MODEL BUILDER

JUNE 1974

volume 4, number 31

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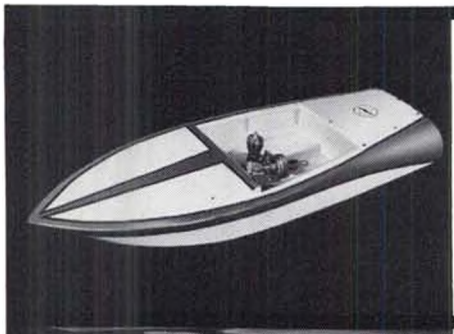
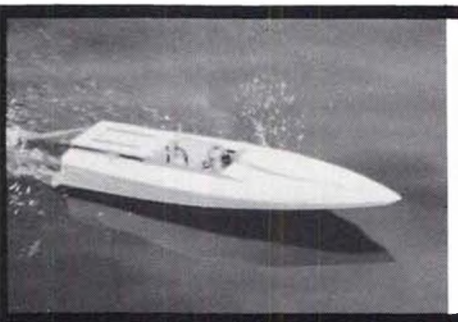
The big version of Steve Muck's hot "Pretty Penny" New bottom design for hot competitive performance. For .65 engines 36" long — Kit #SK-60 $34.95



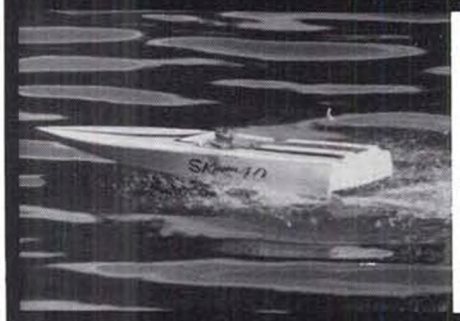
SK Daddle Jr.

a semi scale ski boat for .049 engines 18" long — kit #SK-3 $9.50 plywood & mahogany construction



SK Daddle 20

a real dependable high performance racing boat designed by Steve Muck for .20 engines 26" long — kit #SK-20 $18.95 plywood construction

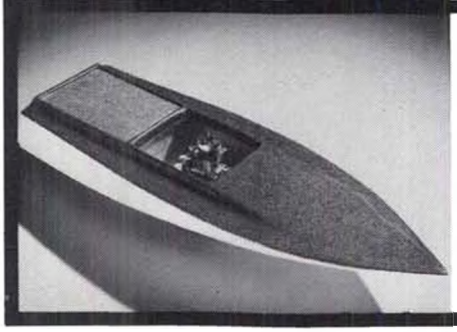


SK Daddle 40

a great competition boat with a new bottom design for even higher top speeds and faster in the turns For .40 engines 32" long — kit #SK-40 $29.95 plywood construction

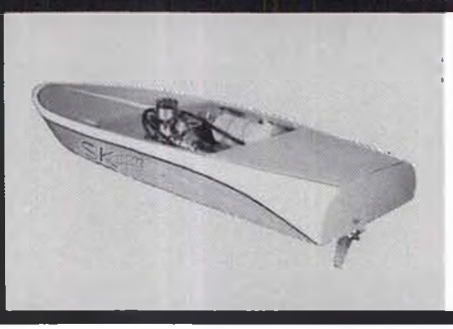
SK Daddle Too

a semi scale model of the Hallet ski boat for .20 engines 27" long — kit #SK-2 $15.95 plywood and mahogany construction



SK Daddle 20F

a fiberglass version of the SK 20 for those who want less building to do. Hull & deck are joined. Available with gold, green, blue or red metalflake deck, white hull 26" long — kit #SK-20F $49.95



SK Daddle

the big model of a Hallet ski boat for .35 to .65 engines 36" long — #SK-1 $26.95 plywood & mahogany construction

dumas boats

Dumas Products, Inc.
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Tucson,
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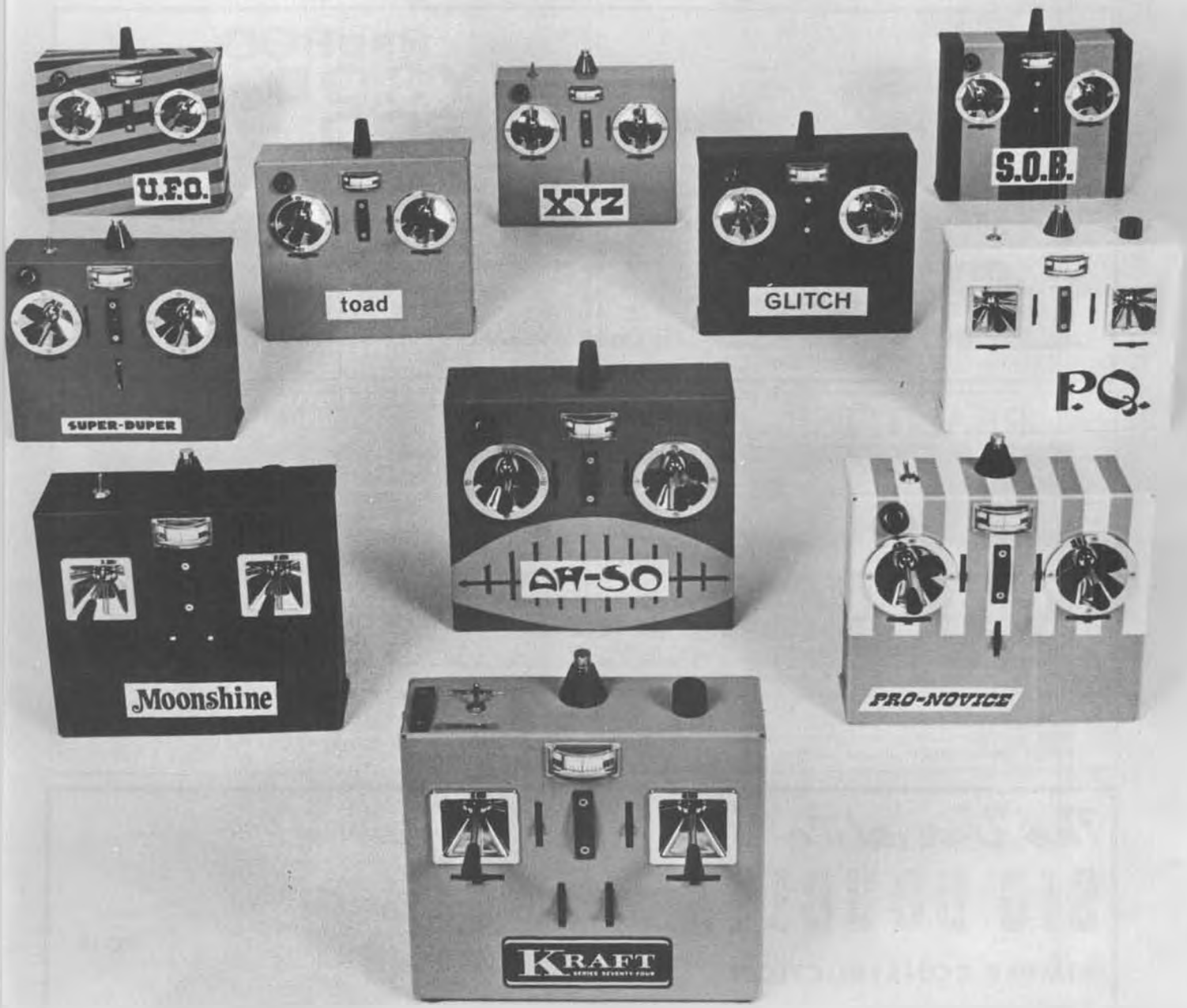

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MODEL BUILDER

JUNE

1974

volume 4, number 31

1105 SPURGEON, SANTA ANA, CALIFORNIA 92701 (714) 547-3963

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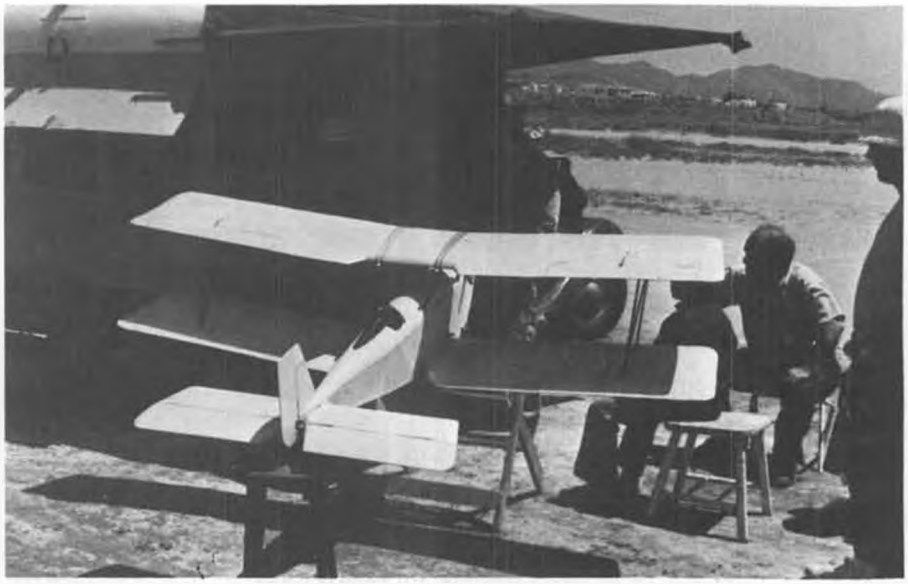
CONTENTS

FEATURES

SCALE VIEWS

CONSTRUCTION

Cover: "Fat Albert," the Lockheed C-5A "Galaxy," world's largest airplane, provides an interesting and contrasting background for Stephanie and her Granddad, George Perryman. Stephanie holds her aptly named "Streaker" (well, it's all sheet balsa, no covering!), and George displays "Big Mama," his 6 foot long Unlimited. As usual, George's characteristic swept surface designs could be recognized a mile away! Excellent 2-1/4 x 2-1/4 Kodacolor photograph by Connie Caviness.



Big John has been "outbigged!" While at Lake Elsinore for the inaugral flight of Irwin Ohlsson's twin engined flying boat (see Plug Sparks), we spotted this 13 pound, 8 foot span monster. The one-of-a-kind, entertainer-raconteur-prospecter-hermit-owner is a Stienbeckian gentleman by the name of Artie Shaules (no, he doesn't play a clarinet). More information below.

from Bill Northrop's workbench . . .

TWO MORE YEARS WITH WINDY JOHN?

● Time seems to fly faster than John Cameron Swayze lashed to the nose cone of the daily 5:15 moon rocket. In less than two months (August 1, 1974), nominations must be officially submitted for the AMA offices of President and the even-numbered District Vice Presidents.

As in past years, probably only 10 percent of the AMA membership will bother to vote for the nominees (the other 90 percent are ineligible complainers). However, those who are interested enough to take action should be giving it serious thought at this time. As we understand it, even the incumbents (those who already hold office, Dum Dum!) must be nominated. So. . . if you're a "talker" and not a "doer," at least talk to the "doer" in your crowd and get something going. Districts 2, 4, 6, 8, and 10 will vote for Vice President, and all of us (of the 10 percent who want to be eligible bitchers, that is) will vote for President.

And that more or less brings us back to the headline of this editorial. In recent years, the office of AMA President has become something totally different than it used to be. It's probably Johnny Clemens' fault for the most part, but to use one of his pet analogies, the AMA President has become more "visible" than at any time in the past. Many of the earlier AMA presidents existed only as a signature at the end of an occasional proclamation issued from AMA Headquarters. This is not to find fault. In years past, AMA was much smaller, and a "part time President" was sufficient for the job. Now, however, the accelerated growth (Johnny calls it "momentum") of the organization has created a "total job" requirement for the office of President.

In order to fill Johnny's shoes (he really is as big as all Texans. It's just

Continued on page 70

Anita "General Manager" Northrop and her box, parading around at the MAC Show in Anaheim, Calif., May 11 and 12, 1974.

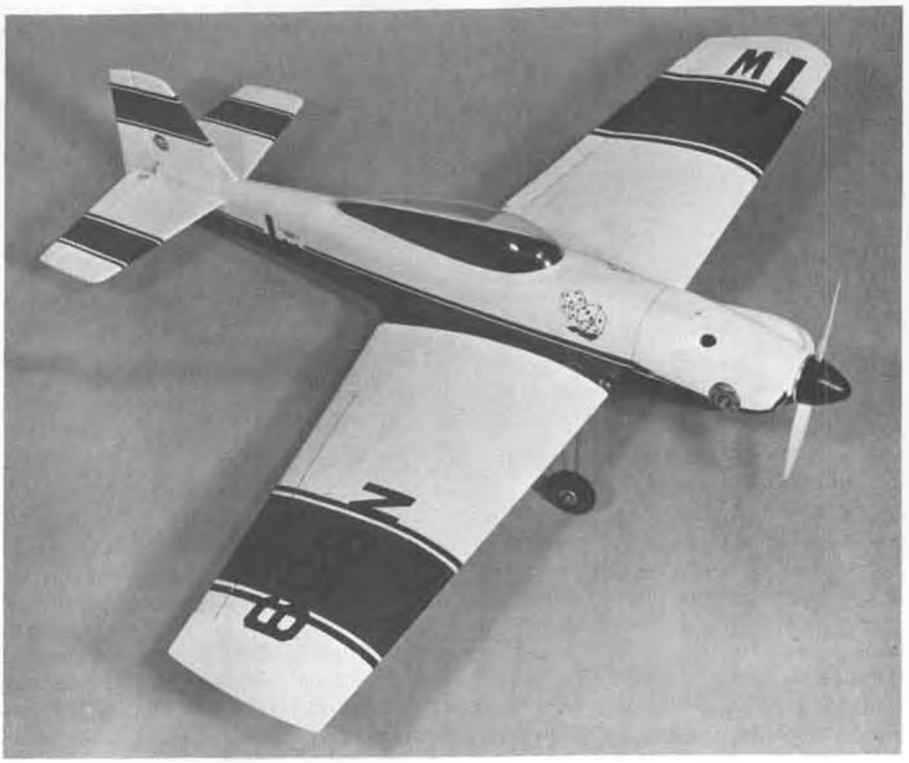
Artie, on the right, flies the big bipe with a Kraft radio. Power is an Enya 60 swinging a 13x5-1/2 and that exhaust pipe is from Lord knows what! Size can be judged by those 5" Wms. Bros. wheels. Flying speed is a honkin' 30-35 mph, and it seems to land at about minus 2 mph!

OVER THE COUNTER

● Sig Mfg. Co's new "Kwik Bilt" Quarter Midget Minnow Racer will probably show up in large quantities around the pylon circuits this summer. Using the patented half-shells-on-a-backbone fuselage construction, the Sig Minnow will assemble fast, and at a price of $24.95, it can even be considered somewhat expendable.

Adding to its quick construction capabilities are the precision-cut foam wing cores, plastic sheet wing covering, sheet balsa tail surfaces, and pre-bent landing gear. The kit also includes a plastic cowling, clear bubble canopy, step-by-step instructions with isometric drawings, and a complete hardware set, (nylon control hinges and horns, clevises, double-coated servo mounting tape, and wire torque rods).

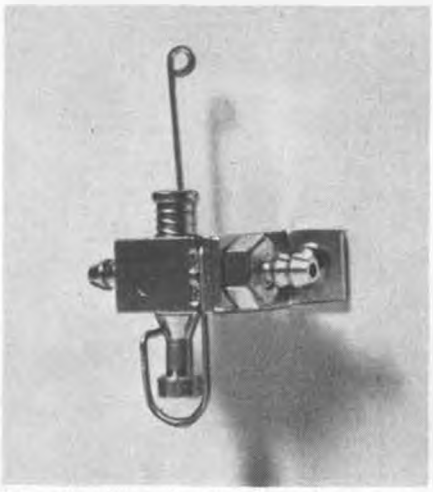
Of course, the outstanding feature is the fuselage construction. . . Consisting of a load-carrying, solid balsa, internal profile to which detailed molded plastic half-shells are attached, producing a finished unit, ready for painting. The Minnow spand 39½ inches, has 318 sq. in. wing area, and weighs 3 to 3¼ pounds ready to fly. It was designed by Mike Gretz.



Sig's new "Kwik Bilt" Quarter Midget Minnow Racer.

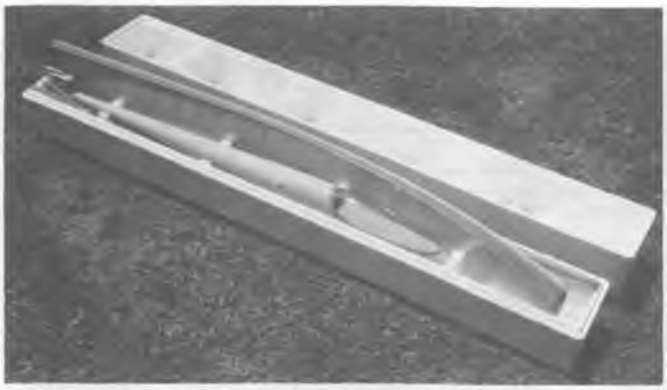
* * *

John Tatone has now added a new 1/2A "Tick Off" to his line of DT and engine timers for free flight. The new unit can be easily converted to a "Flood Off" timer and/or to operate additional controls such as auto rudder or variable incidence surfaces. Just cut a

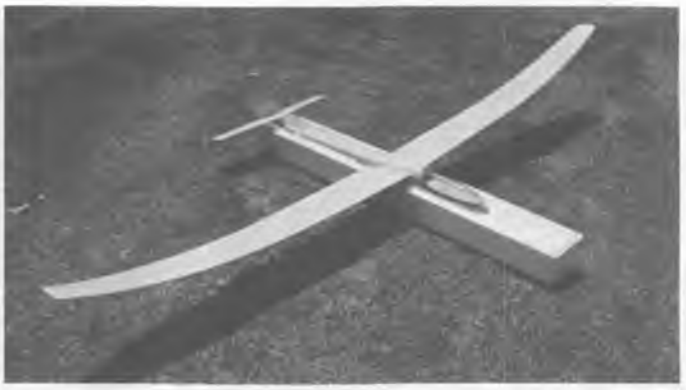


Tatone's quick-acting fuel shut-off valve.

New R/C primer by publishers of Aeromodeller and RCM & E.



First production model of the much talked about Hobie Hawk. Foam shipping carton is also handy home-to-field carrying case.



Five minutes after the picture to the left, refocusing camera and all! A Logictrol 2 ch. LRB will be installed for a product review coming soon.

New 1/2A "Tick Off" timer may also be modified for flood-off operation.

Excellent Kwik Set epoxy sets up in about 6 minutes. Doesn't run, or become brittle.

notch in the winding disc and add a release wire to suit your own application. The unit also includes an improved type of on-off switch and a heavy duty main spring. It won't jam. The range is 0 to 25 seconds. The price is $9.50. Fuel line is included.

Tatone has also introduced a Fuel Shut Off Valve, a handy item that has not been readily available in recent years. In operation, a spring loaded plunger is set off by a trip wire, stopping the engine immediately. Selling at $4.95, the valve is machined from brass, bright plated, and weighs 3/4 ounce. An adjustable mounting lug provides easy installation in most any position. Unit is ideal for R/C Pylon, U-Control, Rat Racing, powered gliders, boats and cars.

This is an especially ideal unit for R/C powered gliders and R/C Old Timers, allowing two channel radios to control rudder, elevator, and engine shut-off. The valve trip-wire can be released by a quick shot of full down elevator, eliminating the need for a third channel. . . or servo.

A standard 0 to 25 second "Tick Off" and a 0 to 6 minute D-T "Tick Off" Timer are also available. Each sells for $8.95.

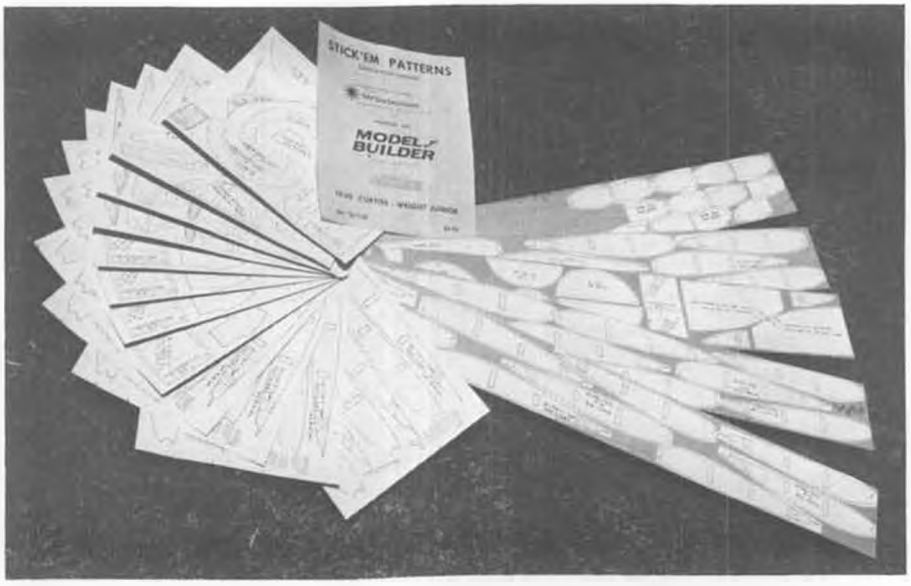
Drop a note to Hobbypoxy Products, 36 Pine Street, Rockaway, N.J. 07866 and request a copy of a 4-page brochure entitled "Hobbypoxy Painting Pointers." As the subtitle says, it's "A poop sheet on all the goodies we make. . . and how to use them."

The brochure is well written, in a clear and concise manner, and contains many finishing hints of a general nature in addition to detailing the proper use of all Hobbypoxy finishing products. It was written by Don Typond, whose excellent models often appear in photos published in MODEL BUILDER. (F'rinstance, see page 30). In case you didn't know, Hobbypoxy Products is a division of Pettit Paint Company, for many years a leading manufacturer of epoxy paints, used primarily in the marine industry.

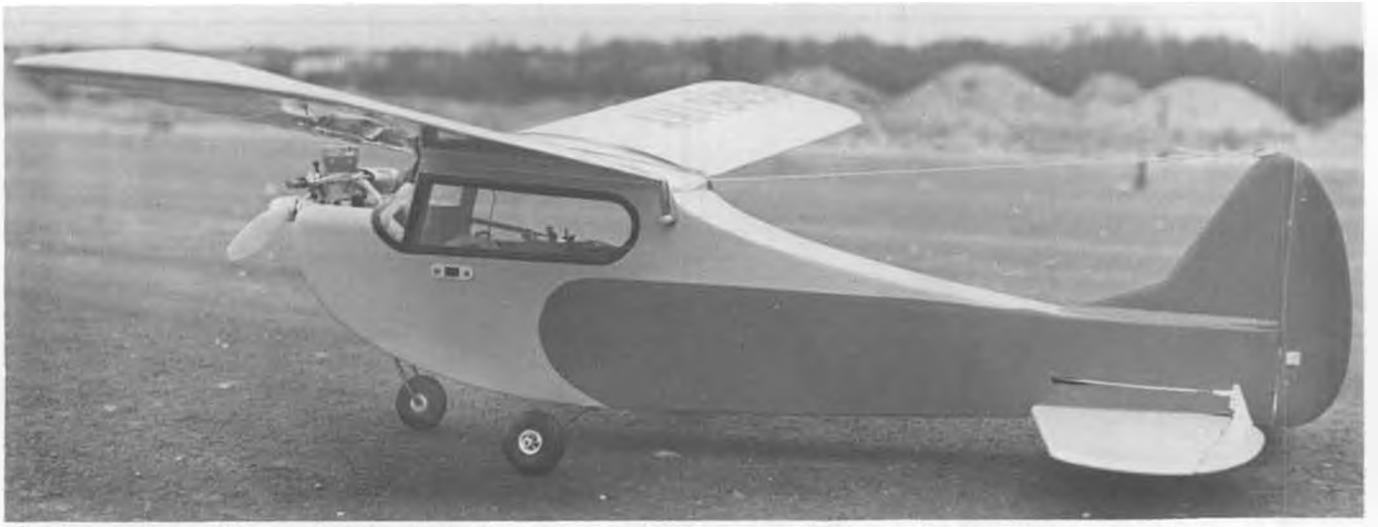
* * *

"Radio Control Primer" is the name of a new 120 page book based on Dave Boddington's popular series of articles appearing in Radio Control Models & Electronics throughout 1973. Published by Model and Allied Publications Ltd., P.O. Box 35, Bridge Street, Hemel Hempstead, Herts, HPI IEE, England, the book also includes 11 construction plans. . . All Boddington designs. . . over

Continued on page 70



Pressure sensitive "Stick 'em Patterns" by Windancer, to go with MODEL BUILDER full size plans. Saves time, improves accuracy, eliminates tracing and/or chopping up plans for parts.



