RACE CARS AND ACCESSORIES CATALOG. 1/8 scale U.S. Nationals Champion. Delta Manufacturing, Box 27, Lorimor, Iowa 50149, (515) 763-2220.

WANTED — Will buy multi-cylinder model airplane engines. In particular, the older spark ignition and certain glow ignition. All letters answered. Russel Sprague, 8800 Green Lane, Randallstown, Md. 21133.

Model airplane plans. Peanut, rubber, CO_2, gas. Free list. Send self addressed, stamped envelope to: Modernistic Models, Box 6932 Burbank, California 91510.

Speed Equipment: Cars, R/C, planes, boats, Hop-up, chrome, ultrasonic cleaners. SASE plus 50¢. Franny's Chrome, 513 Vesta Place, Reading, Pennsylvania 19605.

Counter . . . . . *Continued from page 7*

are available in 7x5, and 7x6 versions with the wide blades. Top Flite also added 7x4, 7x4-1/2, and 7x5 sizes to their line of Super Maple props. These maple props are much tougher than the usual wooden prop and should stand up to the rigors of racing.

* * *

JR Sales Co has come up with an interesting accessory for R/Cers. Since everyone lands to refuel either the plane or the pilot once in awhile, why not 'refuel' the flight batteries? The Battery Medic does just that. Operating off a standard 6-volt lantern dry cell, the Battery Medic recharges the flight batteries while you are refueling. The unit incorporates an automatic sensing circuit to tailor the charge rate to the flight pack's needs. It can recharge up to 300 milliamps if necessary, but cuts back to a safe 50 ma level when nearing full charge. Included is a test light to monitor the condition of the charging battery, as well as an indicator light to test the condition of the flight pack. If the airborne battery does not have the minimum safe voltage to fly . . . the test light will not come on. The Battery Medic is available for $14.95 from JR Sales Co., 1316 N. Mill, Bowie, Texas 76230.

* * *

Top Flite Models, Inc., suppliers of Super Monokote, the stuff that has revolutionized the covering and finishing of models in recent years, is still willing to concede that there are times when its choice of 10 opaque colors, three metallic colors, four transparent colors, and three matte military colors, may not be enough.

TF stresses the fact that it also makes available Paintable Clear Super Monokote. This material has all the self-adhesive, heat-shrinking, fuel proof, puncture-proof qualities of the pre-colored Monokote films, but also permits the modeler to apply any common model paint or dope, to his own satisfaction. Since the film is neutral, it requires no primer, and once applied, is immediately ready for a brushed or sprayed finish of the modeler's choice.

* * *

Applied Design Corporation has just announced its new Mini-Glue Tip, which is molded to fit most all glue bottles and tubes. The fine, tapered spout allows precision glue control and placement.

Tips can be used over and over, since they are made of polypropelene material, and dried glues can usually be "popped" out by flexing. By heating, the tips can be curved for even more precise control.

The introductory price is $1.00 for 4 tips, from Applied Design Corp, 5531 Shoreview Drive, Palos Verdes Peninsula, Calif. 90274.

* * *

In the May "Over the Counter," an incorrect statement was made regarding the HBR Double Rudder Outdrive Unit, by Marine Specialties. The HBR Unit may be modified by trimming for single rudder usage. The Variable Outdrive Assembly is another and entirely different part, which sells for $19.95. The HBR-1 is the single rudder unit ($29.95)

INDEX TO ADVERTISERS

and HBR-2 is the Double Rudder Unit $34.95).

* * *

M&S Limited, P.O. Box 39745, Los Angeles, CA. 90039 has updated its 72 inch span Avatar slope and thermal soaring R/C sailplane. The new model, which sells for $32.95 has a redesigned fuselage, 550 sq. in. wing area, and features an 8 to 12 hour construction time. All hardware is also included. All balsa and plywood parts are machined, ribs are contour-sanded. Write for free catalog of all items, including the 100 inch span "Curio" standard class sailplane, and the "Pea Pod," easy-to-build, plywood-hulled 36/600 sailboat.

* * *

Roland Boucher, formerly with Astro Flight, has now started a new company, Leisure Electronics, 11 Deerspring, Irvine, California 92705. The first items available from this new establishment are 1/12 scale electric powered R/C cars. Based on the Jerobee gasoline powered R/C cars, Leisure Electronics units have been converted to electric power. The resulting ease of operation for beginners, and those not experienced in the starting and running of glow engines, is obvious. Another plus factor is the elimination of noise.

The (Dodge) Challenger car is for general sporting around and can be run in confined areas. Maximum speed is around 8 mph. The control consists of forward, off with braking or reverse, plus steering. These run about 3 hours on dry batteries, and sell for $179.95 with a Futaba FP-2F radio system, or $139.95 with the Jerobee radio system.

The "Greenwood Vette" complete with glued and trued wide racing tires, is designed for racing competition, and is more than competitive with the TD glow powered versions. The control consists of proportional throttle, dynamic braking, and steering.

Careful handling and experience is needed before you can drive the Vette to its full potential. Jamming on full throttle simply results in wheel spinning "ground loops," which will also happen If you let off too suddenly while going fast and the brakes take over. Acceleration far outstrips the glow powered cars, which tend to load up when they slow down for curves.