The tubby fuselaged Guillow "Trixter Beam" should bring back fond memories to modelers who "went R/C" in the early 1950's.

THE "BEAM" RETURNS!

One of the true pioneer R/C kit models of the early 1950's, the Beam was a "first" for many R/Cers who can recall first hand, the challenge of escapements, hard tubes, gas tubes, relays, Mighty Midget motors, reed banks, big dry batteries, 465 , superregen . . . . . .by BOB ABERLE . . . . who was there.

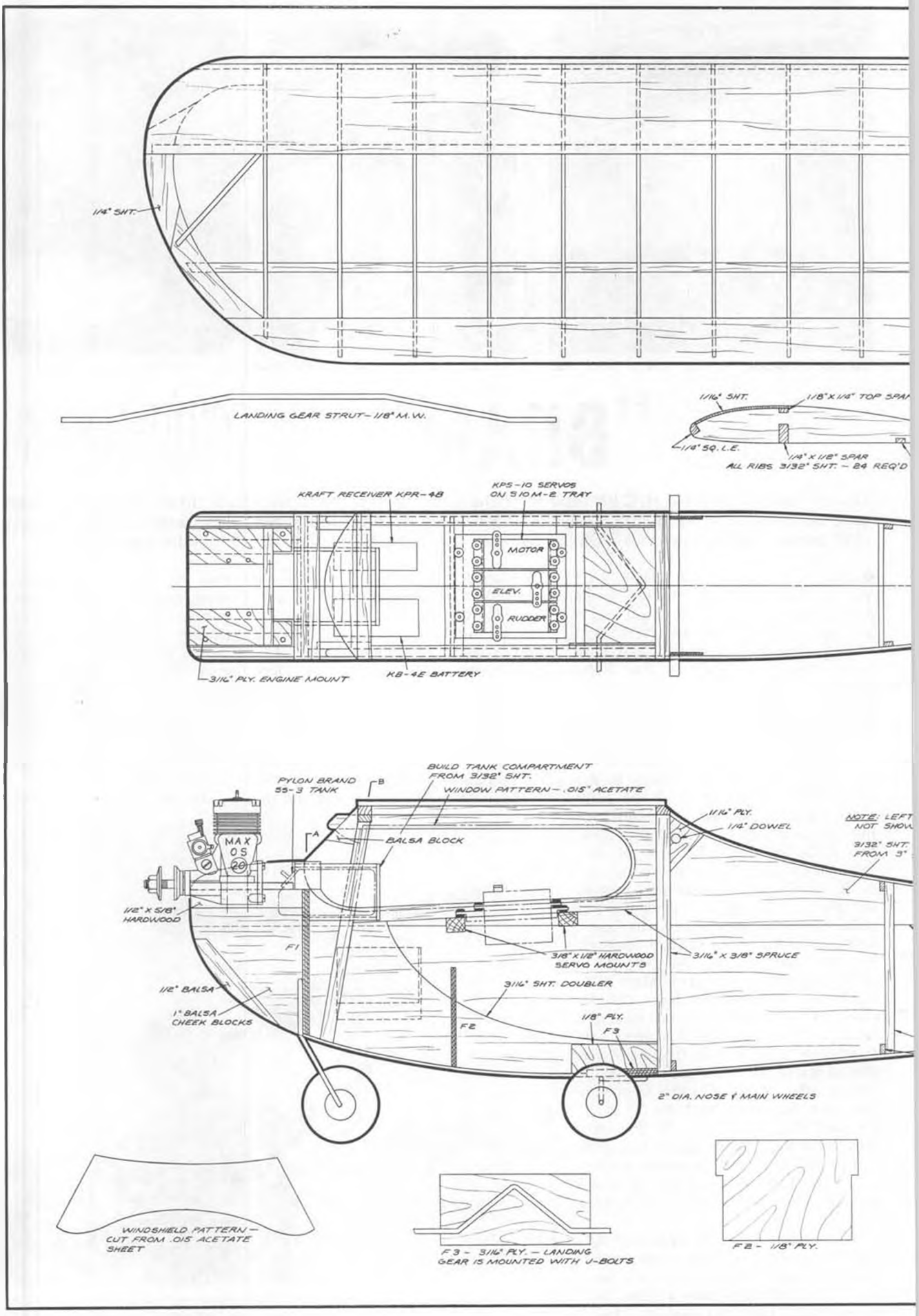
● Anyone for flying Old Time R/C? Yes, I said Old Time R/C! For the past couple of years we have heard and seen a great deal on the subject of Old Time Free Flights which have been flown with modern day radio equipment. But what about some of our original R/C designs and kits which marked the beginning of a new era in modeling?

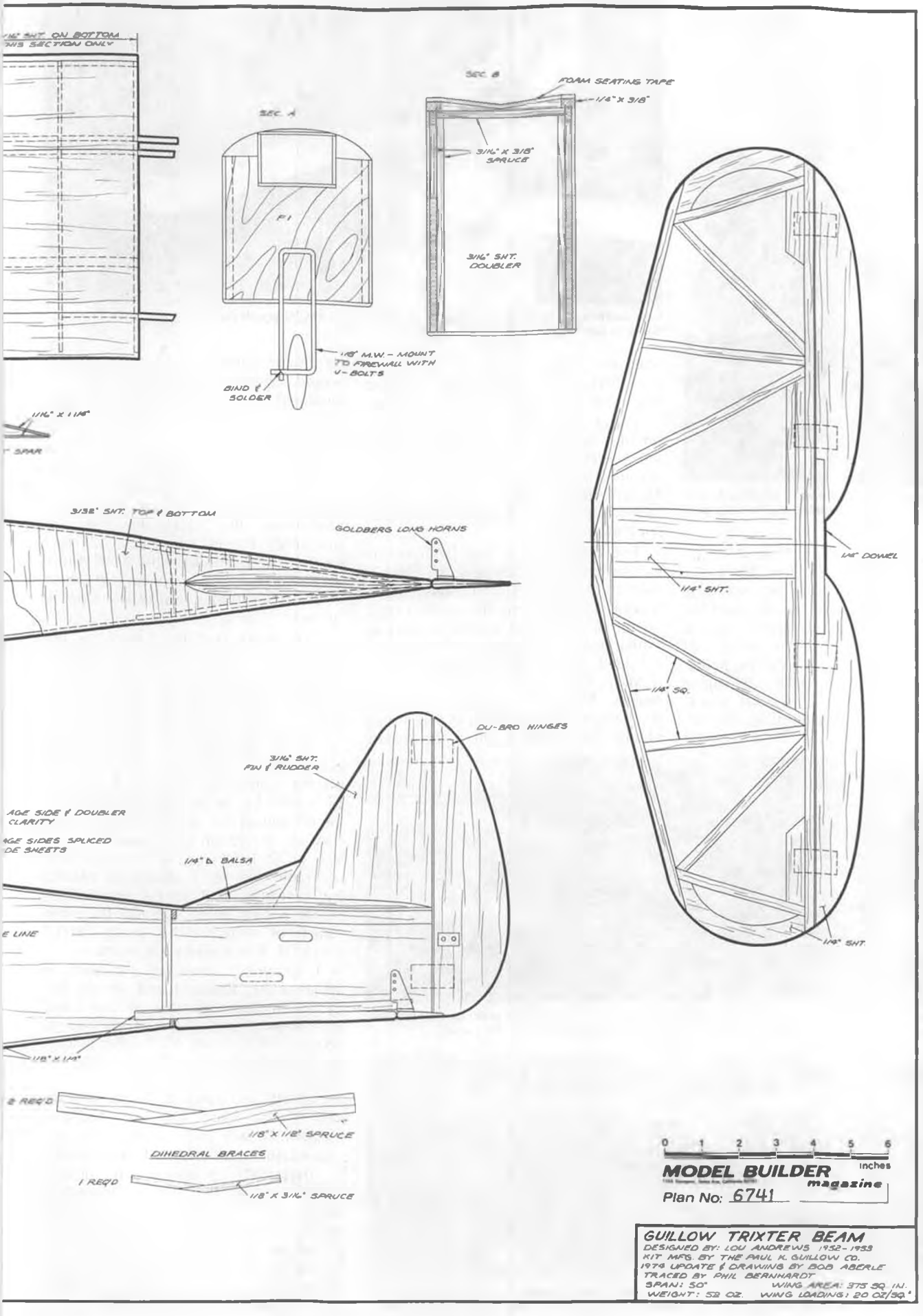
Although the origin of radio controlled model airplanes dates back to the late 1930's, it wasn't until the early 1950's that R/C became a reality for the average modeler. Around that time, the FCC approved the use of two frequencies which enabled the modeler to fly R/C simply by obtaining a permit. Initially a 465 mHz frequency was allocated to the Citizenship Radio Corp., which received an FCC type approval for the manufacture and sale of a small single channel outfit. Many may recall the little transmitter with its characteristic TV type antenna mounted on top of the case. In this same time frame, the 27.255 mHz frequency was also allocated for model control use . . . among other things. On this frequency the user was permitted to construct his own R/C equipment. In the early 50's, all of the popular model magazines carried R/C construction articles authored by Dr. Walter Good, Ed Lorenz, and the late Howard McEntee, to name a few.

With the prospects of improved R/C equipment and a definite trend towards simplicity and lower cost, the next sorely needed item was a basic R/C trainer kit. The idea was to design a kit that the average U/control or free flight modeler could build to carry his newly constructed R/C equipment. To meet this need, two model kit manufacturers started producing simple R/C, single channel (rudder only) trainers. One of the two kits that comes to mind was the Live Wire Trainer designed by Harold DeBolt, and manufactured by his own company in the Buffalo area of New York. The other popular kit was the Trixter Beam, which was designed by Lou Andrews and kitted by the Paul K. Guillow Corp. of Wakefield, Mass. Both of these companies are still in existence today, as you well know by current magazine advertisements. This should give you an idea of the experience level of some of our modern day kit manufacturers. I might add that Lou Andrews went on to establish his own kit manufacturing company known as AAMCO, which is responsible for such planes as the Trainermaster, Aeromaster, A-Ray, etc.

The Beam happened to be my choice

Hand launching, shown by the author, was the accepted method of getting an R/C model into the air. If you had a good throwing arm, you could be the most popular guy at the flying field!


1/4" SHT.
LANDING GEAR STRUT – 1/8" M.W.
1/16" SHT.
1/8" X 1/4" TOP SPAR
1/16" SQ. L.E.
1/4" X 1/8" SPAR
ALL RIBS 3/32" SHT. – 24 REQ'D
KRAFT RECEIVER KPR-4B
KPS-10 SERVOS ON S10M-E TRAY
MOTOR
ELEV.
RUDDER
3/16" PLY. ENGINE MOUNT
K8-4E BATTERY
PYLON BRAND 55-3 TANK
BUILD TANK COMPARTMENT FROM 3/32" SHT.
WINDOW PATTERN – .015" ACETATE
BALSA BLOCK
MAX OS 20
1/2" X 5/8" HARDWOOD
F1
1/2" BALSA
1" BALSA CHEEK BLOCKS
3/8" X 1/2" HARDWOOD SERVO MOUNTS
3/16" X 3/8" SPRUCE
3/16" SHT. DOUBLER
F2
1/8" PLY.
F3
1/16" PLY.
1/4" DOWEL
NOTE: LEFT NOT SHOWN
3/32" SHT. FROM 3"
2" DIA. NOSE & MAIN WHEELS
WINDSHIELD PATTERN – CUT FROM .015" ACETATE SHEET
F 3 – 3/16" PLY. – LANDING GEAR IS MOUNTED WITH U-BOLTS
F 2 – 1/8" PLY.


SEC. A
SEC. B
FOAM SEATING TAPE
1/4" X 3/8"
3/16" X 3/8" SPRUCE
3/16" SHT. DOUBLER
F1
1/8" M.W. – MOUNT TO FIREWALL WITH V-BOLTS
BIND & SOLDER
1/16" X 1 1/16"
3/32" SHT. TOP & BOTTOM
GOLDBERG LONG HORNS
1/4" DOWEL
1/4" SHT.
1/8" SQ.
DU-BRO HINGES
3/16" SHT. FIN & RUDDER
1/4" SQ. BALSA
1/8" X 1/4"
2 REQ'D
1/8" X 1/2" SPRUCE
DIHEDRAL BRACES
1 REQ'D
1/8" X 3/16" SPRUCE
0 1 2 3 4 5 6
inches
MODEL BUILDER magazine
Plan No: 6741
GUILLOW TRIXTER BEAM
DESIGNED BY: LOU ANDREWS 1952-1953
KIT MFG. BY THE PAUL K. GUILLOW CO.
1974 UPDATE & DRAWING BY BOB ABERLE
TRACED BY PHIL BERNHARDT
SPAN: 50" WING AREA: 375 SQ. IN.
WEIGHT: 52 OZ. WING LOADING: 20 OZ/SQ.'

The author "a few years ago" with his first Beam. Note modified rudder and landing gear.

Lou Andrews' original Beam, as it appeared in his AAMCO booth during the WRAM's Trade Show in White Plains, N. Y., March 1970.

back in 1953 for my first R/C. By today's prices, the Guillow kit was a great buy at $6.95 for a 50 inch wing span trainer. Almost seems hard to believe. Of course, balsawood prices in those days were only a fraction of what they are today. My particular Beam initially used a McCoy .09 engine which, per Lou Andrews kit plans, called for inverted mounting. The inverted engine tended to blend in better with the deep fuselage profile. Other than that, the inverted engine provided the usual headaches, such as flooding.

For a radio unit I built the then popular Lorenz twin gas tube receiver which was designed by Ed Lorenz and featured in the February 1952 issue of Model Airplane News. A single relay in turn operated a Bonner self-neutralizing escapement.

For those of you not familiar, the escapement was essentially an electro-mechanical device. The solenoid portion was closed every time the receiver relay operated. A loop of rubber, wound up similar to a small rubber powered model, provided the actual movement of the rudder. These units operated in sequence. When you depressed and held the button at the transmitter you would obtain, say, right rudder. On release of the transmitter button the rudder would neutralize. Press again and you obtained left rudder. And so on; left, neutral, right, neutral, left, etc., (most) always in sequence.

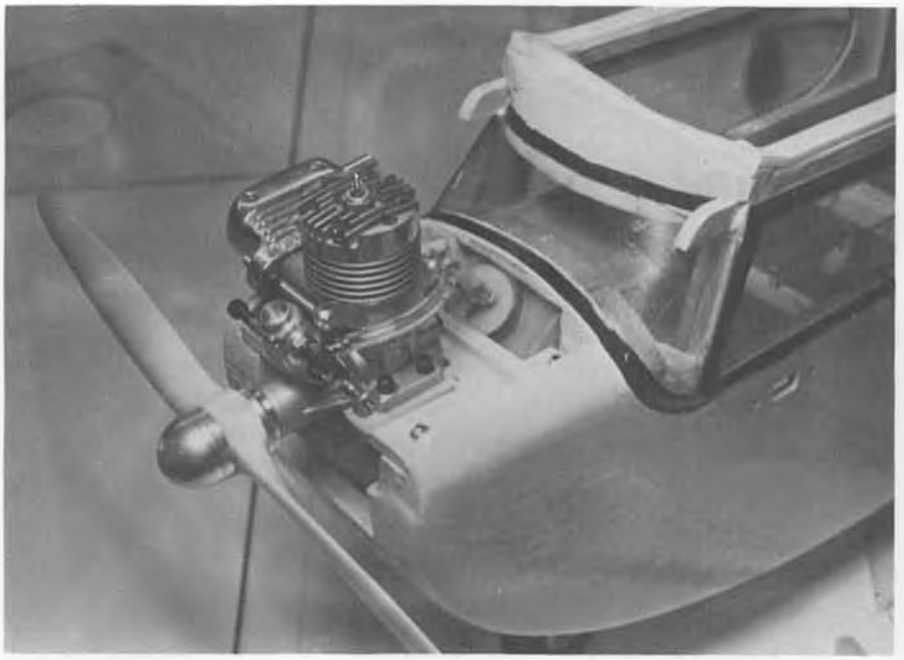
The flyer had to be quick on the button, so to speak, since a gradual turn had to be accomplished by hitting small amounts of rudder movement. Remember, the rudder was not proportional, it simply gave you full right or full left. Through most of these early flights you were always in doubt as to which rudder control was coming up next.

The transmitter that I used, by the way, was designed by the late Howard McEntee. It contained a 180 volt set of batteries (dry, non-rechargeable type) which probably weighed over 10 pounds. These transmitters were simply placed on a car roof and a long extension cord with a switch on the end did all the controlling. My first Beam was as successful as possible under these circumstances of somewhat primitive control. It did, in fact, survive all the way up to 1958 when it was lost O.O.S. on radio failure. Rudder-only planes, by necessity, had to be desgined as stable as free flights, so when the radio failed, or more usually, went out of range, it was good-bye airplane.

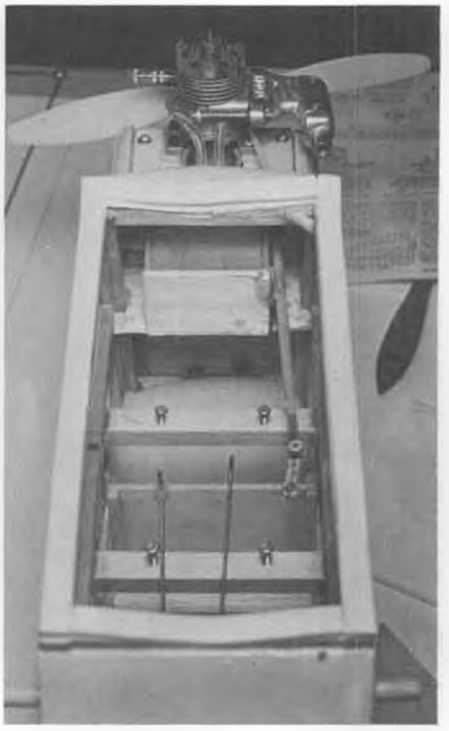
I remember attending a contest in Woonsocket, Rhode Island, in the fall of 1953. Although the contest itself was strictly free flight, I noticed a group of R/C flyers off to the side of the field. Since I was already flying my Beam, I went over during a break in the contest and watched. To my surprise one of the flyers was Lou Andrews himself. It was quite a thrill for me to see Lou put his original Beam through its paces. If my memory is correct, Lou was using that day a Citizenship Radio on 465 mHz and a cascaded compound escapement system. Compound escapements permitted the following control: One press (key) of the transmitter button provided right rudder, and two provided left. This was not

The Beam had the typical force set up of the day . . . high thrust line, low stab. DeBolt's "Livewire Trainer" had similar set up . . . was equally popular. Good view into the cabin!

Originally, practically all Beams were flown on escapement rudder-only. There simply wasn't anything else available to the average R/Cer of the day. Wanna good scare? Try it sometime!



The author's engine installation. The OS Max 20RC is fed by a 3 oz. Sullivan slant-front tank. Short nose moment calls for some fancy juggling to avoid adding to much dead ballast.



Because you always had to do a lot of fiddlin', the fuselages were designed with plenty of elbow room. Three-across servo tray fits easy.

in sequence, so anytime you pressed twice and held the button you would obtain left rudder. (A little less tricky than the sequential escapements). Then in addition, if you cascaded, or hooked a second compound escapement in series with the first, you pressed three times and held to obtain up elevator and four times and held for down elevator! And finally, if you can believe all this *(If you don't, ask your Editor. wcn),* Lou had motor control which was activated by a "quick blip" of the transmitter button. Motor control was also sequenced, either full speed or dead idle. Incredible as it sounds, Lou did some fancy maneuvers that day with his Beam. He even flew inverted with this system, which as you can imagine, was quite difficult. As a fifteen year old high school student, at the time, I was certainly impressed by this demonstration.

Within a very few years, most of the single channel, escapement operated R/C was replaced first by Galloping Ghost and reed type multi-channel equipment, and finally by our present day digital sets.

Although I progressed through the years with the R/C hobby and presently fly an assortment of stunt, scale and gliders, I still look back at those beginning years of R/C. In early 1970, I attended the WRAM's Trade Show at White Plain, New York. While touring through this show I came upon the AAMCO booth which was being presided over by Lou Andrews. To my surprise, on display, Lou had his original Beam, the very one I had seen fly seventeen years earlier in Rhode Island. I talked with Lou at length that day. It was then that I decided to build another Beam. Unfortunately, Lou did not have a single set of plans remaining, not even a personal copy. After the show, I tried contacting the Paul K. Guillow Co. and again struck out, since they likewise did not have a set of Beam plans. Finally, my good friend and fellow club member, Nick Ziroli, found me a beat up, but usable, set of plans. I was able to put the pieces together and reconstruct a tracing of the original.

That might have been the end of the story, since when finished with the plans I simply filed them away and went back to my low wing stunt plane. In the June 1971 issue of R/C Modeler Magazine I noticed a classified advertisement placed by Dan Reiss of the Valley Flyers R/C Club (Southern California) requesting a set of Beam plans. As a courtesy, I sent Dan a copy of my tracing. To my surprise, about a month later, I received in the mail a box containing a set of neatly cut out wing ribs for a Beam. Dan had already built his Beam and in the process, made an extra set of ribs for my use as a return favor. That finally provided the motivation, and with that I started on my own.

The updated plans presented with this article follow the original shape and construction with very little overall changes. Almost all of the original Beams, using small engines, such as the McCoy .09, were tail heavy. This becomes obvious when you notice the

Continued on page 64

Tommy Aberle holds the Beam up in a good 25 mile an hour, Long Island "breeze." The Beam was known for its ability to handle well in the wind.

Lee Taylor, Roseville, Cal., flying his DuBro Hughes 300. He sez it has the strength of a battleship, and to prove it, sent us the photos below!

CHOPPER CHATTER

By JOHN TUCKER

● In preparation for the anticipated increase in R/C model helicopter activity this summer, it looks like the manufacturers are stepping up production of new models and modifications to their older chopper kits. Therefore, it seems appropriate, at this time, to briefly present some of the new "goodies" which are, or soon to be seen, on the dealer's shelves:

LENCO 100 Designed and Manufactured by Len Sabato, it features a balsa covered foam core tail boom, with all major mechanical components completely assembled, and is convertible from fully rigid to semi-rigid with collective pitch available at additional cost. Tentative price is $285.00, factory direct only. Watch for it!

SA 341 GAZELLE Perhaps one of the real news stories is Dieter Schluter's decision to produce R/C helicopters on his own behalf rather than through other kit manufacturers. His first offering is a semi-scale Aerospatiale Gazelle, a fantastically beautiful creation. The polyester fuselage is monocoque and requires no formers. Other outstanding features include a preformed base plate for exact installation of drive unit, easily removed frameless canopy, fuel and glow connections extended outside, and removable tail rotor strut for better transportation.

The Gazelle also introduces a brand new collective pitch system known as the "expert", which can be retrofitted to the Schluter Bell Huey Cobra and the D-S-22 helicopters. Preliminary data and photos indicate the new collective system utilizes the familiar stabilizer bar as the source of power for moving the rotor blades in the conventional

Radio problem resulted in high engine, no control. Ship dove in from 400 ft.! What a mess! Smashed bubble, split fuselage, bent tail boom.

With all the calm of a typical modeler, Lee takes the most logical action! Comes the testimonial: Lee was able to repair the 'copter and has it flying again, at a cost of less than $40. !!

Our "Chopper Chatterer," John Tucker, adjusting his gyro equipped Kavan Jet Ranger. Ship also has fuel warning system.

Well known eastern flyer, Nick Ziroli takes his Kavan Jet Ranger "for a walk." Power is an ST 60 Blue Head, radio is Heathkit 8 Channel.

manner for "cyclic" control . . . additionally, however, it slides up and down vertically with the swash plate to provide "collective" control without excessive "monkey-motion". The unique idea keeps the total stabilizer bar system *in trim* throughout the complete range of pitch changes, and appears to be smooth and positive in operation.

Leave it to this pioneer R/C helicopter designer to come up with such a fine overall package . . . distributed by Aristo-Craft.

GRAUPNER Now producing new inflatable floats for their Bell 212 helicopter. Used for training, they both protect the airframe, and add hovering stability. A modification to the Bell 212 kit raises the rotor head above a plastic pylon to help the rotor tips clear the rear tail boom during extreme maneuvering conditions. Available later in the year, a new compact Graupner/HB electric starter . . . very small, with hi-torque output . . . looks good for helicopters.

BOLKOW 105 Midwest Model Products is importing the Rowan kit (from Germany) for the Bolkow 105. This clean looking machine is designed for .60 engines and has a conventional rotor head and drive mechanics a la Schluter.

KAVAN ALOUETTE Previewed at the Toledo Trade Show, a real fine looking lightweight with its .19 power, and 40 inch rotor diameter. Its small size should make it a logical choice for car-trunk transportation, and its kit price should be within the reach of all modellers at under $200.00.

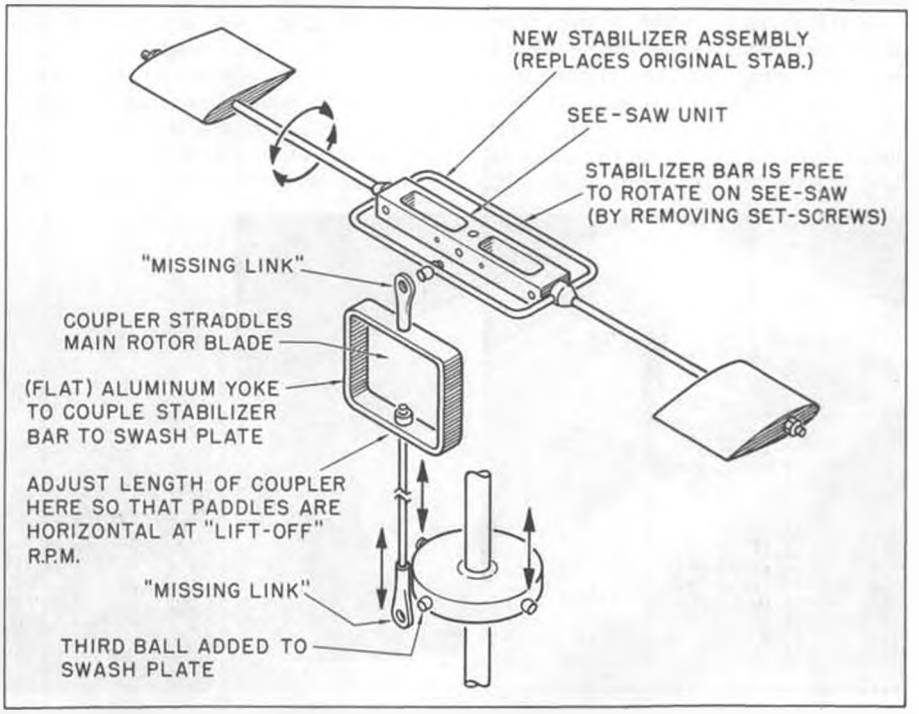
DU-BRO SHARK Now available at your favorite hobby shop, the "Shark" is a quick and easy, highly modified version of their popular Hughes 300 kit. With all aluminum, bolt-together construction, it includes the O & R engine, gear box, clutch assembly, two-piece plastic body, and clear plastic windshield. Priced at $350.00.

D & B TRAINING FUSELAGES Now here is a new idea, and one that is worth consideration by the tyro helicopter pilot. For under $35.00, you can order a wood and aluminum training frame which includes landing gear and all necessary hardware. Install your own engine, radio and mechanics, and end up with a rugged and long lasting helicopter designed to take the hard knocks of training. After you have learned to fly the "beast", you can interchange the equipment from trainer to your kit fuselage in a very few minutes. It really saves that expensive fiberglass fuselage while you learn!

HINESS, INC. Announces a very interesting helicopter design concept for the experimenter. Built around a new twin-cylinder engine, the mechanical package is assembled on the frame, landing gear, etc., as a unit. Also attached is an aluminum tail rotor boom and main rotor drive. The unit can be flown "as-is," or the builder can design and install his own fuselage to fit. Also available is a matching Hughes 500 fiberglass shell ready for painting. Available now in Tokyo, however we have no details as to release date or price in U.S.A. Watch for it!

Japan has another interesting development . . . a highly refined collective pitch mechanism which is controlled by a push-pull rod running up through the center of the main rotor shaft. Ah, if I could only read Japanese, we could get a lot of information on recent helicopter designs and data . . . their model magazines are really something else! A recent issue of Radio Control Technique included several pages of data on a Gyro-Copter design which has flown very successfully, and looks like an extremely simple way to break

Continued on page 59



New modification for the Kavan Jet Ranger main rotor system. A Tremendous improvement!

PHOTO BY PHIL TARVER

Jack Culpepper launches 'Lil' T while No. 2 son, 9 year old Cub Scout Wayne, mans the controls. Occasion was a demonstration for the 1974 Elk River District Cub-O-Ree. LSFer Clark Fitch stands behind Wayne. Action is in Tullahoma, Tenn, home of Coffee Air-Foilers.

RADIO CONTROL REPORT

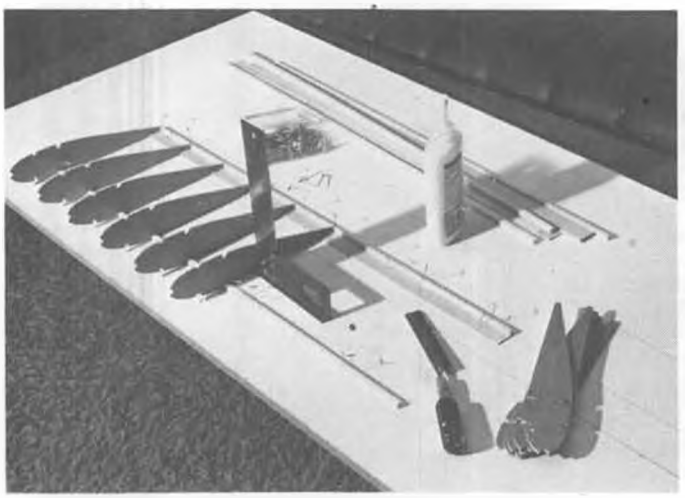
FRANK SCHWARTZ

● One of the best things (as far as R/C editors might be concerned) about the great Toledo show, is the enormous amount of new items that are shown. . . and of course, there is a lot of mileage that we can get writing about them. Rather than go on and on, I'll try to hit some of the high spots and talk about some of them that captured my imagination.

Kraft Systems, which always seems to come up with a new item, showed its new Glow Plug Analyzer. It consists of a molded plastic top which fits either the round, doorbell battery or the square battery, depending on which model you buy. It also includes an off-on switch, a meter, and leads and clips for your glow plug. This handy little gadget not only will light your glow plugs better (after all, 1.5 volts is more than the 1.25 that nickel-cadmiums give you), but by observing the meter, you can tell if the plug is open or shorted, or if the engine is flooded, and lastly, you can tell when the battery is about run down. With normal use, one of these dry batteries should be good for a whole flying season or better. The Analyzer sells for only $7.98 for either round batteries (GAP-R) or square batteries (GPA-S). Mine works just fine, and I sure can recommend this to one and all.

To us, however, the real hit of the Kraft showing was the prototype of the new engine. Kraft, with his usual attention to details, tells me that the particular engine shown, although exceptional in idle, throttling, smoothness and such, was not quite up to the power standards they had set for themselves. So a totally NEW engine is being developed, which they feel meets and exceeds the standards for all the foregoing. . .plus plenty of power. While hoped-for production is September, it would be better to assume that they will have it available much later in the year. Kraft feels they will have the best .61 to be offered at any price, and wants to be sure that all

Continued on page 68



Ribs in Jay Lewis' "Hoss Fly" are foam, sandwiched between sheets of hard paper. Light and strong . . . great balsa substitute.

Charles Lewis with his extremely rugged Hoss Fly. The lines sure look Ugly Stikish. Great flying site.

Benjamin Casteneda gets yet another trophy . . . First Place, Pattern Expert. A repeat win of last year!

Manuel Sierra, First Place in Formula I Pylon. Cliff Rausin, of Exportations, behind the shredded wheat.

THIRTEENTH INTERNATIONAL CONTEST OF THE ASOCIACION MEXICANA DE RADIO CONTROL

By ELOY MAREZ

PHOTOS BY ELOY

● Every year, on the weekend preceding Easter Sunday, the Flying Saucer that has been assigned Mexico City as its target, begins to record a general exodus of that city's population. By the middle of the week, the population outflow is steady and threatens to leave nothing but a ghost town.

It is Semana Santa, Holy Week, and every one who can, is leaving the city. The destinations are many, dictated by the individual's economic situation and the time available away from the job or business. The playboy heads for Acapulco, Mazatlan or abroad, while the worker might only go to visit relatives or to a small mountain village for one of the many traditional religious ceremonies held during the season. But a large percentage of the city's residents do, in fact, leave. All government and most large private businesses close, hotels and restaurants revert to skeleton crews, and the whole city goes into low gear.

But . . . Que Pasa? As our Friendly Flying Saucer studies the outgoing flow with its highest power telescope (R/C'ed from the home planet of course), it begins to notice that now and then, against the outgoing tide, some of those Earthlings are directing their atmosphere-polluting vehicles the opposite way . . . into the city. An even closer look reveals these vehicles are loaded with miniature copies of their manned antiquated flying machines.

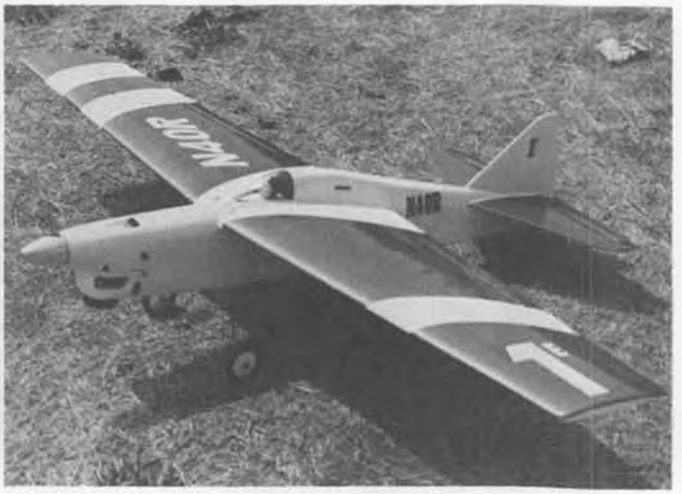
Yes, it is Semana Santa, and for the Mexican modeler, all roads lead to Mexico City, home of the traditional R/C contest held at that time every year. This year's bash was number Thirteen, and was hosted by the Club de Radio Control Mercurio. The actual flying days were April 11th through the 14th.

Mexico City flyers suffer the same flying field problems known to all big city dwellers in the USA. The site of this year's contest is about an hour's drive from the Holiday Inn in the Zona Rosa, which is the unofficial headquarters for us out-of-towners, and a great place to stay. The field is rather small, and ringed by airplane eating trees, but we were told by good friend Gaston Mathelin, owner of Mathelin Modelismo, that he is in the process of putting in a field in a new site that will be bigger and better in all respects. This new field should be ready in plenty of time for next year.

To give the event a true international flavor, among the notable present were Teodoro Tinetti, sparkplug of R/C in El Salvador; Cliff Rausin (Exportations), Jose Alberto Dona (Emandi Export), Louie Zeinneker and Yours Truly from California; and all the way from Seattle Washington, the Racing Roots, Bob and Kathy.

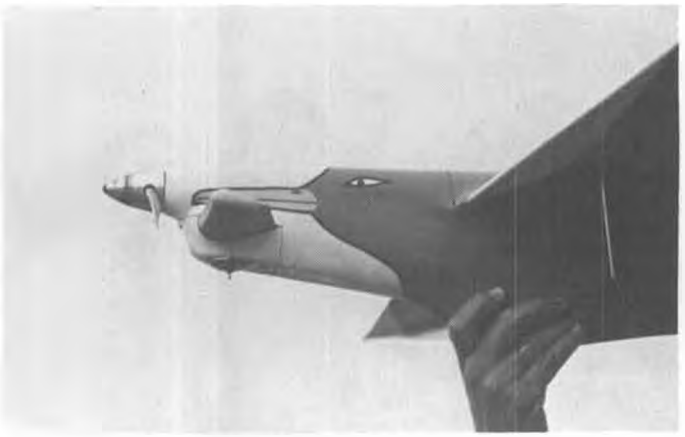
The official flying started off with a roar (muffled) on Thursday, the 11th, with the FAI Pattern event. Flying the new FAI pattern didn't seem to slow down the Castenedas from Puebla. Son Benjamin emerged as First Place winner,

Ole 96, Open Class racer, with owner Jesus Rodriguez, awaiting the starting signal.



Bob Root entered Open Pylon with his OPS 40 powered "Streaker."

The Racing Roots, Seattle, about to do their thing. Bob is currently campaigning for a slow-down in pylon racing.



The business end of Joaquin Alba's "Phony Folkerts." Looks mean!

Joaquin and Olivia Alba display the unique paint job on their "Phony Folkerts."

Our Mystery Girl. See text.

Kathy Root, internationally famous "Call" girl, back from Acapulco.

with Papa Luis a close second. Only because daughter Rita adjusts his needle and calls for him, Salo Feiner, of Mexico City managed a third.

In the Intermediate class, Louie Zeinneker came through with a First Place, barely outflying Jose Antonio Enriquez, who received the Second Place award.

Novice Pattern First Place went to Alejandro Benitez, with Roberto Mathelin in the Second Place.

Speaking of the new FAI Pattern, how do you low landers think your eight point roll would look at an altitude of 7000 feet? (Watch out for the Flying Saucer.)

With Pattern out of the way, we're off to the races, and a very impressive lineup of birds appeared. The Formula One top honors went to Manuel Sierra of Mexico City, with Luis Castaneda nipping at his tail feathers in the number two spot. (I wonder where the Castanedas keep all those trophies?) In Third Place was Emilio Lozano, who seems to have discovered some of the secrets and is one to watch.

As in the US, FAI drew the least entrants, but in this case saw some of the best races. Bob Root emerged in First Place after a hotly contested nip and tuck race with Second Placer Joaquin Alba. Actually, Joaquin's ship appeared to be a bit faster on the straights, but Bob gained just enough on the turns to make the final difference. Not far behind, in the number three spot, was another old friend and well known racing pilot, Marcial Davila. *Continued on page 61*

In Mexico, they have strange ways of congratulating the winners. Of course, it could have been worse . . . suppose she weighed 200 pounds!

The prototype Fokker D-XVII with retractable radiator extended and jettisonable auxiliary fuel tank installed. Beautiful cowling job.

ALL PHOTOS FROM PETE BOWERS COLLECTION

FOKKER D-XVII

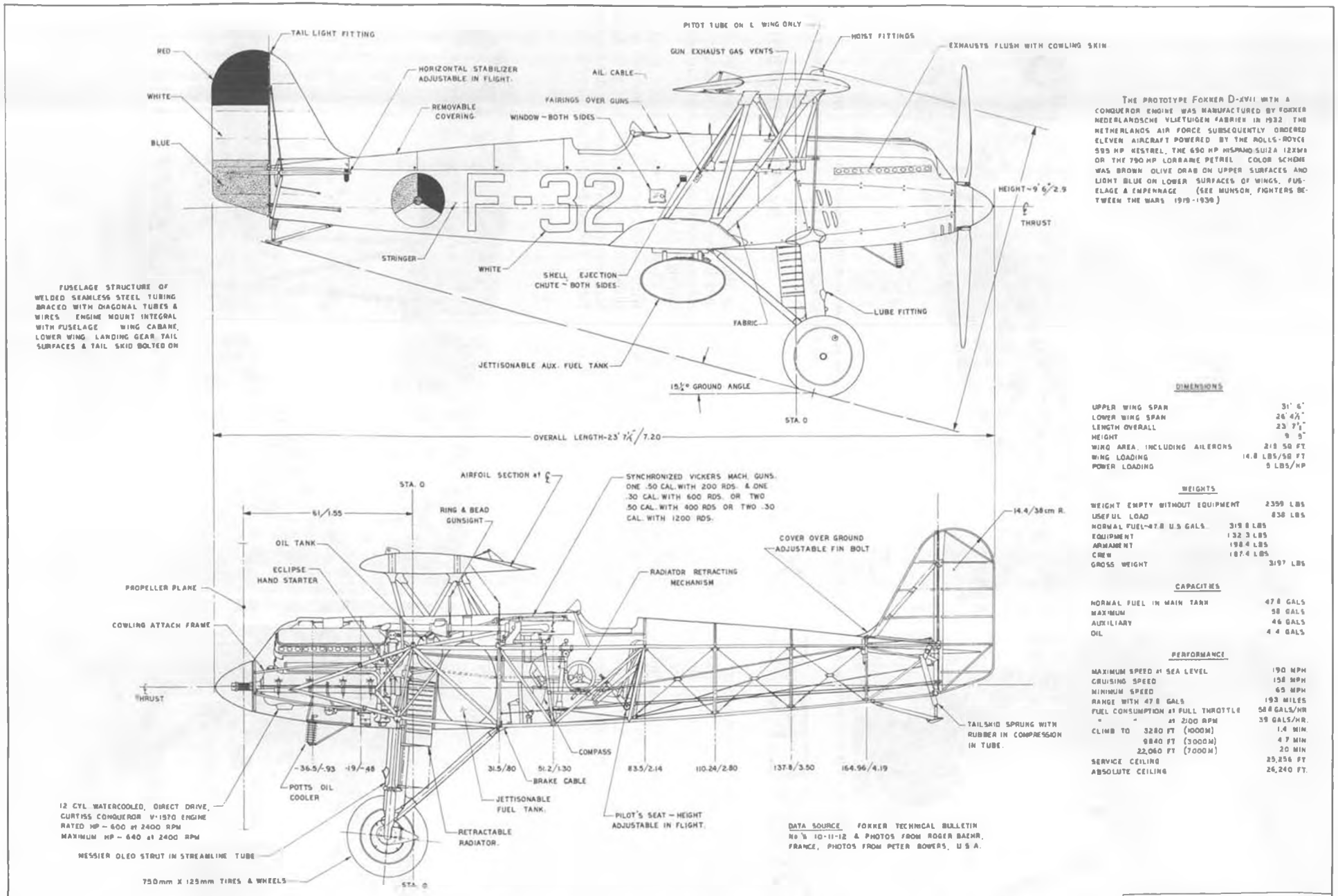
By PETER WESTBURG

● The early 1930's saw the development of the biplane fighter in its final and near-perfect form. In this country, the Curtiss Hawk P-6E was the epitome, while in Britain, the Hawker Fury is the best remembered example. In Holland, the Fokker D-XVII in its final form, with the 595 hp Rolls-Royce Kestrel IIS engine was, if not the peer of the Hawk and the Fury, a very close second . . . although it is the least known of the three.

This month, the interim D-XVII with the Curtiss Conqueror engine of 600 hp is featured. Originally, a Fokker D-XVI with an Armstrong Siddely Jaguar radial, it was extensively modified and slimmed down. The "one-off" prototype shown in the drawings was test flown in 1932 and its performance led to an order for eleven production airplanes, delivered during 1934-35.

Construction was typically Fokker, with wood wings, partly covered with plywood, and a welded steel tube fuselage covered with aluminum panels and fabric. The empennage and ailerons were

Production D-XVII had integral propeller and spinner hub, fixed tunnel type radiator, and 595 hp Rolls-Royce Kestrel IIS instead of the Curtiss Conqueror. Contemporary with the Hawker Fury and the Curtiss P-6E, the Fokker D-XVII had the same classic lines.



THE PROTOTYPE FOKKER D-XVII WITH A CONQUEROR ENGINE WAS MANUFACTURED BY FOKKER NEDERLANDSCHE VLIETUIGEM FABRIEK IN 1932. THE NETHERLANDS AIR FORCE SUBSEQUENTLY ORDERED ELEVEN AIRCRAFT POWERED BY THE ROLLS-ROYCE 595 HP KESTREL. THE 690 HP HISPANO SUIZA 12XBR OR THE 790 HP LORRAINE PETREL. COLOR SCHEME WAS BROWN OLIVE DRAB ON UPPER SURFACES AND LIGHT BLUE ON LOWER SURFACES OF WINGS, FUSELAGE & EMPENNAGE. (SEE MUNSON, FIGHTERS BETWEEN THE WARS 1919-1938.)

DIMENSIONS

UPPER WING SPAN	31' 6"
LOWER WING SPAN	26' 4½"
LENGTH OVERALL	23' 7⅛"
HEIGHT	9' 5"
WING AREA, INCLUDING AILERONS	218.58 FT
WING LOADING	14.8 LBS/SQ FT
POWER LOADING	5 LBS/HP

WEIGHTS

WEIGHT EMPTY WITHOUT EQUIPMENT		2359 LBS
USEFUL LOAD		838 LBS
NORMAL FUEL-47.8 U.S. GALS.	319.8 LBS	
EQUIPMENT	132.3 LBS	
ARMAMENT	198.4 LBS	
CREW	187.4 LBS	
GROSS WEIGHT		3197 LBS

CAPACITIES

NORMAL FUEL IN MAIN TANK	47.8 GALS
MAXIMUM	58 GALS
AUXILIARY	46 GALS
OIL	4.4 GALS

PERFORMANCE

MAXIMUM SPEED at SEA LEVEL	190 MPH
CRUISING SPEED	158 MPH
MINIMUM SPEED	65 MPH
RANGE WITH 47.8 GALS.	193 MILES
FUEL CONSUMPTION at FULL THROTTLE	58.8 GALS/HR
" " at 2100 RPM	39 GALS/HR.
CLIMB TO 3280 FT (1000M)	1.4 MIN.
9840 FT (3000M)	4.7 MIN
22,060 FT (7000M)	20 MIN
SERVICE CEILING	25,256 FT
ABSOLUTE CEILING	26,240 FT.

DATA SOURCE. FOKKER TECHNICAL BULLETIN No's 10-11-12 & PHOTOS FROM ROGER BAENR, FRANCE, PHOTOS FROM PETER BOWERS, U.S.A.