The "Greenwood Vette" uses rechargeable car batteries, and the complete units, with charging cord to fit automobile cigarette lighters, sell for $219.95 (Futaba FP-2F radio) and $179.95 (Jerobee radio). All units employ dry battery transmitters. ●

* * *

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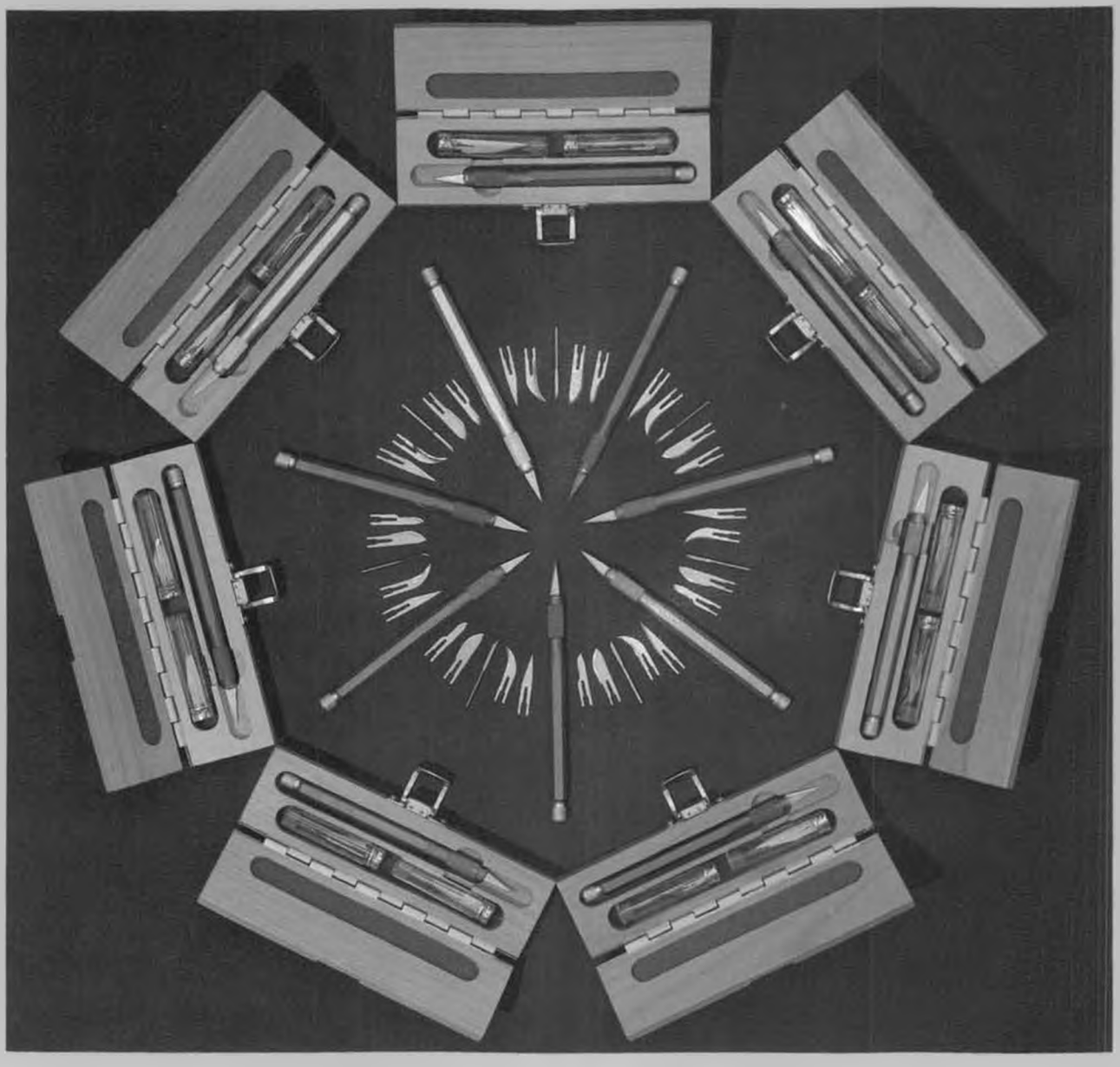

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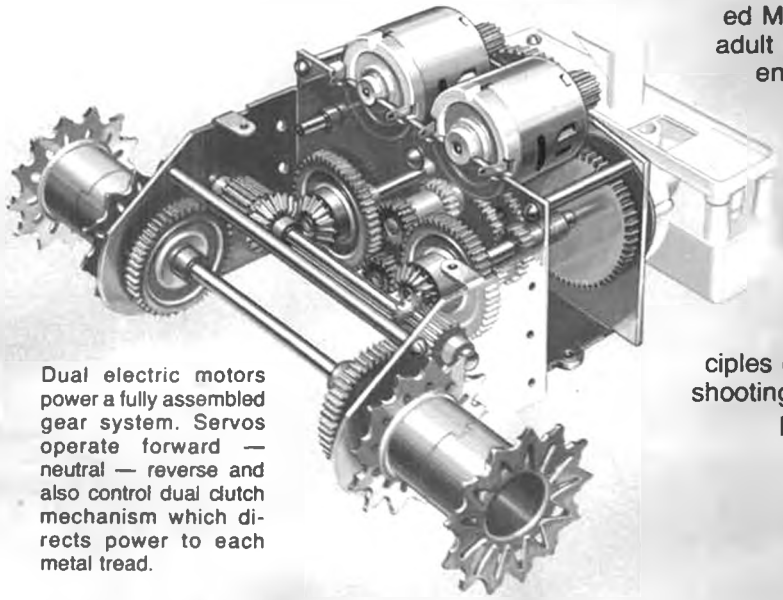

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