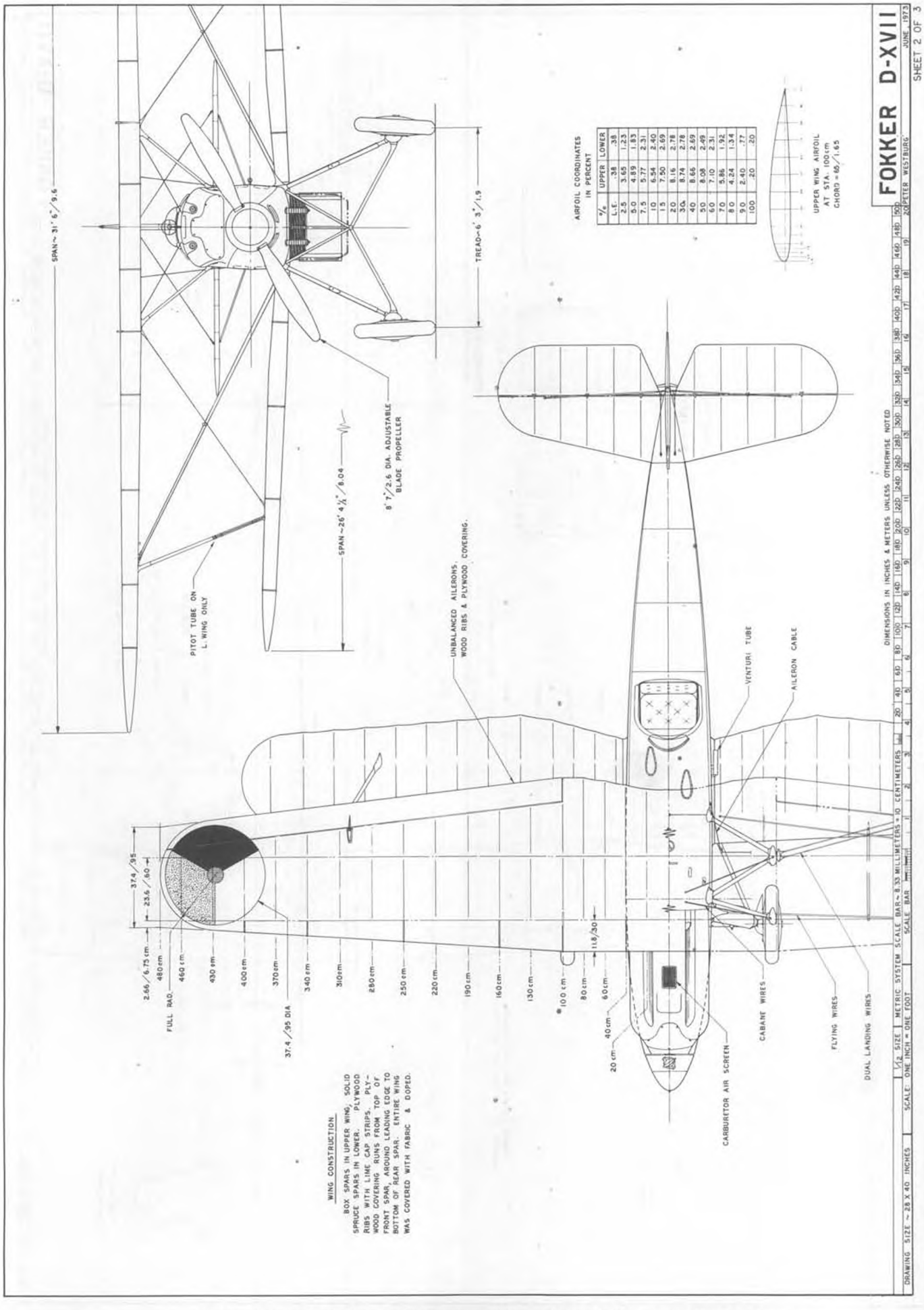
DIMENSIONS IN INCHES & METERS UNLESS OTHERWISE NOTED

DRAWING SIZE - 28 X 40 INCHES | SCALE ONE INCH = ONE FOOT | SCALE BAR

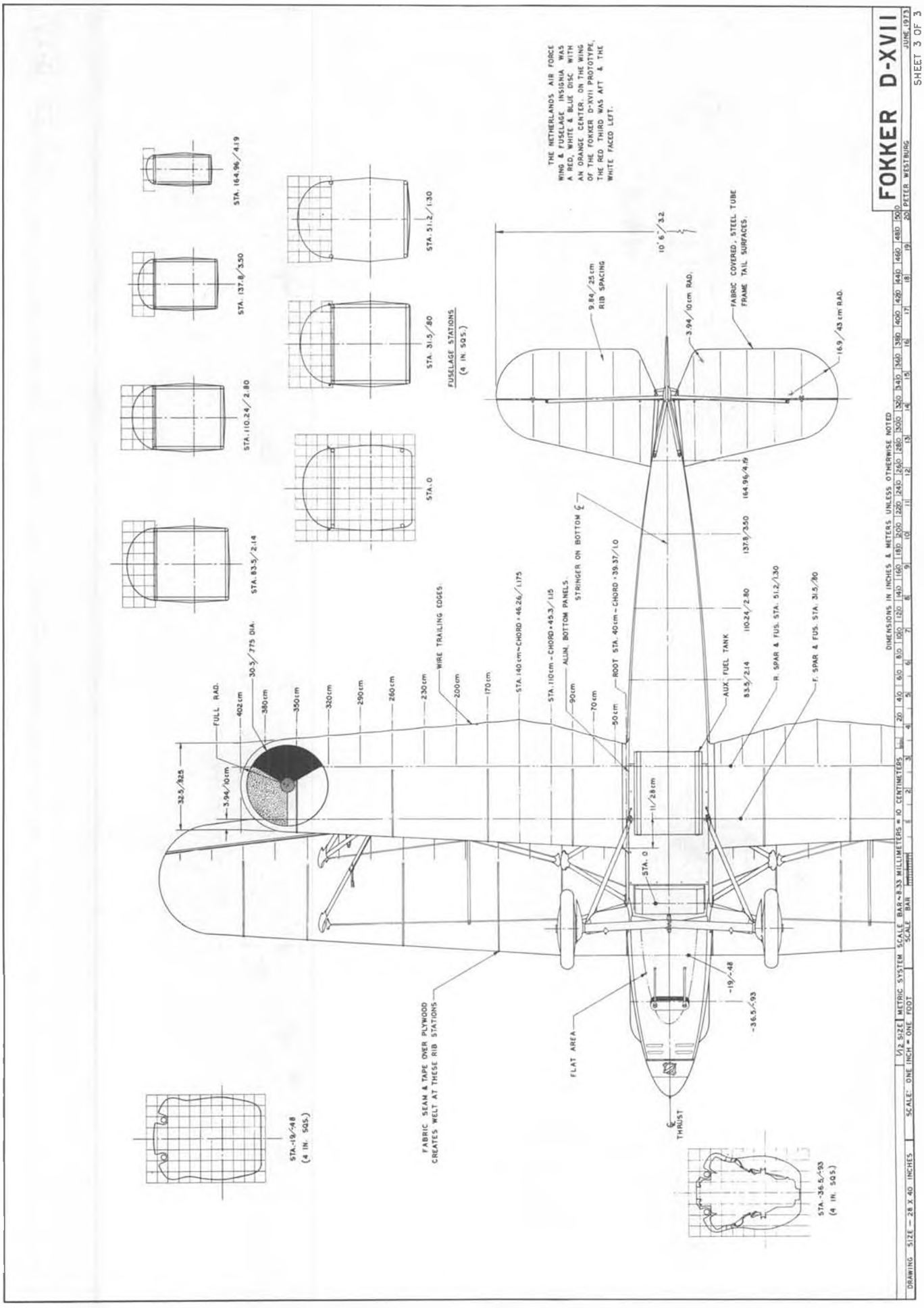
FOKKER D-XVII

PETER WESTBURG JUNE 1975

SHEET 1 OF 3



Copies of the original 28 x 40 inch drawings of the Fokker D-XVII are available at $4.50 a set.
Order direct from PETER WESTBURG, 834 Seventh St., Santa Monica, California 90403.



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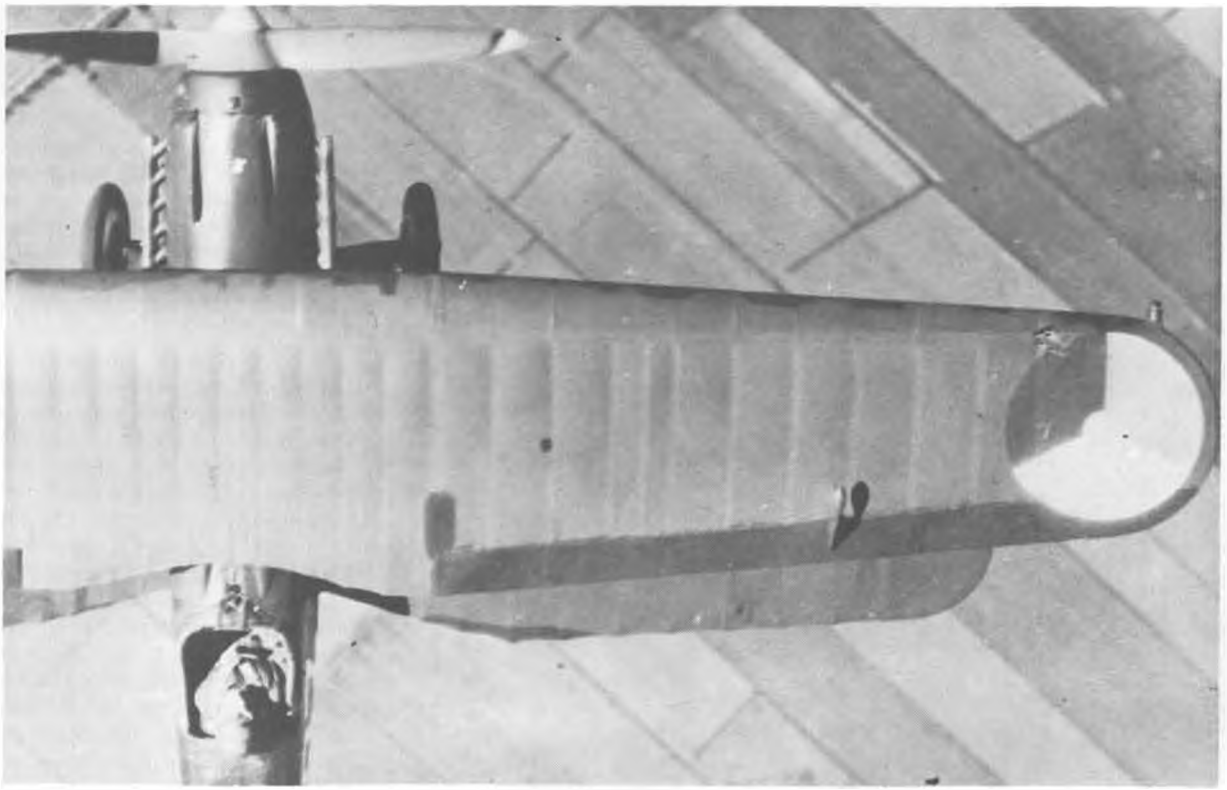
Close up of the protoype Fokker D-XVII with radiator partially extended. A Potts oil cooler has been installed, and wheel pants added. Venturi for turn and bank indicator just ahead of "F". Neat and snug fit on cowling around Curtiss Conqueror engine.

also steel tube with fabric covering. The landing gear legs were exceptionally long because it was anticipated that different liquid cooled powerplants and different diameter propellers would be fitted, and this was the case; the 790 hp Lorraine Petrel and the 690 hp Hispano-Suiza 12Xbrs were tried before the Kestrel IIS was chosen as the standard engine.

The coloring of the D-XVII was an olive drab with a very pronounced brown tinge, almost approaching chocolate brown, on the upper surfaces of the wings, the horizontal tail surfaces, the fin and the top and sides of the fuselage. The undersides of the wings, fuselage and horizontal tail were a light blue, which is best described as "sky blue." The lettering on the fuselage was white.

The D-XVII was the last biplane fighter designed by Tony Fokker and his crew, and it was a worthy successor to its famous ancestor, the D-VII. One set a Dutch altitude record on January 18, 1935 and six were still in service when the Germans overran Holland in May of 1940. ●



Unusual flight shot of production version shows the wing fabric pillowed out by the airstream and an apparent repair at the inboard end of the aileron.

John Garabidian (l) congratulates Tony Brown (r) for 2nd Place in Standard at Whittier Narrows. Tony flew consistently in the low 1:30's.

PHOTOS BY JERRY

pylon

By JERRY SILVERMAN

How'dja like the scale judging job when 66 entries show up with over 100 airplanes!? Eight complete rounds were flown.

● In many parts of the country, early April can produce cold and rainy weather, but in Southern California quite the contrary existed. Temperatures in the high 80's set the stage for the first Formula I race of the year in the Southern California District. Pressure had been building for the past several months and now the time had come for all the winter's planning to be put in to effect.

The first thing this writer noticed was that there were quite a few new pilots at this contest. It is kind of a blessing to see new faces now and then, especially if you get to race someone you haven't raced before. Another new advent this year was that all of the races to be run on the first day would be posted early in the morning and they would not be changed. Kind of makes things more understandable, and it allows you to be able to plan things a little better.

It always takes a ground crew to keep the races going. At the scheduling desk, we find (l to r): Betty Stream, Joe Stream, Bob Bleadon, and Jack Hertenstein.

The registration desk started signing up the planes at 7:30 AM sharp, and this was followed by a careful safety inspection by George Flynn. Following this, at 8:15, all the planes were assembled on the taxi strip and scale judging was started. Every contest produces a little bit different method of judging, however, there was little griping about this. The planes were divided into four groups, with the best appearing planes out in front, and naturally, the worst in the rear.

As 9:00 o'clock approached, an air of mystery hung over the field, and from the pits came sounds of those growler 40 engines. In walking around the pits, I noticed several new planes. The first one I can recall was the one from A&L Distributors, namely the LR 1A. The real name is almost unpronouncable. There were several of these at the contest and from my own observations, the plane appears to handle very well. Another plane that I feel needs a little comment is the new trick DARA. This is very similar to the old DARA, however, the fuselage has been changed somewhat. The fin apperas to be taller, the cheek cowl has been changed completely, and the fuselage is somewhat

Ready for action, and the 1-1/2 minute countdown has started. Note hard hats.

Clarence Lee calls for son Jack, who flies in the low 1:20's.

John Garabidian and Jeff Bertken, who took second (to Nogy) in Expert.

smaller. I personally fly one of these new planes, and have noticed none of the objectionable characteristics found in the old DARA. The tendency to want to hook down in the No. One turn is gone completely. The plane grooves much better.

I also noticed that there were a couple Thunderchickens at this contest. This plane is scratch built only at this time. Jimmy Witt, from Kraft Systems was flying one, and he did quite well. The Chicken turns at No. One pylon like you wouldn't believe. Clarence Neufeld has been flying one of these Chickens the past year or so and has nothing but good comments for the way it performs. (There was no comment about kitting one, though.)

At 9:30 sharp, the mock heat was flown to give the workers time to iron out the bugs. Four pilots volunteered to put their birds in the air. This system seems to work very well indeed. Unfortunately, at this contest, one of the volunteers stuffed his plane in the ground.

The first round of flying started at 9:30 sharp. The Standard Class went up first and kind of established the pace, only to be out done by the first flight of the Experts. The race that sticks out in my mind right now was the one between Tom Tusing and Bob Smith. Tom got the lead right away and Bob had to play the game of catch up, something he is not used to. They flew extremely tight for a solid ten laps and neither would give an inch. The end result was Tusing first, Smith second (Again something he isn't used to). Tom was flying one of the production Supertigre X-40's.

In the early part of the first day, Terry Prather went to the line and demonstrated to everyone exactly what a record run looks like. He flew one of his new Little Toni's to a blistering 1:17.2! I personally watched this flight and it seemed he wasn't flying all that tight, however, that plane seems to accelerate everywhere. It doesn't slow down in the turns at all. The straights seem so short when the plane is going that fast. I'm sure everyone knows that Terry has been running one of the X-40's for some time. The only thing that kept Prather from winning the contest was problems with blown plugs. Almost equally impressive were his other runs: 1:17.8 and 1:18.9. There is no doubt that Terry has certainly got the fastest plane ever in Formula I . . . The closest anyone ever got to Terry was Clarence Neufeld's run of 1:20. (K&B)

By the end of Sunday we found first place in a tie between Kent Nogy and Jeff Bertken. This set up a fly off. The planes took off using a race horse start, and Jeff was at Number One pylon first by a substantial margin. The planes stayed that way for several laps, and obviously the pressure was on Kent, as he became the aggressor. By the eighth lap, Jeff had cut a pylon, which allowed Kent to slack off a little. The

Continued on page 52

NMPRA's Quarter Midget representative, Mel Santmeyers.

Roger Owens and his beautiful Little Toni with ST X40 power.

"The Old Man and the Sky," our R/C Soaring editor and his 1970 Gypsy Gull design. Photo by Whitey Pritchard.

R/C SOARING

By LE GRAY

A MODEL BUILDER first . . . Do-it-yourself ARSE (Automatic Recovery System for Emergencies) . . . . . The wild, blue yonder can be wilder the yonderer it gets. See text for full explanation . . . maybe!

● A high performance sailplane must be a stable machine. That is, some amount of automatic, positive stability is essential to thermal soaring. Look at it this way: no other type of model aircraft is operated deliberately at distances even approaching those considered normal for R/C sailplanes. When these distances are beyond the range of the pilot's visual acuity, the sailplane cannot be controlled with adequate finesse for efficient . . . or sometimes even safe . . . soaring performance.

That introductory paragraph may have a familiar sound to it. The last time it was used, however, was with reference to basic trim adjustment. Let's go a bit further . . . literally.

Successful thermal soaring requires that nature's lift patterns be followed, and that the energy they contain be utilized to the maximum extent possible. Once a soaring sportsman gets his craft into promising lift, he's going to hang in it 'til hell freezes over . . . to the very brink of losing visual contact. Usually, it's only his last remaining thread of good judgment that causes him to turn away from the thermal . . . when it's dangerously obvious that further exploitation of the rising air may take his sailplane beyond his capability to retrieve it.

There's an awful lot of air between an R/C pilot and his almost-out-of-sight sailplane. In much of his three-dimensional arena, visual tracking is not adequate for precise, radio-transmitted, manual control. Under such literally far-out conditions, a control input can be inappropriate or disoriented almost as readily as appropriate and properly oriented. Perhaps more important, a radio signal can command a control movement which results in stresses that are beyond acceptable limits.

A corrective control commonly transmitted to a way-up or way-out sailplane is "down" trim. Sometimes forward stick pressure is used. Under these conditions, the pilot watches his sailplane with tense concentration. At no time does he allow the speed of the vehicle or its rate of descent to approach dangerous levels. According to his eyeball radar. But check what often happens when a lower, safer altitude is reached. The controls are returned to neutral, and nine times out of ten, that turkey zooms up and over in one big, wing-bending loop. It's the demonstrated result of excess speed . . . which had not been apparent to the pilot. It also demonstrates that the pilot really could not see and judge the flight path of the sailplane with enough accuracy to provide proper control inputs. Just how close many of these thrilling exhibitions come to the critical, breakup velocity is never known . . . unless there is sudden disintegration. That usually indicates over stress.

Now this bit of color has nothing to do with soaring efficiency, but such incidents are excellent examples of today's theme . . . if ya can't see 'em, ya can't fly 'em! Hardly.

Most sailplane pilots have experienced strong lift conditions at one time or another. This is what it's all about. But too much of a good thing

can bring on a great desire to reduce the rate of climb and/or return to the field. A few beads of perspiration on the pilot's brow often accompany the urge for an earthbound sailplane. Some pilots signal their inner concern by alternately rubbing the left and then the right hand down the upper part of pants legs. This is known as the "drying-sweaty-palms" reaction. The more suave occasionally will feign a stiff neck or a desire for a cigarette, and toss the problem to an Old Flying Buddy. "Hey, Jay. Wanna fly a highly tuned, thoroughlybred type competition machine?" What the hell, let him lose it.

A more ethical solution than the "give it to a friend" school of etiquette is practiced by those soaring sportsmen who make the hand-off to the local "Klutz." He's the guy who couldn't keep a flag at the top of a pole . . . and it's a proven fact that any sailplane will start sinking the instant he touches the transmitter. Properly utilized, his kind of talent can be rewarding. How can ya get him teamed with OFB for the club's next Doubles' Soaring Tournament?

Under even marginal conditions . . . which can be considerably better than edge-of-sight situations . . . there's no reason to assume that a pilot's visual interpretation of sailplane attitude and his subsequent control manipulation always will result in the desired response by the vehicle.

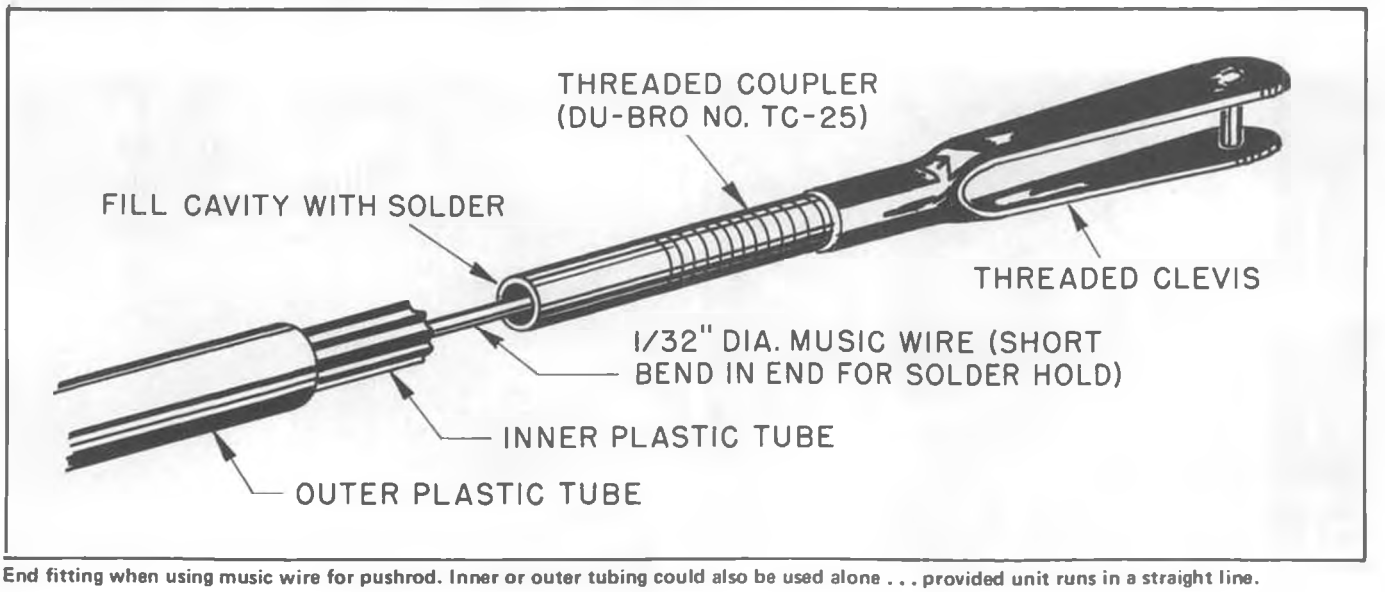
Next time you're at the field, make a couple of flights with just a tad . . . which is about the same as one and a-half smidgeons . . . of either up or down elevator trim set in at the transmitter. This shouldn't be enough to stall or dive the sailplane, but should cause a mushy or a too-fast glide. The increased rate of sink . . . the reduced duration performance . . . with either trim change will be quite noticeable when it ain't, the thing wasn't adjusted right in the first place.

This photo by Whitey Pritchard goes back a few years. It's Jack Ronda, Santa Cruz, California, and a very pretty sailplane. Nothing but transparent covering could do it justice.

These experimental flights should demonstrate that (1) an out of trim condition can be produced with very little pressure on the transmitter stick, and (2) visual recognition of an inefficient flight path is almost impossible . . . especially at large distances and in circular flight such as in normal thermalling. The performance potential of any sailplane can be degraded unconsciously quite easily, and even consciously with the intent of improving the immediate situation.

At some point in space, every pilot loses the degree of visual contact that is necessary for him to control his sailplane. The exact point is dependent

Continued on page 56



End fitting when using music wire for pushrod. Inner or outer tubing could also be used alone . . . provided unit runs in a straight line.

O. J. Stewart at the KOI with his Sifleet designed Centaur FAI ship. Note coiled skid. Photo by Dave Linstrum.

PATTERSON PHOTO

Coiled 1/16 wire skid on 1/2A model, made with round nose pliers. Skid sandwiched between layers of plywood in the firewall.

FREE FLIGHT

By BOB STALICK

● My, how time flies when you're having fun. A half year ago, I wrote my first F/F column for Bill Northrop. So, it seemed time to visit, once again, my favorite seer and sage to find out how it was going. So I did. Once again I asked, "How's it going?"

He replied, "You've made some progress. You've advanced from little of value to more than that."

"What does that mean?" I pressed on.

And he responded with, "A people without history is like wind in the buffalo grass." Then, he closed the door.

Enthusiastically, I took on his challenge and sat down to begin this June column.

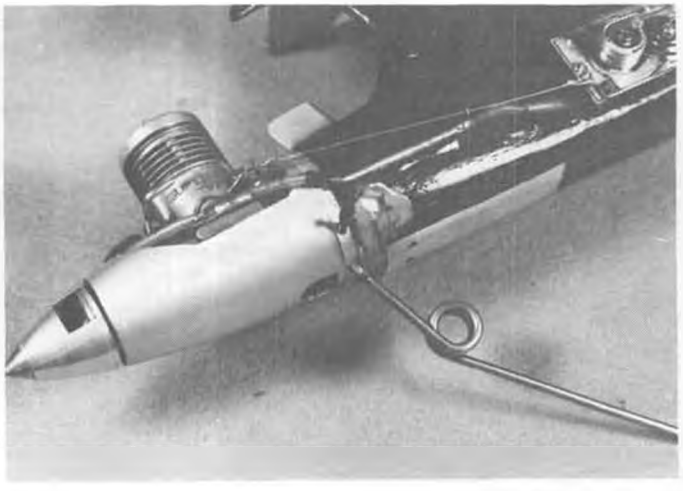
Here tis:

MYSTERY MODEL OF THE MONTH

Now, that Bill has adjusted for the time lag, so that us non-California-types have a chance at winning the neat-o-keen free subscription to Model Builder,

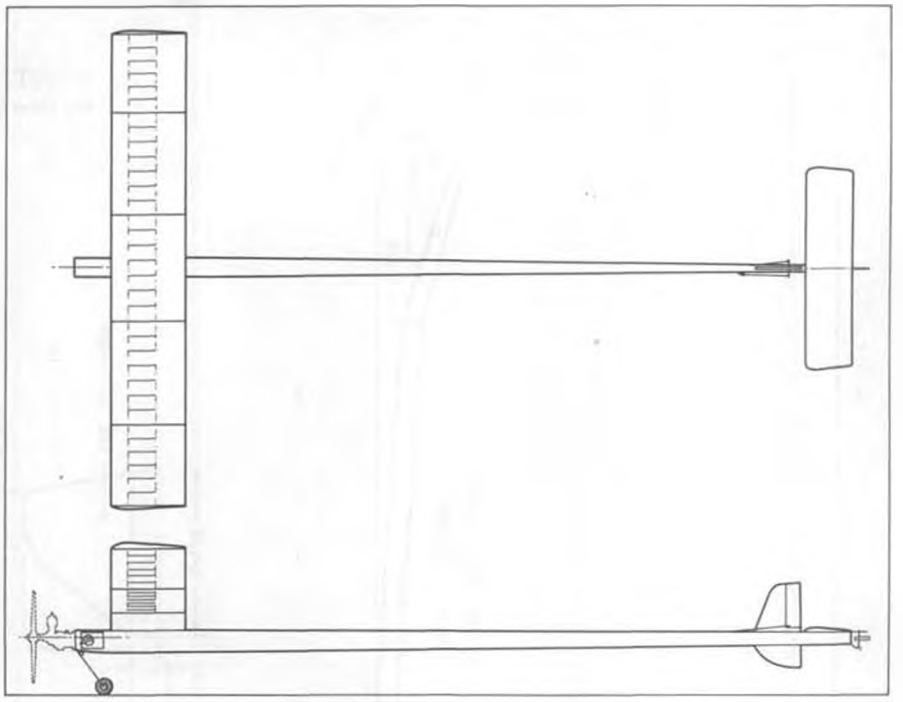
Fudo Takagi's photo of Frank Cummings and his twin fuselaged Wakefield, the ship that threw some of our readers off the track in guessing April's Mystery Model as Claude McCullough's .

Way back in the good old days, landing gears looked like this. Model is Don Dodd's New Ruler Old Timer. Patterson photo.



NFFS Coiled Landing Gear on an FAI power model. Set screw holds it in place. Photo by Jim Patterson.

F/F Editor B. S. (No, it means Bob Stalick!) and his K&B powered C-Quell. Note coiled gear and Tatone mount. For B and C.



JUNE'S MYSTERY MODEL

try this month's model on for size. Speaking of size, it's 43 inches long, and has a 33 inch wingspan. Good luck, and you needn't be a member of the Serutan crowd to remember it, either. It was powered by an .049 Thermal Hopper.

DARNED GOOD AIRFOILS . . .
THE JEDELSKY E.J. 75

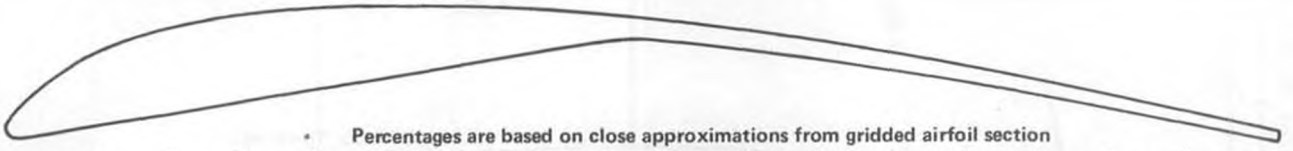
For all sheet balsa freaks, the Jedelsky style of construction is no novelty. The coordinates presented are approximate, but the airfoil sketch is accurate. If you construct a wing using this style of airfoil, wood selection is very important. Medium weight straight grained sheet is needed for the leading edge of the section and high quality C grain is preferred for the trailing edge. This is an excellent section for sport gas models, but really comes into its own on rubber powered and A/1 and A/2 gliders. Dave Linstrum's Starstream A/1, which recently won international acclaim by being selected as the CIAM youth design for 1974, and my own design, A/Wonder, both use this airfoil and the Jedelsky style of construction.

Continued on page 63

"How long have you had this theory that modelers resemble their models?"

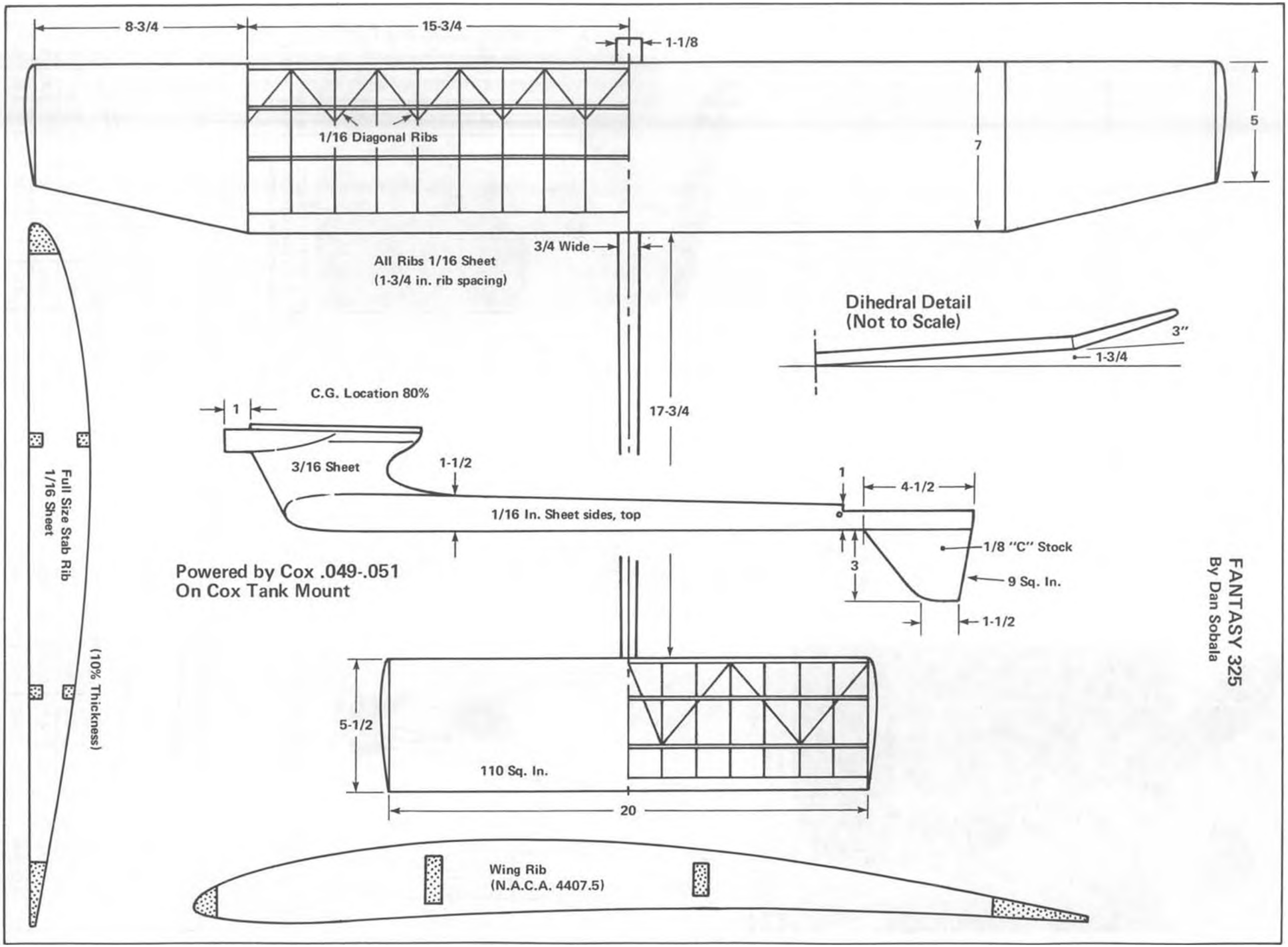
Nick Boldi launches his Magna 1000 at the KOI. Notice onlookers looking on. 'Nuther photo by Dave Linstrum.

Darned Good Airfoil - JEDELSKY E.J.-75



Percentages are based on close approximations from gridded airfoil section

STATION	0	2.5	5.0	7.5	10	15	20	25	30	40	50	60	70	80	90	100
UPPER	0	4.5	6.12	7.2	8.3	9.4	10.0	10.2	10.0	9.8	9.2	8.3	7.0	5.2	3.2	1.0
LOWER	0	0.5	1.0	1.5	1.8	2.7	3.4	4.0	5.0	6.2	8.0	7.0	5.5	3.8	1.8	0.0


8-3/4
15-3/4
1-1/8
1/16 Diagonal Ribs
7
5
3/4 Wide
All Ribs 1/16 Sheet
(1-3/4 in. rib spacing)
17-3/4
Dihedral Detail
(Not to Scale)
3"
1-3/4
C.G. Location 80%
1
3/16 Sheet
1-1/2
1/16 In. Sheet sides, top
1
4-1/2
1/8 "C" Stock
3
9 Sq. In.
1-1/2
Powered by Cox .049-.051
On Cox Tank Mount
5-1/2
110 Sq. In.
20
Full Size Stab Rib
1/16 Sheet
(10% Thickness)
Wing Rib
(N.A.C.A. 4407.5)
FANTASY 325
By Dan Sobala

NATIONAL FREE FLIGHT SOCIETY NEWS

FAI PROGRAM MANAGEMENT

● The National Free Flight Society recently proposed a new management structure for the FAI program. This program was approved by the AMA Executive Council and the AMA President. The program is as follows:

1. The President of the Academy of Model Aeronautics, as provided in the by-laws, is the individual officer with final authority for International Competition Determination.

2. A committee for the Indoor (F1D) Program and a committee for the Outdoor (F1A, F1B, F1C) Program will report directly to the President.

3. It will be the basic responsibility of each committee to deliver a Program Format Determination acceptable to the President and to a two-thirds majority of qualified Program Participants responding to a vote of acceptance of the Program Format. The Program Format is due thirty days before the date of commencement of a new program.

4. The committees will be comprised of one member from each of eleven AMA Districts, where possible, each member to be acceptable to the District Vice-President of his district. When little or no program participation exists in a district, the omission of a committee member for that district will be a matter for acceptance by that District Vice-President. The task of timely recruiting of committee members and the naming of committee chairmen will be the responsibility of the National Free Flight Society Executive Director. The committee membership and chairman selection will be confirmed by a vote of two-thirds of those responding . . . eligible to vote are all program participants having a valid AMA license and FAI stamp.

5. The power to remove a committee member rests with the District Vice-President for his district or by a two-thirds vote of all other committee members or by the President of the AMA. The replacement of such a committee member will be similar to the original format of selection through recruiting by the NFFS Executive Director and a vote of acceptance by a simple majority of those responding to a vote within the District involved. A committee member who is also Chairman, may not be removed except if the committee votes, by a simple majority, to remove him as Chairman and simultaneously names a new Chairman.

6. The Committees are required to follow certain procedures, as follows:

A. Provide a period during which recommendations are solicited and received from individual Program Participants.

B. The final form of the Team Selection Program Format will be submitted to a vote of acceptance by the Program Participants. A two-thirds majority of those responding is required.

The option is available to the committees to submit preliminary ideas or concepts for test response from Program Participants through polls or questionnaires.

7. Program Administration is the responsibility of AMA Headquarters in the assigned responsibility of Chief Program Administrator.

The Chief Program Administrator will:

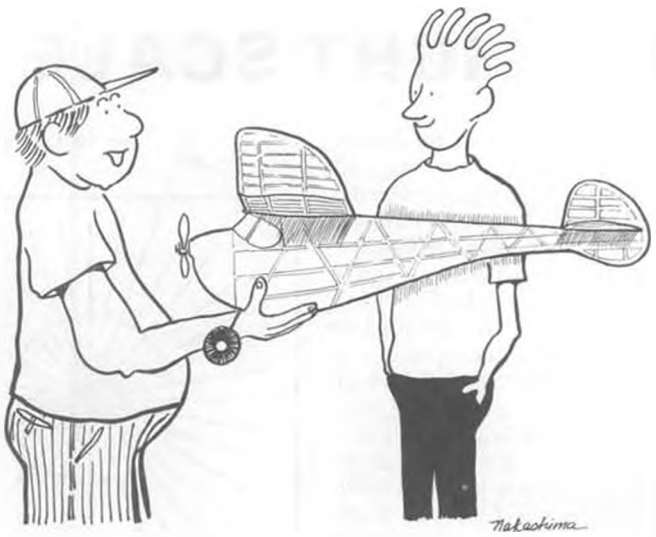
a) Report directly to the AMA President.

b) Implement the program format as approved by the AMA President.

c) Monitor the progress of committee work during the period of program format development such that he is satisfied that a program recommendation will be delivered in the required schedule.

d) Handle mailings and tabulations of polls and questionnaires and other AMA

Continued on page 61



"How long have you had this theory that modelers resemble their models?"

NFFS MEMBERSHIP AND RENEWAL APPLICATION

(Make checks payable to; National Free Flight Society)

Mail to;
B.J. Kelch, R.R.4, Box 475,
W. Terre Haute, Ind., 47885

			FEES 1 yr	FEES 2 yrs
RESIDENTS OF FOREIGN COUNTRIES			$6.00	$11.00
U.S. RESIDENTS	Age 19 and up	AMA Members	6.00	11.00
		Non-AMA Members	7.00	13.00
	Age 15, 16, 17, and 18 (Senior)		3.50	6.00
	Age 14 and under (Junior)		1.50	2.50
	Family membership*		1.00	2.00

All members receive NFFS Digest. Family membership fee includes all additional family members, but no additional copies of the Digest. Ages are as of July 1 of current year. Please circle applicable fees.

New Member ☐
Renewal ☐
Address Change ☐

Current expiration date
Month Year

Name AMA No.

Address

City, State Zip

*Please list family members
Name

AMA No.

Don Typond's Wilga. Note the modified hubs on the Trexlers, as described in the text.

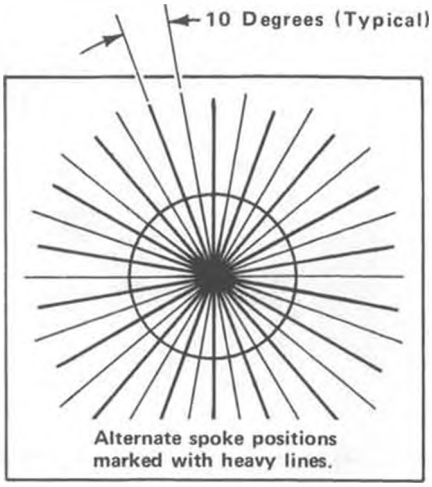
FREE FLIGHT SCALE

By FERNANDO RAMOS

● This month I would like to discuss the making of a simple wire wheel, and pass on a few hints regarding air wheels. Only during the past few years have we seen wire wheels on appropriate models, and this has happened because Fulton Hungerford made it possible. For those of you who cannot wait for the mail to send you your F.H. wheels, here is a method you can follow to make a pair of wire wheels in a very short time.

Use a piece of 1/2 or 3/4 inch plywood about 1 foot square (it can be smaller). Using a compass, draw a circle the diameter of the wheel size you want. With a protractor, mark 36 ten degree radials from the center of the circle. Mark every other one with a fine felt-tip pen, eighteen in all.

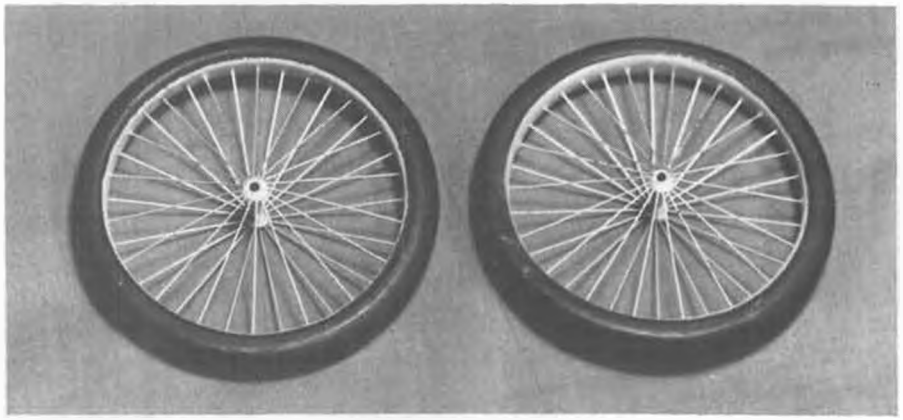
Drill a 1/16 inch hole in the center of the circle about half the thickness of the board. This must be exactly perpendicular, and should be done with a drill press. Cut out 3 discs for each tire; two from balsa (the ones in this illustration are 1/8 inch thick) and one from 1/32 plywood.



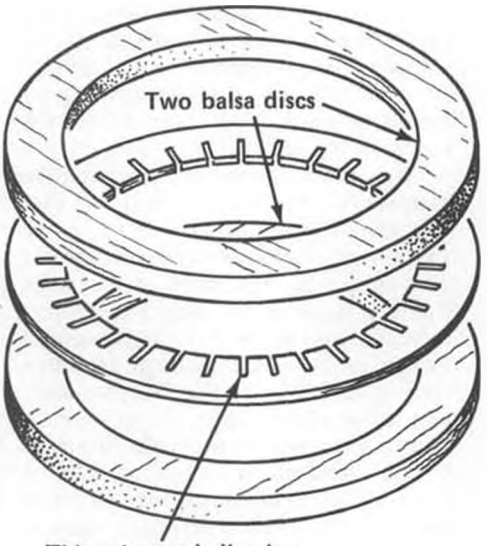
Set the plywood ring on the board, centering it on the circle you drew previously. Mark the inside edge where each radial intersects the ply ring. Use a jigsaw to cut a notch on each mark, halfway through the ring from the inside. A Zona saw should work, providing the wheel diameter is large enough.

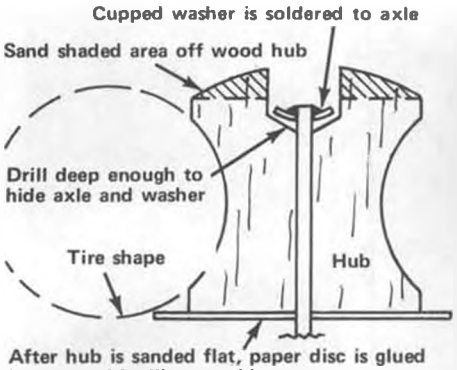
Glue the balsa rings on either side of the ply ring. You will note now, that there will be a hole to insert each spoke when you are ready. After the rings have dried, sand to the required tire shape. Use a little vinyl spackle wherever there are any irregularities.

Select and cut a piece of 3/32 inch aluminum tubing the length of the axle you want to have. Place this over a piece of 1/16 piano wire which is inserted into the block. Place the tire in the right location using the circle as the guide, and



A beautiful pair of light weight wire wheels made in the relatively simple fashion described in the text. "Tires" are balsa and ply, spokes are real wire.





After hub is sanded flat, paper disc is glued in place with silicone rubber cement.

Pres Bruning's 1916 Wight Quadraplane. Dummy engine rotates with prop. Weighs 1-1/2 oz. Fuselage 15" long. Photo by Larry Caricchio.

prop it up with balsa blocks to the appropriate height.

Slip a 3/32 inch I.D. washer on each end of the axle and attach with epoxy or one of the new alpha-cyanoacrylate adhesives. While this is setting up, take some piano wire or even brass (the latter, if the wheels are small) of the appropriate size and cut out 72, yes 72, of the required length spokes. The length is determined by simply inserting one end of the wire into the hole in the rim and the other a little more than half way on the washer.

Using the lines marked with a felt pen as a guide, epoxy one end of the wire into the rim of the tire. A little extra epoxy here is OK because a small build-up will look like regular spoke nipples. Just allow the other end to sit on the washer. When all 18 spokes have been done, put a blob of epoxy on the washer, completely encapsulating the spokes. This will give you a hub when dry. Inserting a greased wire will keep the axle hole open.

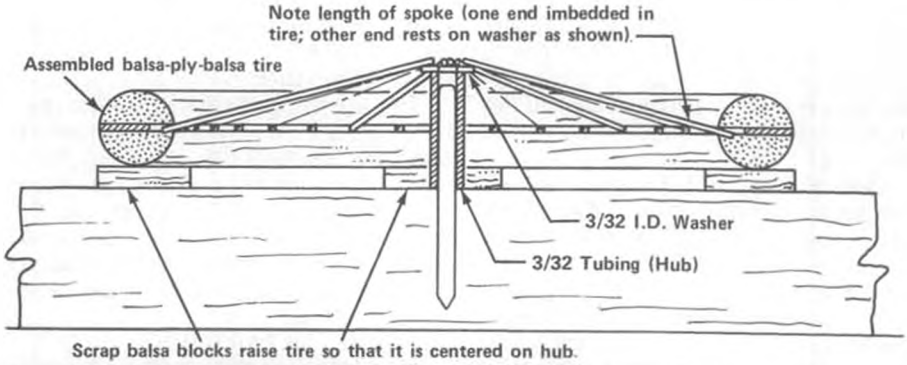
Turn the wheel over and repeat the procedure on the other side, inserting spokes in the remaining 18 holes. After building both wheels, paint the rim and spokes with Floquil Bright silver and the tires with Floquil grimy black or engine black. With about two hours work you will have a nifty pair of spoke wheels.

* * *

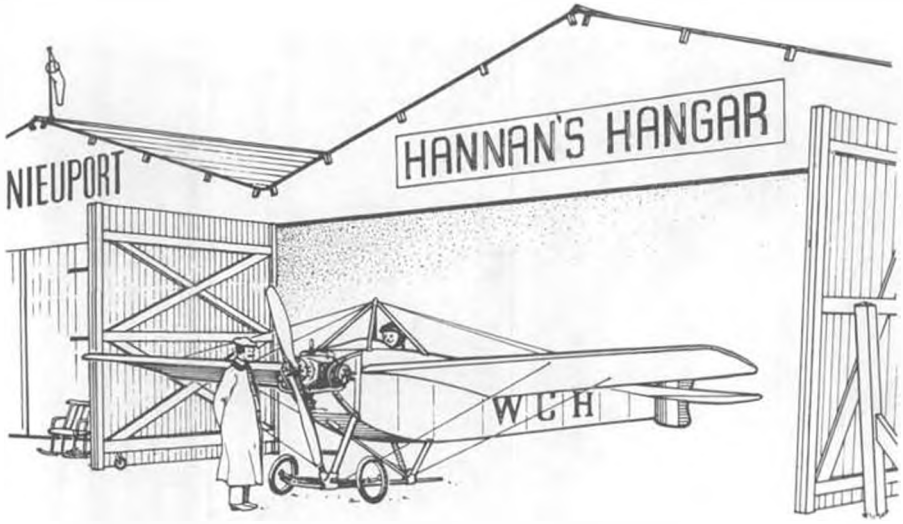
I like to use Trexler air wheels on scale models, and there is a very simple modification that gives them a scale-like appearance. First, countersink the axle hole on the outside face of the hub (Always place the filling stem on the back side.) with a quarter inch drill, just deep enough to hide a soldered washer. Because of the shape of the drill tip, the bottom of the enlarged hole will be cup-shaped. To allow for this; so you don't have to drill too deep and ruin the hub, place a small washer in a shallow hole drilled in a block. With a blunt tool, hit it a couple of times to give it a cup shape.

Sand the hubs, both front and back,

Continued on page 69



Two shots of Fernando's Flyline Bellanca "Skyrocket." Powered with a Cox .020 Pee Wee, and controlled by Ace radio on pulse rudder, the ship is a slow and realistic flyer.



. . . "All the news that fits the print!"

ANOTHER UKIE CLUB GETS LINE ON PEANUTS

● A report in the CRASH CREW NEWS covers a successful indoor meet conducted by the RED-MAX model airplane club of Washington. Over 200 flights were recorded by this basically control-line oriented group. *(They could call the models Peanukies! wcn)*

ARF, ARF!

Leapin' Lizzards! It's Orphan Annie's dog Sandy speaking. Right? Wrong! We just thought it about time recognition was extended to MB's illustrious Editor/Publisher, Bill Northrop, who originally coined the term ARF, for the Almost Ready to Fly models, way back when he was R/C editor for Model Airplane News. Being an ex-Navy type, his penchant for "initially" things may not be too surprising, although we suspect the contemporary toy aeroplane initially king is none other than sailplane columnist Le Gray!

LAKE ELSINORE

This scenic body of water is the center of model r.o.w. (remains on water) activity in Southern California, but there was a time when full-scale aero activities took place there. A clipping sent recently to the Hangar, shows a World War II Northrop patrol bomber on floats, taking off from this lake. Bet the water level was higher then.

MEMORIES DEPARTMENT

Model museum curator, Russ Barrera, recently came across a rather interesting receipt, dated 4-23-49. The purchase was one Morton/Burgess M-5 radial engine, and the cost was $75.00. Think what it would be worth today!

Mr. Hangar himself, Bill Hannan, concentrates on the number of winds going into his Peanut Farman Moustique. Ray Caswell holds.

FULTON'S FOLLYS

That's what they dubbed Hungerford's latest indoor scale aircraft, until they were seen in action. According to the HANGAR PILOT, edited by Dr. John Martin, the first . . . an Antoinette, took off, flew for 45 seconds . . . whereupon, with a loud click, it "shifted gears", en-

Prototype of Andreasson biplane peanut by Bob Peck.

Prototype Peanut P-51 by Bob Peck. Smooth, steady flyer.

Fantastic 3 cylinder "Anzani" CO_2 engine by Capt. Ed Toner, Boeing 747 pilot for TWA. Photo by George Evans.

Another view of Bill Hannan's winning Peanut Farman Moustique. Consistently over one minute flights indoors.

gaged a second fully-wound motor, which kept the machine aloft for an additional 40 seconds!

For his next act, Fulton whipped out his Peanut Avro Triplane, which is equipped with pendulum control. This curious contrivance emitted clock-like tick-tock sounds, while describing a roller-coaster flight pattern, much to the amusement of the spectators.

But waiting in the wings . . . pardon the expression . . . is a Gee Bee R-1, which will be the ultimate proof that Dr. Gadget is on the loose again! Watch this column (or the sky) for additional details. It must be seen to be believed.

THOUGHT FOR THE DAY

"While our world slowly disintegrates around us, we can happily build and fly models!" By Jim Noonan

OLDTIMER MODELS

Jim Noonan's company has recently published a new catalogue, which is well worth the quarter asked to cover postage and handling. Contents include many rare items which have not been available in hobby stores for years. Things such as goldbeater's skin, rice paper, solid model kits, and well, you get the idea. Write to: OLDTIMER MODELS, 7454 W. Thurston Circle, Milwaukee, Wis. 53218.

Dormoy "Bathtub" CO_2 powered model by Texas artist Bill Caldwell.

R/C PEANUTS, ANYONE?

Seems hard to believe, but Ed Jones sent us photos and a description of his tiny Sperry Messenger, which is powered by a Cox .010 engine, and controlled by an Albin Micro receiver, Bentert actuator, and two silver oxide hearing-aid cells. Total weight of the diminutive outfit is 2.5 ounces! *(We'll bet it was built from plans published in M.A.N., from a design by Dave Robelen, which we arranged for while R/C Editor, wcn)*

AND SPEAKING OF . . .

Dr. Gadget . . . as we were a few paragraphs ago, he has compiled some fascinating data, regarding the weight of small model covering materials. He points out that there can be vast differences between brands, and even between different colors of a given brand of tissue. His tests were conducted in Florida, notorious for its humidity, and thus the results might not be the same even with identical samples in other locations. The point is, of course, that it is well worth the trouble to check out the weight of your materials, especially if they are to

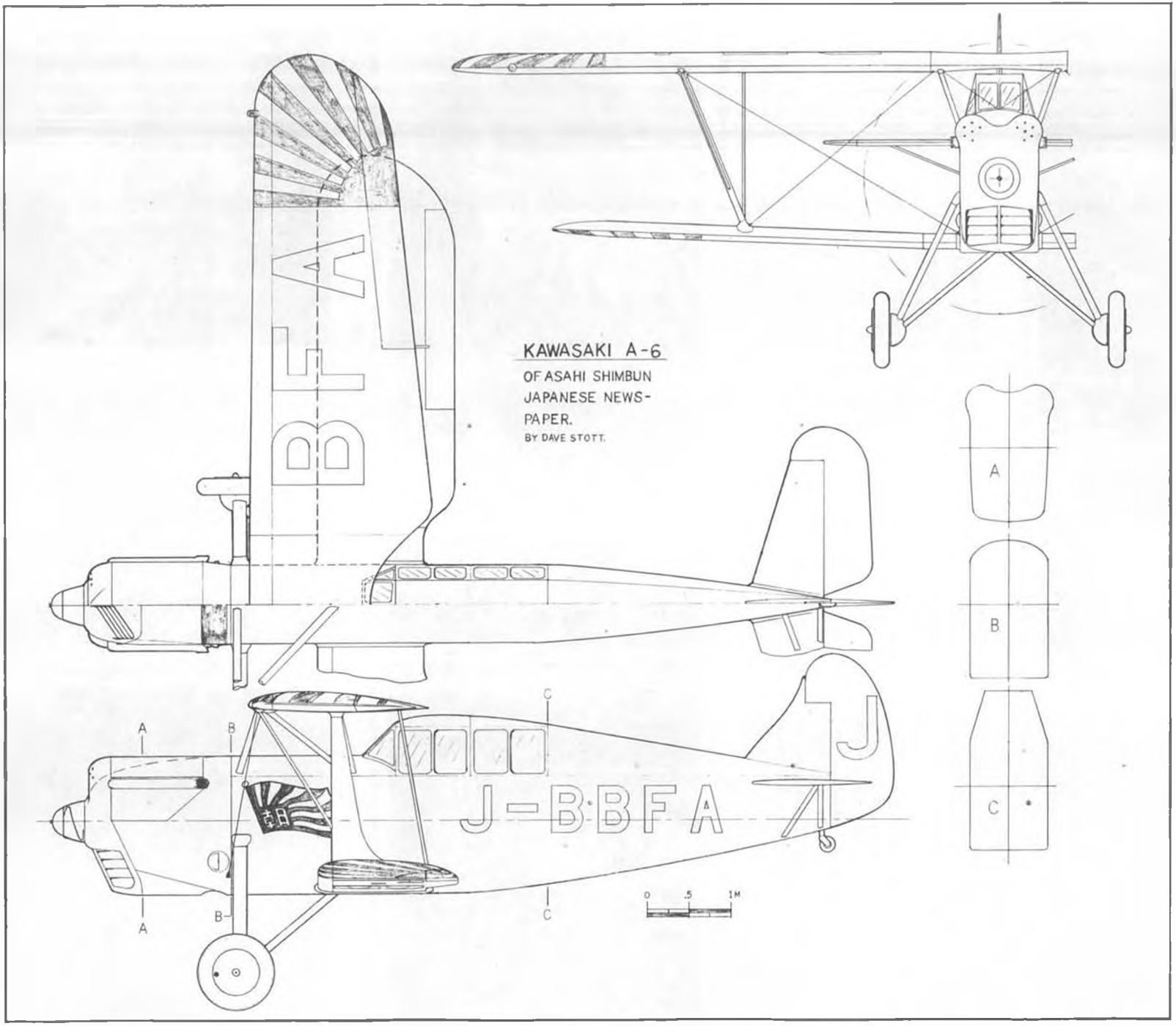
Continued on page 52

Peanut Zero prototype for new Peck-Polymers kit.

Nesmith Cougar, fourth of new Peck-Polymers peanut kits coming out soon. Watch for ads.

Rubber powered Foche Wulf TA 152 H1, by Lev Pazdera of Czechoslovakia. It has rubber actuated retractable landing gear. Span is 27-1/2 inches.

Down boy! It was only a gag! Here's Ed, hat in normal position, showing how it was done.


KAWASAKI A-6
OF ASAHI SHIMBUN
JAPANESE NEWS-
PAPER.
BY DAVE STOTT.
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PEANUT WICKNER "WICKO"

Whoever said you have to stick with some basic popular name designs in order to be assured of good scale flying had not reckoned with the likes of our resident Peanut Bender . . . WALT MOONEY

● The Wicko was a pre-WW II British light plane of simple construction. The fuselage was essentially a plywood box. This makes for a simple model fuselage; except for the nose, the fuselage has a simple, square cross-section. The in-line engine, with its relatively high thrust line, allows a large propeller without having to extend the landing gear beyond the scale size. The high wing allows a stable flying model with only a modest amount of dihedral.

The model uses the old standard construction techniques all over, so we'll not go through a detailed construction article. Somewhat out of ordinary is the fact that the Wicko had streamlined fairings on the roots of the struts, and the landing gear leg fairings were rather thick in cross-section. These details, if you intend to put them on the model, will have to be carved from small blocks of balsa. Douglas elected to omit them, and to use a simple sheet landing gear fairing for simplicity. From the photos, it doesn't seem to hurt the appearance of the model too much.

Douglas used a Sleek Streek propeller that just clears the ground when the model is in the three point position. This is fine for hand launched flights (so far, legal under peanut rules, although the author believes all scale models should be required to R.O.G.), but makes takeoffs a chancy thing. The model flies quite well. Best flight indoors has been an official 58 seconds, with many flights of more than 45 seconds. The model is covered in yellow superfine tissue with red tissue letters, and weighs ½ ounce without the rubber motor.

Doug used rather light wood in his model, and that is to be recommended if your model is to be flown strictly indoors. However, try to get relatively firm sticks for the longerons. Doug's were a little on the soft side, and you may see in the photos an extra set of fuselage uprights and cross pieces he added after some handling damage to the longerons. The model is drawn with a sheet balsa cowl top wrapped over three formers . . . if desired, the

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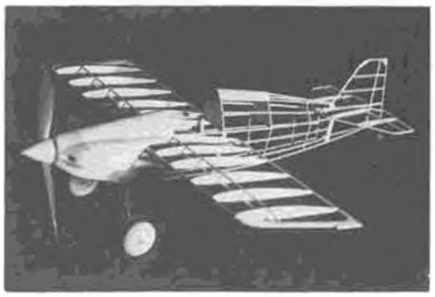
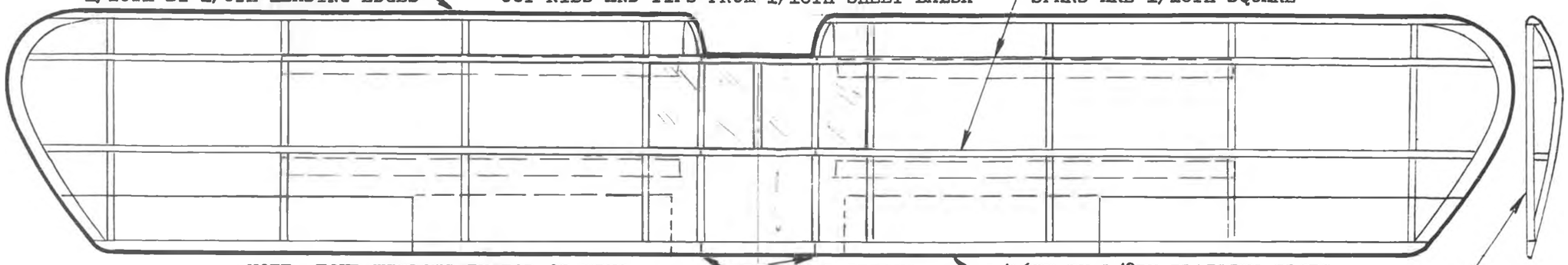


Next month's project: Steve Wittman's VW powered racer. By Walt Mooney.

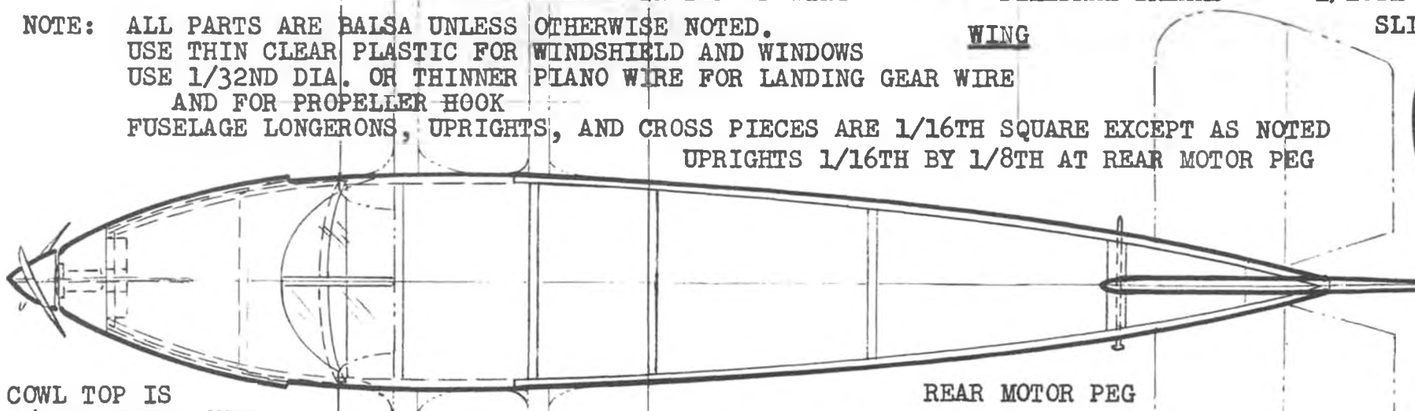
The Wicko in these photos was built by Walt's son Douglas. Pictures were taken at one of the huge blimp hangars in Santa Ana, California.

Ship has nice proportions for stable flight, and the long scale landing gear and high thrust line allow a generous size propeller.



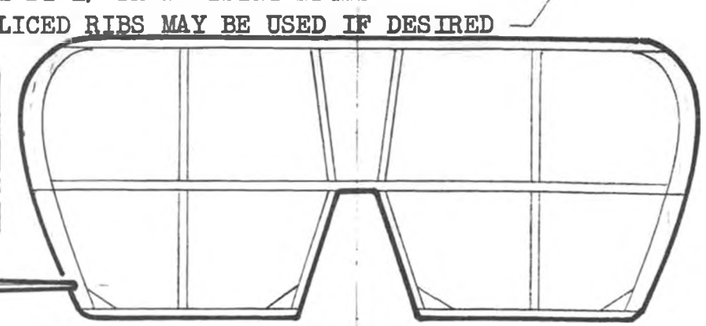
WING

NOTE: ALL PARTS ARE BALSA UNLESS OTHERWISE NOTED.
USE THIN CLEAR PLASTIC FOR WINDSHIELD AND WINDOWS
USE 1/32ND DIA. OR THINNER PIANO WIRE FOR LANDING GEAR WIRE
AND FOR PROPELLER HOOK
FUSELAGE LONGERONS, UPRIGHTS, AND CROSS PIECES ARE 1/16TH SQUARE EXCEPT AS NOTED
UPRIGHTS 1/16TH BY 1/8TH AT REAR MOTOR PEG



REAR MOTOR PEG

FUSELAGE TOP VIEW



ALL TAIL PIECES ARE 1/16TH THICK BALSA

WING RIBS

COWL TOP FORMERS

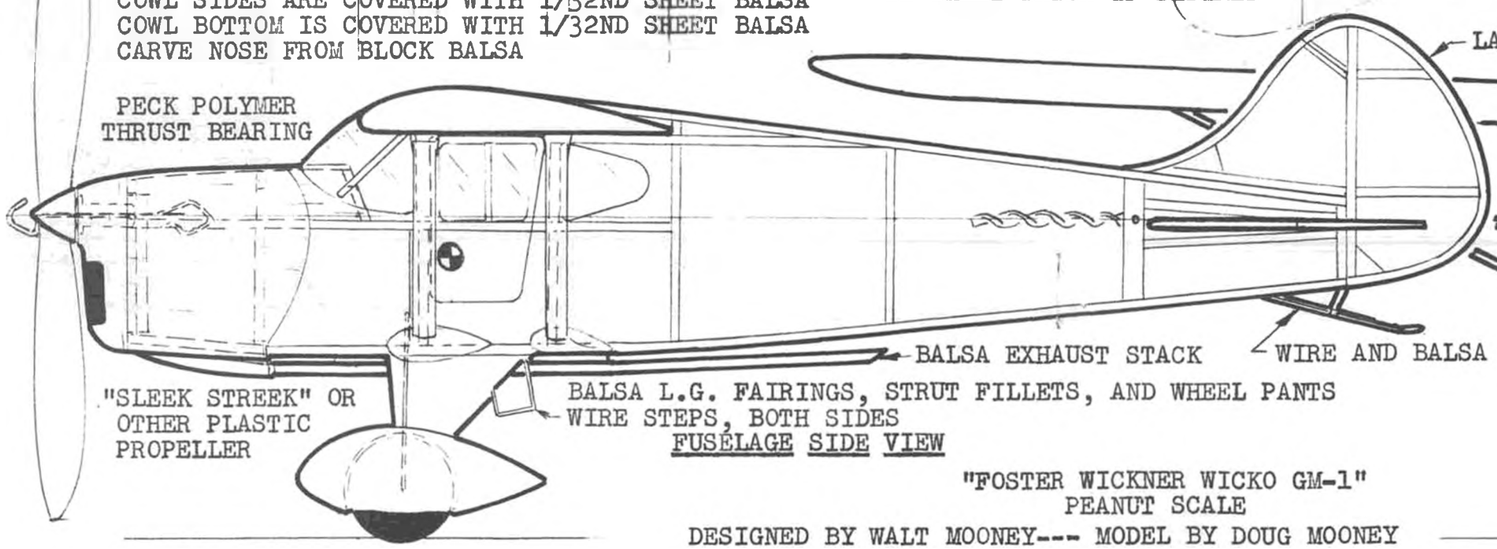
CENTER SECTION NOSE RIBS

COWL TOP IS
1/32ND SHEET OVER
THREE FORMERS, OR
IT CAN BE CARVED FROM BLOCK BALSA
AND HOLLOWED OUT FOR RUBBER CLEARANCE
COWL SIDES ARE COVERED WITH 1/32ND SHEET BALSA
COWL BOTTOM IS COVERED WITH 1/32ND SHEET BALSA
CARVE NOSE FROM BLOCK BALSA

HORIZONTAL AND VERTICAL TAILS MAY
BE SHEET BALSA IF DESIRED

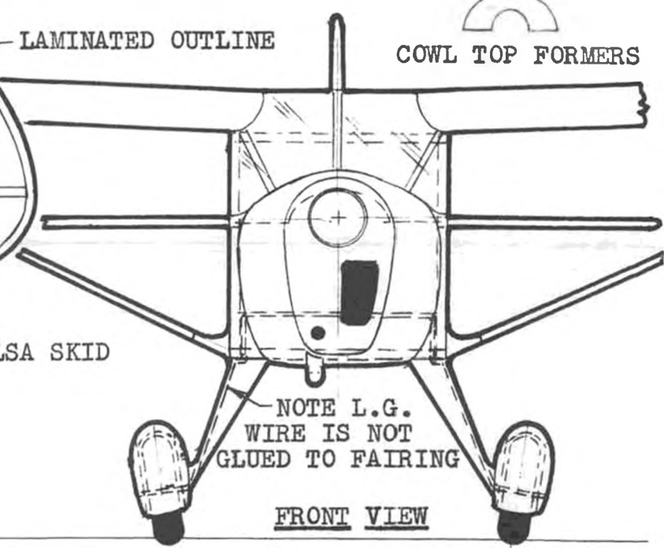
LAMINATED OUTLINE

PECK POLYMER
THRUST BEARING



BALSA EXHAUST STACK
WIRE AND BALSA SKID
"SLEEK STREEK" OR
OTHER PLASTIC
PROPELLER
BALSA L.G. FAIRINGS, STRUT FILLETS, AND WHEEL PANTS
WIRE STEPS, BOTH SIDES

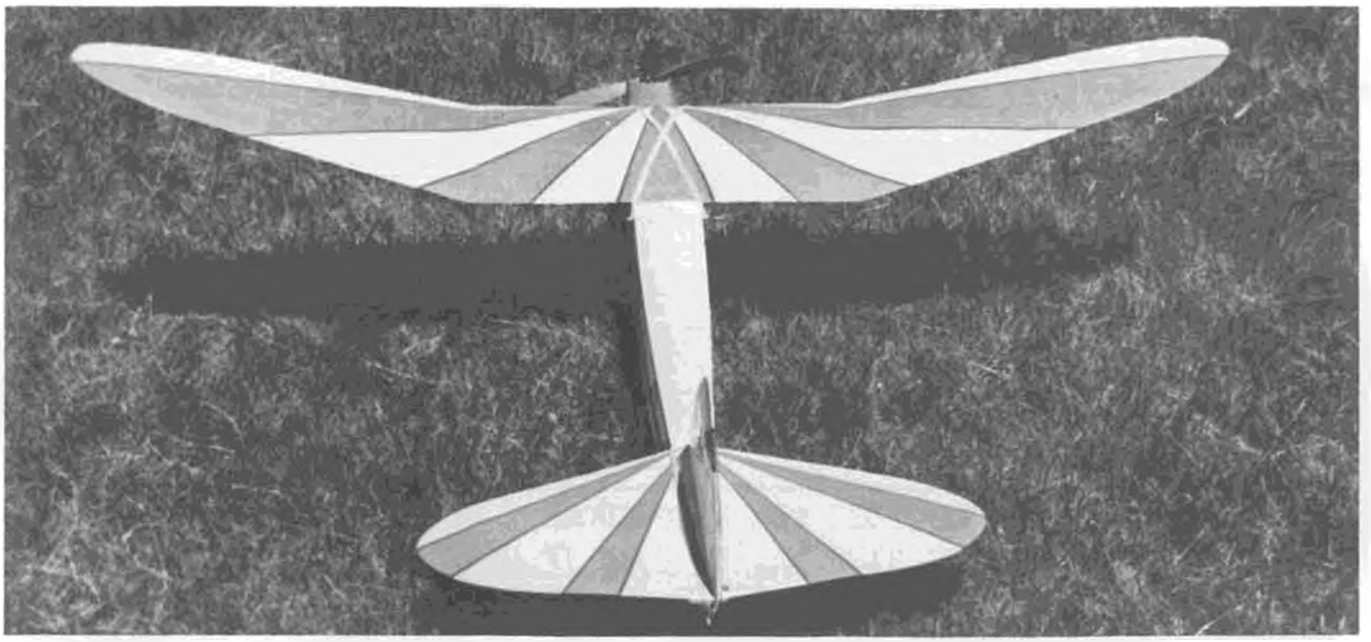
FUSELAGE SIDE VIEW



NOTE L.G.
WIRE IS NOT
GLUED TO FAIRING

FRONT VIEW

"FOSTER WICKNER WICKO GM-1"
PEANUT SCALE
DESIGNED BY WALT MOONEY--- MODEL BY DOUG MOONEY



This photo of Jack Hewes' Brown powered Scientific Red Zephyr is appropriate . . . it's our Old Timer Model of the Month.

PLUG SPARKS

By JOHN POND

TEXACO 1974

● By now, the easteners are probably sick and tired of hearing about incredibly long flights with huge free flights whose design date is earlier than December 1938 and the wingspan is over five feet. Ya gotta admit those flying lumberyards are impressive!

The Texaco Event, as revised by the SCAMPS, has undergone subtle changes. The contest used to run all day, with flights of an hour getting to be the rule for winning. Those afternoon thermals are great at Taft, and with such a flat terrain for shagging, the Modeler can really enjoy his handwork circling high overhead.

Several years ago, Sal Tarbi started a special event at the Texaco contest, called the "Dawn Patrol." Starting at 6 o'clock in the morning, flights up to a half hour are obtained, and with almost no drift, a minimum of shagging. Eventually, Sal's idea caught on and the Texaco Event time was modified to close at 10 a.m.

With R/C Texaco now being staged on the same day, this works out beautifully, as this event begins at 9 a.m. and closes at 3:00 p.m. The writer got hung for running this show, hence, despite all the heckling to fly, we simply could not make a long flight without another contestant wanting to fly in the same thermal. We'll get more help next year!!

In the regular Texaco Event, Jim Adams proved his win of last year was no fluke as he took his same model . . . Frank Ehling's Contest Winner . . . and proceeded to show the boys how it is

R/C Texaco winners at Taft: Lenny Curiel 1st, Bill Northrop 2nd (l to r).

Marge Bernhardt enters her Trenton Terror. Sal Taibi does the pencil work.

Marc Tackett with his Bill Atwood designed California Champ.

Marc Tackett again. This time with his Lanzo Record Holder on rudder-only radio. Flies just great.

Red Barrows' Miss Delaware with Astro 25 electric motor. A little heavy. More to come.

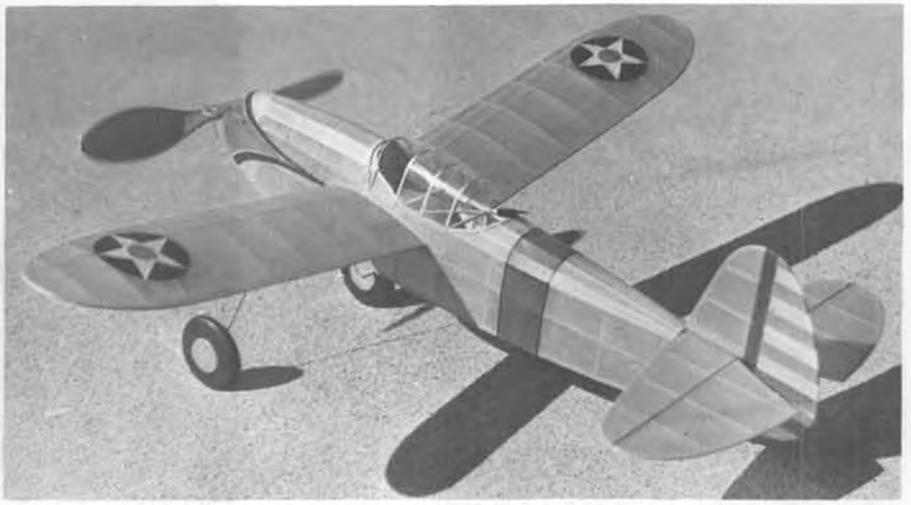
Dave Jaggie switches a servo in his winning R/C Red Zephyr. Photo by Lamkin.

done. His forethought in painting the fuselage white was one of the main reasons for being able to see the model so early against a blue sky. Think about it, men!

Cliff Silva came in second again. The huge Michael Roll model, spanning some 12 feet, is a surprisingly consistent performer. Cliff has repeatedly gotten more than a 10 minute motor run out of his Baby Cyclone. With that lower power, the model is no great shakes at climbing, but, with a motor run like that, who cares?

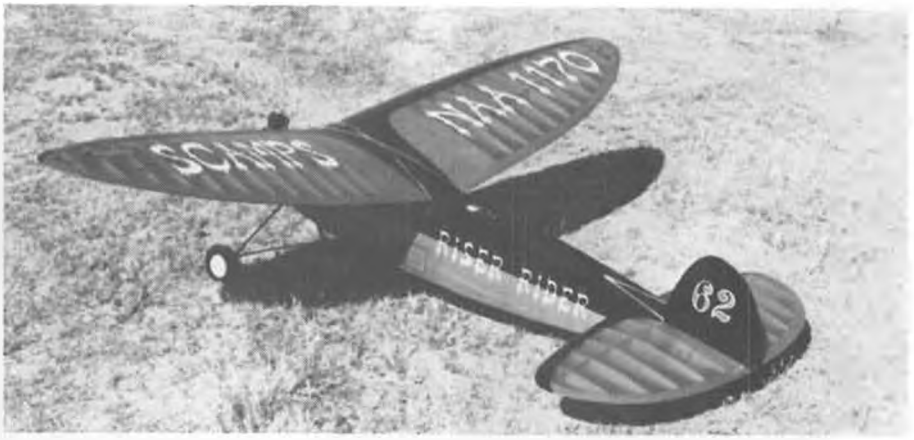
Despite the lack of attendance by the South Bay Modelers in the San Jose area,

Vince Costanza with his unique Engleman California Champ rubber ship.



Paul McIlrath built this version of the famous Jimmie Allen "Yellow Jacket." From the mid 1930's, the ship had a 24 inch span, was a good flyer.

Old Timer Eagles display at the 1974 WRAM Show in New York. Pylon Buster on tripod.



Rarely seen beauty by Jim Dean, editor of the SCAMPS "Hot Leads" newsletter. A Roy Marquardt Riser Rider design.

16 entries gave the following results:

1. Jim Adams (Ehling/Mighty Midget)	30:44
2. Cliff Silva (Roll/Baby Cyclone)	27:41
3. Roger Wegener (Powerhouse/O&R 60)	23:12
4. Jack Transue (Ehling/Mighty Midget)	21:34
5. Gene Wallock (Nimbus/Cyke)	19:59

Immediately upon the closing of the Texaco F/F event, Sal Taibi set up his table to run the combined A, B, C, Old Ruler Event.

Probably the most hilarious high points of the meet occurred every time Al Hillman flew his Flying Quaker. With hardly any power, and a real sensitive rudder, Al worked over a timer lying on his back while clocking another high flyer. Some people confused the writer with the timer, who had his ribs customized.

Undaunted, our hero again launched his model in the general direction of Satellite City. After much screaming and hollering of "Heads Up!", Bill Hunter grabbed the wing and eased it to the ground.

With luck running that way, Al tried again but this time the big Quaker lost a decision to a van. Should have quit when you were ahead, Al!

Results of a thoroughly enjoyed event:

1. Bob Longstreet (Sailplane/Orwick)	15:00
2. F. L. Swaney (Sailplane/Orwick)	10:20
3. Cliff Silva (Boomer Bus/23)	8:50
4. B. Crittendon (Hurricane/Cyke)	8:10
5. J. Clark (Diamond Demon/Bantam)	7:38

During this time the Texaco R/C entrants began noticing that the weather was getting real good after 10 a.m. Matter of fact, Lennie Curiel won the event with a beautiful thermal flight of 34½ minutes.

To show how consistent the model and weather was, Bill Northrop registered two practically identical flights of 28½ and 29 minutes, to come in an easy second. Amazing how that guy can look into the sun for the longest periods!

Only one crackup marred the activity, as Marc Tackett plowed his Lanzo into the ground. This model is operated by rudder only and has flown excellently. The point being made is that you don't have to spend a fortune on high cost, sophisticated radio gear when simple rudder only control will do. Price certainly is attractive!

Red Barrows arrived late at the field, but not too late to display his gorgeous models, among which a red and yellow Dallaire Sportster of nine foot wingspan. A real standout! This guy Barrows is so good with Monokote that his chrome covered cowls look like polished, metal formed articles. More than one modeler has been taken in by Red's excellent work!

R/C TEXACO RESULTS

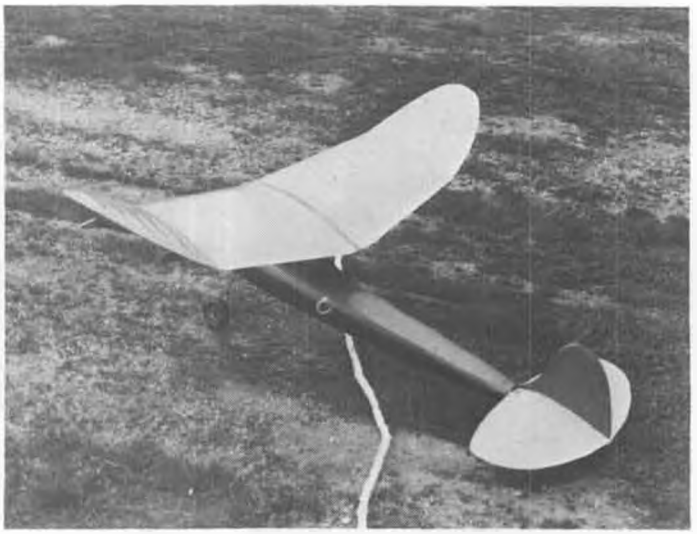
1. Len Curiel (Lanzo)	34:31
2. Bill Northrop (Powerhouse)	29:12
3. Jerry Otis (Miss Delaware)	16:16
4. Fernando Ramos (Flying Quaker)	11:58
5. Spiro Nickolaw (Petrides' PB-2)	7:04

SAM CHAMPS

Last minute addition, as reported in the previous M.B. issue, is the R/C Texaco Event. Trophies are now on hand. All

Continued on page 43

"Zuk" Adamzuk tries out his Sailplane on work pedestal designed and built by George Marshall.



Glenn Christensen's Advanced Hurricane, a chopped Sailplane design by Arle Armstrong, Fresno, Cal. Dig that big DT fuse!

Twin front rotor K & B .40's power Irwin Ohlsson's modified Grumman Widgeon. One and a half pounds of lead in the nose!

Wide sponsons are most obvious modification Irwin made on the Widgeon. Water handling was excellent.

Granger Williams' Schneider Cup "Mercury" in a high speed banked turn, looked great in the air. Blue fuselage, gold wings.

Dragging in, nose high, the Mercury flew well at slow speeds. Will be published here . . . if Granger can find time to finish up the plans.

Irwin Ohlsson, fourth AMA president, fuels up his Widgeon for the inaugral flight, piloted by Joe Bridi. Third attempt was a glowing success!

The Ohlsson Affair

By JOHN POND

● This may not be direct Old Timer news, but anything to do with Irwin G. Ohlsson is news for the Old Timers. Irwin should be called "Mr. Engine Man," as every modeler in the 1940-50 era had at least one Ohlsson motor in his stable. The sales of Ohlsson engines was phenomenal.

Getting back to what happened, it took Ohlsson almost four years to complete his modified twin engined Grumman Widgeon. To say the least, a gorgeous piece of work. Irv decided to have a real unveiling, so sent out better than 175 invitations to come to Lake Elsinore, Saturday, April 27.

Never known as a piker, Ohlsson not only sent invitations to one and all, but included two gorgeous photos of his model. How'dja like to get an invitation that sez on the outside, "Come Fly With Us . . . . " Flip over the sheet and you're greeted with the center reading:

"Mr. and Mrs. Irwin G. Ohlsson request the pleasure of your company to witness the inaugural flight of their twin engined flying boat. Place: Lake Elsinore, Northeast section, Date: 27 April, Time: 10 a.m."

"Test Pilots: Joe Bridi
Rex Raymond
Formal Preparation
Technical Advisor: Dan Lutz, Entrepreneur
Doctor in Attendance: J.P. Young, M.D. (Hangover Treatments only!)

How's that for going first class? No wonder there was a real great crowd on hand. Talk about putting your head on the block!!

The whole thing took on the air of a carnival with Ohlsson setting up a huge sun shelter with plenty of beer, pop, hot dogs (with all the trimmings, of course!), and candy for the kids. In some respects, the gathering took on a real old timer look, with guys such as Zip Gandel, Doc Young, Bob Holland, et al, showing up for the festivities.

During the time the Widgeon was being prepared, the flying activity was extremely high as many of the fellows had brought their seaplanes to help liven up

Continued on page 43

6 ft. Wingspan * 56 in. long * Weight (Less Motor) 2½ lbs.
The Finest, Low-Priced Gas Model Kit Obtainable!!

THE SENSATIONAL

RED ZEPHYR

IS THE ONLY LOW-PRICED MODEL WITH ALL THESE Vital Features:

PRECISION BUILT! Accurate, fully detailed, full-size Drawings and complete Instructions guarantee you a perfect model, easily and quickly constructed.

QUALITY FEATURES! Simply and highly efficient aerodynamic design with low wing loading.

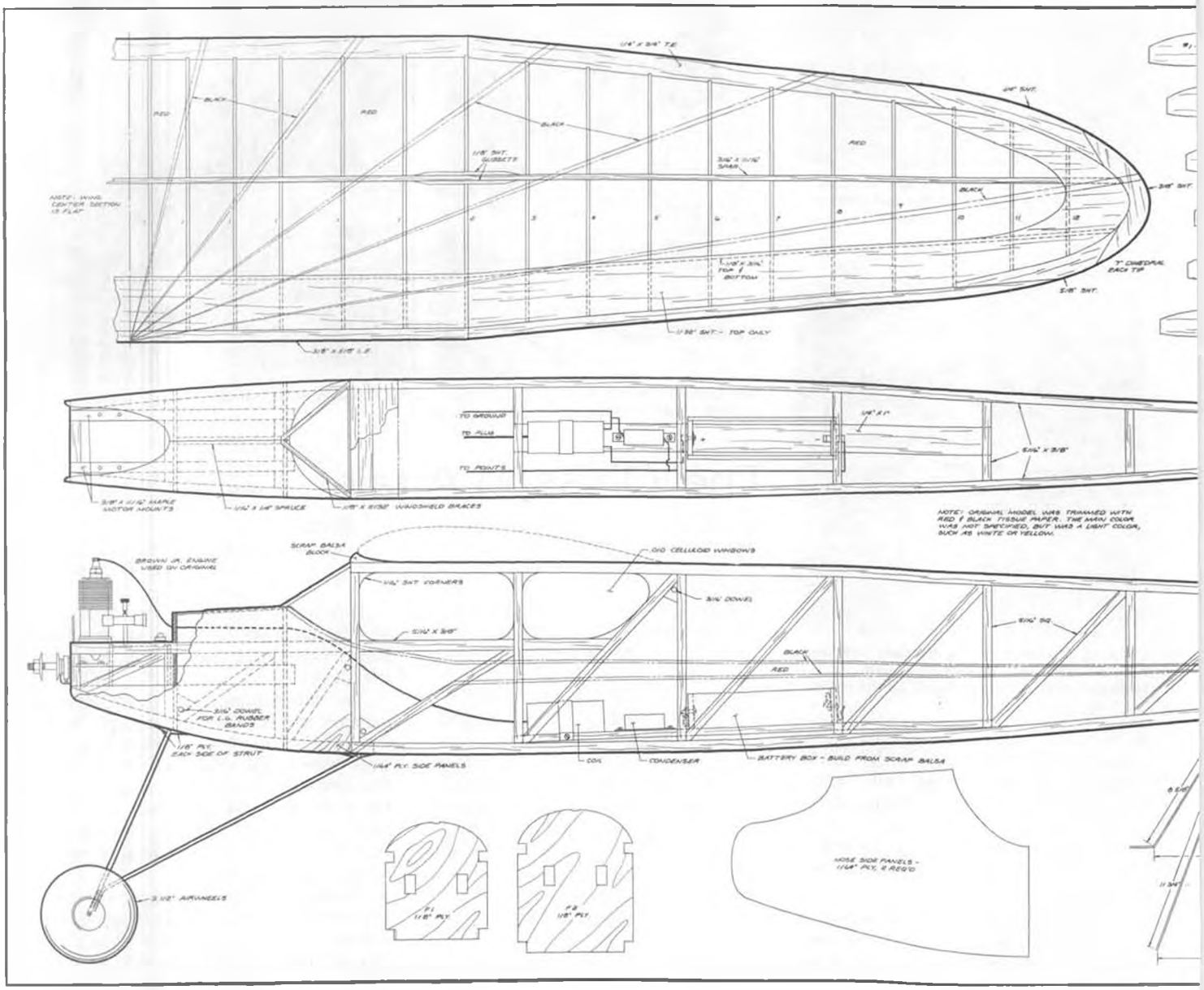
PERFORMANCE! Takes off from the ground unassisted in about 25 feet, climbs beautifully and lands perfectly.

ECONOMY! The most inexpensive GOOD model to buy, so simple in construction that upkeep cost is nothing.

SPECIAL FEATURES! Full shock-absorbing landing gear with new type, easily attached brackets. Vibration absorbing motor mount. Reenforced nose and hood to protect motor. Wings quickly demountable for easy transportation. 3½-inch pneumatic rubber, balloon type wheels; puncture-proof, shock-proof, fine appearing.

BEAUTY! A good and efficient looking ship; colored white with red and black flares on wing and tail surfaces.

GUARANTEED TO FLY!!



OLD TIMER Model of the Month

Designed by: Herb Greenberg
Redrawn by: Phil Bernhardt

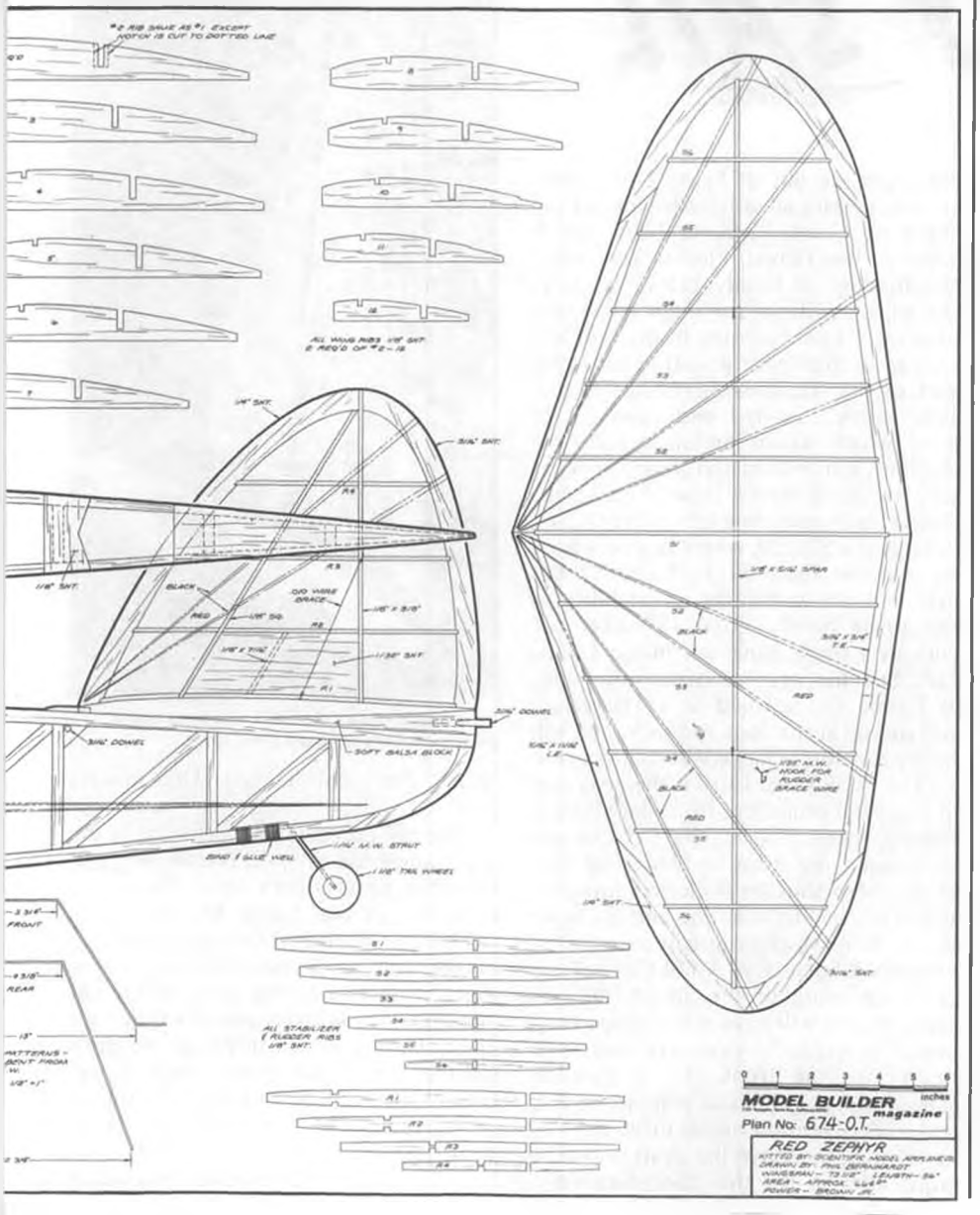
● The Red Zephyr was first introduced by Scientific Model Airplane Company in the November 1936 issue of Model Airplane News.

Designed by Herb Greenberg, the Red Zephyr enjoyed long lasting popularity, and its famous sunburst decoration as shown in the magazine ads was faithfully reproduced by many of its builders.

Subsequent ads showed that the Red Zephyr became the gas model Champion of France, with a 25 mile flight, and an endurance record of 1-1/2 hours.

Another ad showed a picture of Roy Marquardt in a group of seven Zephyr modelers who flew them at the Detroit Nationals.

Reproduction of an early Red Zephyr ad (at left) shows how much you could get for your modeling money in the "good old days." Obviously, though, a dollar was worth just a bit more then too. ●



Continued from page 40

the writer has to do is to lug them to Lakehurst, M.J.! So get out your big models that qualify for the design date limit of December 1938 or earlier.

PACIFIC ACE COWLS

Mike O'Bryan sent in a photo of his Pacific Ace, deploring the fact that very few copies of this good looking model have ever been built. Powered with a Madewell 49 (an excellent combo) the model practically flew off the drawing board. He successfully managed to lose it on the fourth flight. Forgot to trip the timer, what else?

Two chartered flights from the local airport and two days later, the Pacific Ace was back in his hot little hands. He is now in the process of converting it to R/C, utilizing the shielded box as described a couple of months ago in Model Builder.

The main reason for reporting the success of his Pacific Ace, besides trying to encourage more construction of this type, is to announce that Mike is making cowls for $4.00. Interested parties should write to Michael O'Bryan, 994 Beacon, Rockledge, Fla. 32955. The cowl should be enough to turn anyone on for a Pacific Ace.

THE LAST SHOTS

Just received the latest SCIF newsletter, "The Flightplug," as edited by R. G. "Brick" Brickner. The editorial included the following statement, "John Pond came up with the best excuse of the year for not flying his R/C Texaco. Claims the motel he stayed in didn't have any wall receptacles, so he couldn't charge his batteries. Everybody send for plans. John has just got to be able to afford better accommodations! Also, we won't believe that excuse twice."

Haw! You characters didn't know I had to use the hall baseboard outlet to shave. Talk about that song, "Trailers for sale or rent, Rooms for 50c . . . ." It was darn near that bad after our original reservation had been sold out from under us. To top it off, the writer allowed Phil Bernhardt to fly his Champion with batteries that had been charged and used last week! If Phil only knew what was going on. What a sneaky way of getting a new replacement built!!

I'll see all of you characters at the SAM Champs at Lakehurst. Even bought a new convertible for the trip. After all, the trusty Chrysler did have 101,000 miles on it!! Save a trophy for me! ●

Ohlsson . . . . . *Continued from page 41*

the proceedings. Although there was some spectacular flying by a supermarine S6B and a Piranba, the best looking flying was done by Granger Williams. Unfortunately, when he brought his Schneider Cup Mercury Racer around for a landing he discovered several kids playing in the water. Gunning the engine to clear, Granger found that it wouldn't pick up

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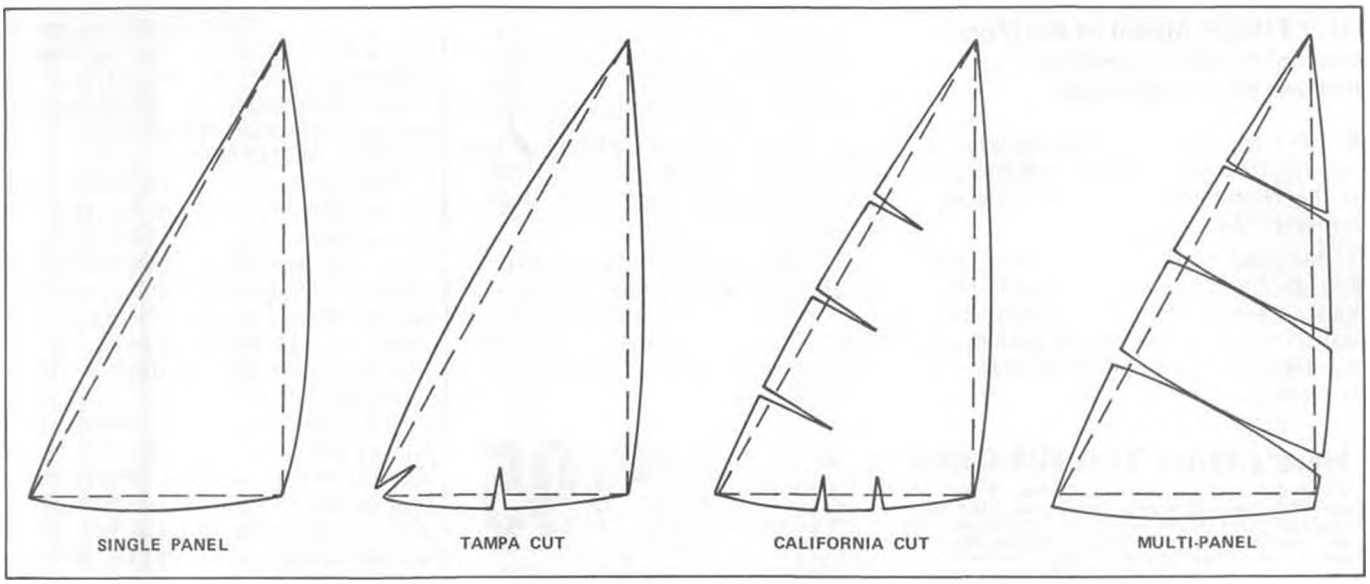


STRICTLY SAIL

By ROD CARR

● While we are talking about jibs, we may as well try to unravel some of the mysteries that occur between the bolt of sailcloth coming off the truck at the loft, and your spanking new jib being hoisted up your jib stay. In Figure 1 we show the four common types of jibs being cut today. The dotted triangle is the measured triangle upon which the measured area of the sail is determined. You will note that there is unmeasured area added in the luff round, the foot round, and in the leach roach. The former has a direct effect on the shape your sail takes when hoisted, while the two latter are manipulated by your sail maker to give you the maximum amount of sail area that your class rules will allow.

The first sail shown is called a single panel sail. When cut out, it will lie flat on a table. Its shape comes from the tensions put in the luff, leach and foot when hoisted. As cuts go, it is the most versatile sail, since its shape can be varied continually through the full range of windspeeds from very "baggy" to very "flat". The shape of the leach is very prone to being blown wrong, and this requires that careful control of leach tension be provided for by an adjustable jib club swivel capable of sliding fore and aft on the jib club, as mentioned in last months article. This sail is for all seasons, but you must learn how to adjust it properly, and continually tune it to match the prevailing conditions.

The second sail is the "Tampa Cut." This is basically a light air sail, almost always made out of light, 2 oz. cloth. It was developed originally for use on the East Coast 12-Meter boats which sailed in the Tampa, Florida area under the tutelage of Buddy Black. It shares the adjustability of the single panel, but uses some broadseaming in the foot and tack areas to provide a shelf in the lower part of the sail. This shelf helps to prevent losses . . . called end losses . . . of wind which would prefer to blow off the foot, rather than continue across the sail, providing useful drive. The Tampa Cut has been spreading into other classes, notably the 50/800, where skippers want to improve light air performance but maintain the wide-range adaptability of the single panel sail. A sailmaker can convert a single panel sail into a Tampa Cut, but the process is not reversible. A Tampa Cut sail laid on a flat surface will curl up at the foot and tack, and will not lie absolutely flat as will its precursor.

The "California Cut" is the next step in a natural evolution, from flat cloth to shaped, paneled sails. The Cal Cut was introduced by Chuck Black, of San Diego, who shuttles back and forth between his sewing machine and the typewriter, from which he directs the business of AMYA Secretary. A Cal Cut sail has given up more of the adjustability in order that it will have actual shape built into it, in much the same way they build room into the front of a Hollywood starlet's dress. A Cal Cut will not lie flat, and excess tension on all three sides of sail will not remove the draft and flow built into it by the "broadseaming" which darts up the luff (Dressmakers pun).

This photo shows that it is easier to make poor paneled sails than good ones.

The sail becomes very efficient in the wind range for which it is designed, and becomes progressively less efficient at each end of that range. Flattening the sail requires the use of Cunningham holes in the tack, and also lines which pull extra cloth out of the body of the sail and draw it as wrinkles into the tack/foot area. The labor required to produce California Cut sails should tend to produce higher costs, but no amount of money can cure a wrongly sewn one. Recutting and resewing are the only rem-

Continued on page 60

Bobby Lucas is ready for his winning flight in Slow Combat.

Howard Brown's Mongoose, just prior to the final match in Slow Combat.

Control line

PHOTOS BY JED

"FROM THE HANDLE"
By JED KUSIK

JONATHAN LIVINGSTON SEAGULL IS TOP WEST COAST COMBAT ELIMINATOR

● This should be the title of an excerpt from the "FISHWRAPPER," newsletter of the Aero Modelers of San Jose Calif. It is about Ron Sheldon, who is a very prominent R/C pylon racer, a hobby shop owner, and has held the top Fast Combat eliminator position for a long time.

This is how it all happened, according to Andy Osborn:

"You guys are not gonna believe this, but it actually happened, and four club members were there to see it.

"Sunday was rainy and cold, so not many folks flew . . . however, Ron Sheldon and Dean Pruitt went to Andrew Hill so Ron could fly Dean's new Winder. Ron got airborne and was wringing the ship out, when along comes this rather belligerent sea gull. The gull apparently took an instant dislike to this loud, raucous bird that was flying in circles like an idiot, and decided to teach it who was boss. Accordingly, he made a pass at the Winder . . . missing it but not by much.

"Ron didn't tumble to what was happening at first, but when the gull took another shot at it, Ron figured he'd best fight or get clobbered. There ensued several frantic laps with Ron and this damn' bird going at it hammer and tongs! The Winder obviously had the speed advantage, but the sea gull was showing some pretty fantastic maneuverability. At one point in the battle, the Winder and the gull approached head-on, and Ron ducked under him, came up in the classic combat maneuver, and actually clipped his tail feathers. This incensed Mr. Gull, who attempted an outside loop to pursue.

"Eventually, the bird got his tactics squared away and, not having read the W.A.M. rule book, went for a line cut. He succeeded in dumping the Winder, full tilt, into the dirt! So there stood Ron, egg on face, beaten by a rather scruffy looking sea gull, while the gull buzzed the wreckage, circled it twice, and flew off in the general direction of the dump, going 'skree! skree! skree!'"

Before going on, it is necessary to correct a minor error made by my editor in his remarks about my experience. My present area of concentration is racing not speed. When I went to the speed circles at the San Diego contest May 5,6, the prominent citizens there informed me of the error . . . over, and over, and over again. It was most embarrassing. I suppose now I will have to build an F.A.I. speed model as a token peace offering to them. *(Mercy! Those Ukie guys are touchy, wcn)*

I also spent a lot of time watching stunt at San Diego. The precision pilots must not read this magazine because no

Roger Wildman pitting his Super Tigre 15 Team Racer in the 200 lap main event. Pilot Bob Harness placed third with 10:13.

This is why the Max Snyder family wins so many speed trophys . . . they have all the speed airplanes.

This is what a Fourth Place Slow Combat model looks like. Bobby Peterson also took Third in Fast Combat.

one made comment about my previous acid comments to them. There was a good turnout, however, and someone commented that the stunt flyers appeared "contest hungry" for lack of events lately. Gee, how can anyone feel sorry for modelers who stay to themselves and don't even help organize or run their favorite events? I sure hope that stunt is progressing smoothly in the rest of the country, because I like the event. The precision pilots just happen to be disorganized in California.

Since my last article, when I started to gently introduce F.A.I. T/R to everyone out there in model land, several people asked me, "why bother? nobody flies that event." or "no one wants to use a diesel engine." My reply is that the modeling fraternity at large is suffering from an innocent lack of information.

Building the model and assembling the hardware is actually no different than building and setting up a good, fast rat, with cowled engine and fuel shut-off. In fact, a T/R model is usually a slight bit larger than most rats, because the minimum total area, wing and tail, is 186 sq. in.

Diesel engines are different, but not difficult to operate. The pre-historic diesel, predecessor to the modern racing engine, was hard starting, difficult to operate, and ate fingers for breakfast, lunch, and dinner. Modern technology has advanced the beast to where its only remaining fault is that of eating fingers . . . but then so does a healthy growing rat .40!

Don't be afraid of team racing. It is a lot of fun and the rules are sensible.

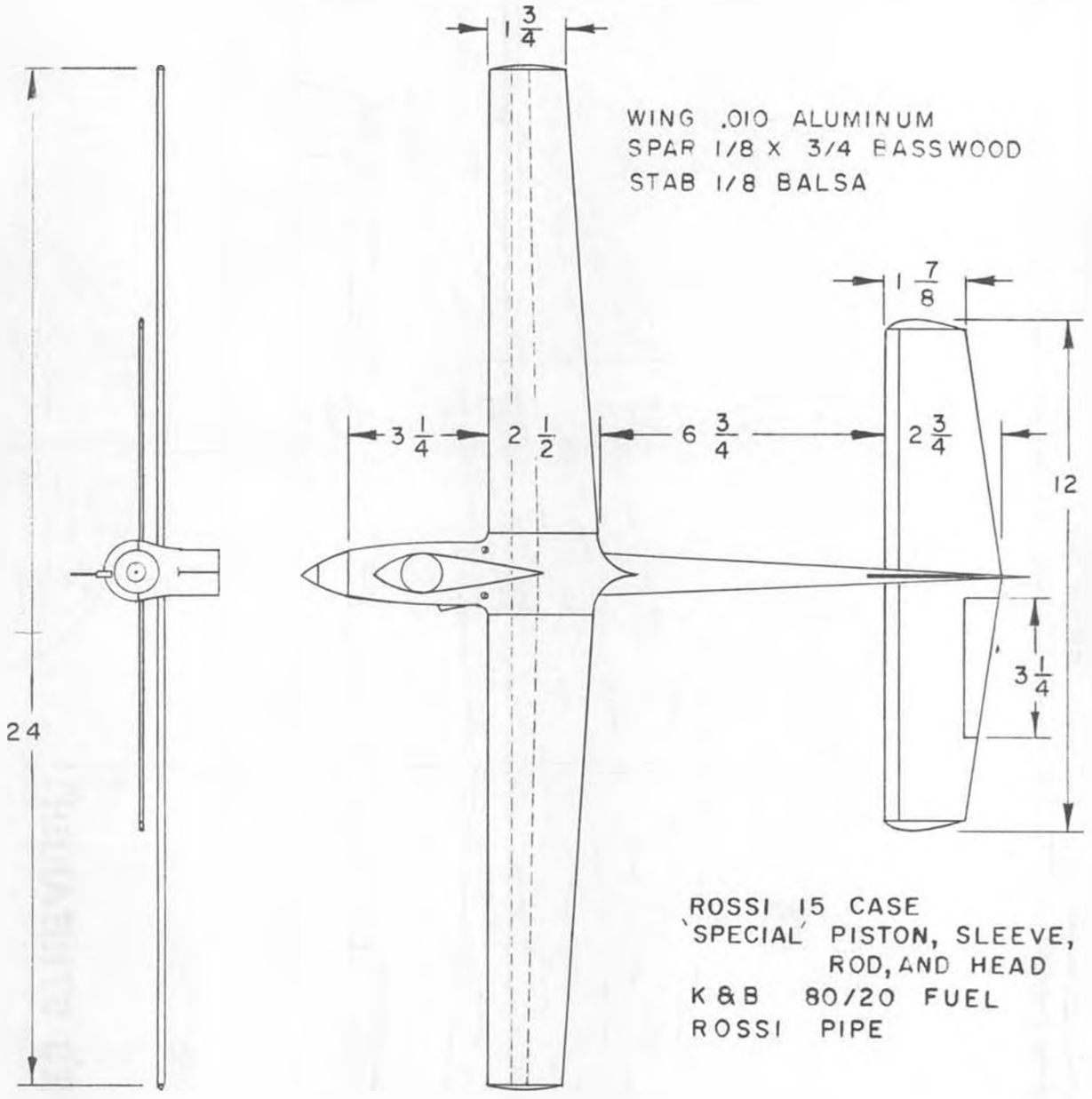
Last month, four engines were named as being suitable for team racing. Once an engine is obtained, fuel is required in order to run it . . . very logical. It will be necessary to blend your own fuel, because it is not commonly available at the local hobby parlor. This should not present any problem, since diesels are very tolerant of various fuel mixes, and laboratory accuracy is not essential. Incidentally, diesel fuel does not "go bad overnight." That is an old wive's tale. The ingredients are basic; your favorite oil (castor or synthetic), clean kerosene, and ether. An ignition im-

Continued on page 66

Jim Wade starting his 1/2A speed model. He also set a new Sr. FAI record of 130+ mph.

Joe Dutched prepares his Slow Rat for a 7:58 race. Note the safety helmet required for all pitmen in So-Cal racing.

drawing- Jed Kusik



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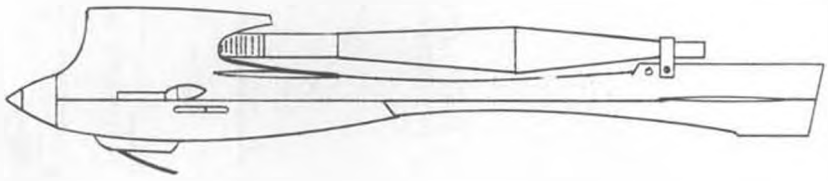
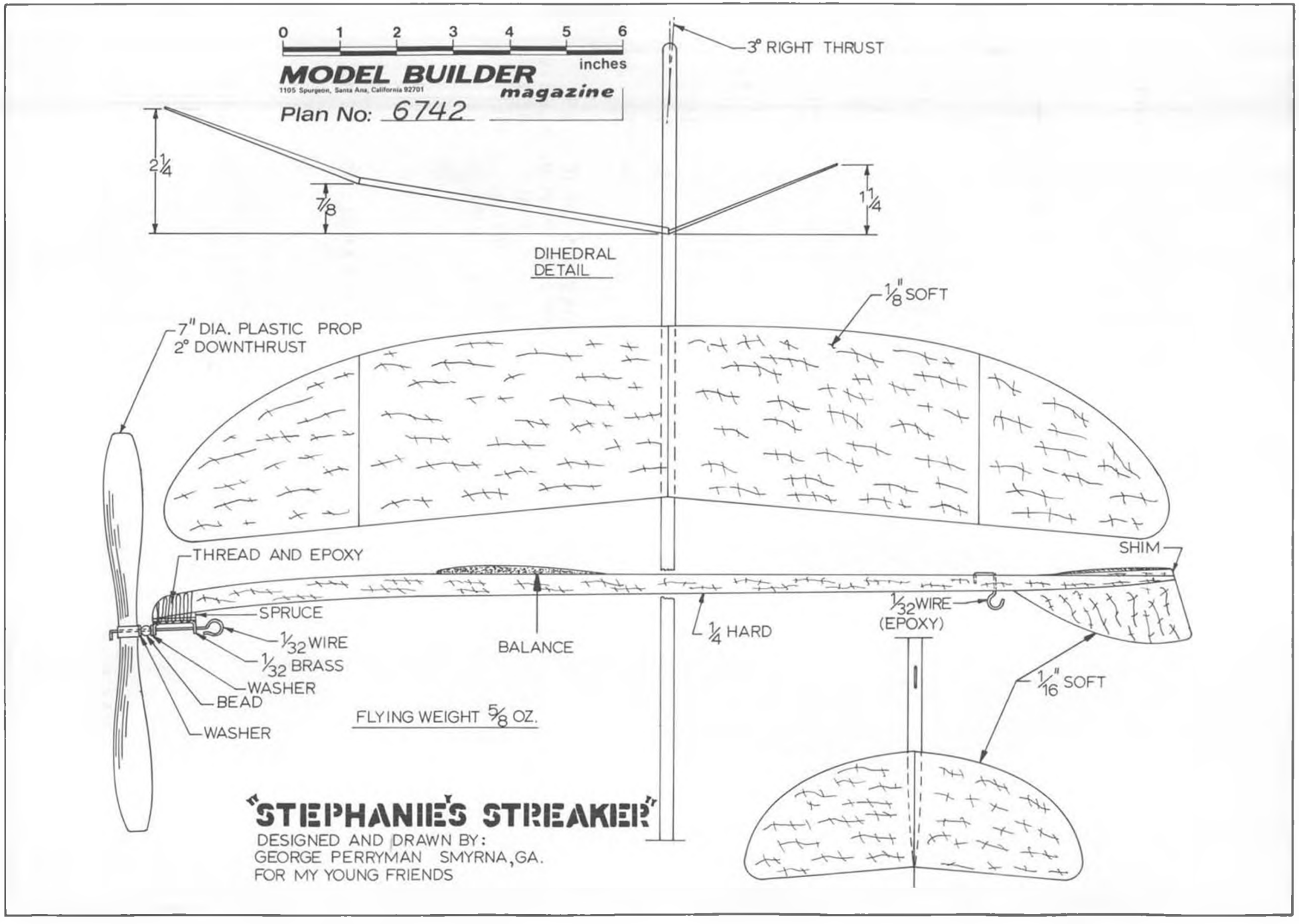


SENIOR FAI RECORD HOLDER
MAY 6 1974 SAN DIEGO CALIFORNIA 130 MPH

JIM WADE


0 1 2 3 4 5 6
inches
MODEL BUILDER magazine
1105 Spurgeon, Santa Ana, California 92701
Plan No: 6742
3° RIGHT THRUST
2 1/4
7/8
1 1/4
DIHEDRAL DETAIL
1/8" SOFT
7" DIA. PLASTIC PROP
2° DOWNTHRUST
THREAD AND EPOXY
SHIM
SPRUCE
1/32 WIRE
1/32 BRASS
WASHER
BEAD
WASHER
BALANCE
1/4 HARD
1/32 WIRE (EPOXY)
1/16" SOFT
FLYING WEIGHT 5/8 OZ.
"STEPHANIE'S STREAKER"
DESIGNED AND DRAWN BY:
GEORGE PERRYMAN SMYRNA, GA.
FOR MY YOUNG FRIENDS

STEPHANIE'S STREAKER

Here's a well designed model, by an expert, that should bring fun . . . and performance . . . to the beginning modeler. Hand wind it and have fun. Mechanically wind it and have a run! By GEORGE PERRYMAN.

● "Streaker," by modern definition, is indicative of one divested of raiment and striding swiftly through a public area. Such a title might be apt here since this is a bare bones little model, totally devoid of external covering, which moves rather briskly. "Stephanie's Streaker" was designed about four years before the college crowd made this fad popular. Actually, the name is in honor of my granddaughter, Stephanie, age 4-1/2, and "Big Daddy's" pet. (God knew what he was doing when he invented Grandkids.) She and I have had a ball flying this little ship.

Frank Zaic once told me that kids don't get much kicks from watching a floating glide, but really delight in seeing their little model climb like a turpentined cat going up a tree. With the rather poor glide of "Stephanie's Streaker," it can be flown in a limited area, on calm days, even after climbing quite high.

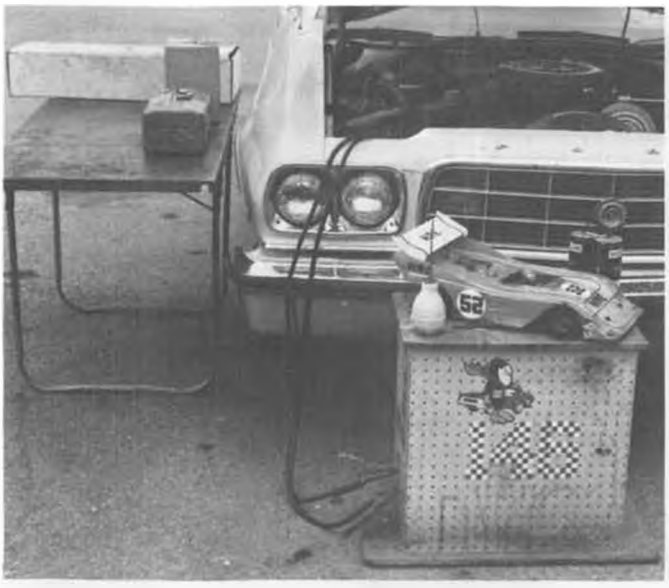
Construction is exactly like a hand-launched glider. In fact, it is a HLG with a prop hung on front. Choose light balsa for wing, stab, and sub-rudder. Use hard ¼ inch balsa for the fuselage. Sand everything to shape and finish using L400 sandpaper. Use 2 coats sanding sealer, let dry, and sand lightly again. Decorate it with decals, dope, or colored tissue strips, to your own taste, as the small extra weight won't hurt much. Prop bearing shown works well, but you can substitute a complete front end from something like Sig's "Thermal Dart," with good results. If you use bearing as shown on plans, lightly epoxy it to nose with approximately 2 degrees down and 3 degrees right thrust. Just use enough epoxy to hold for a few test flights and then it can be firmly bonded.

Flying is the fun part, and here are a few thoughts on this. "Stephanie's Streaker" can be flown on one 14 inch long loop of 1/8, 3/16, or 1/4 inch rubber. The "excitement factor" goes up proportionally to size of rubber and number of turns wound. When using 1/4 inch rubber fully wound, it is advised to clear spectators from the area in event of a mishandled launch At 5/8 oz., each flight is filled with all kinds of *exciting things*!! "Excitement factor" is somewhat reduced by using more moderate 1/8 or 3/16 inch rubber, but flights are more consistent. (Streaking flights with 1/4 inch are consistently filled with terror.)

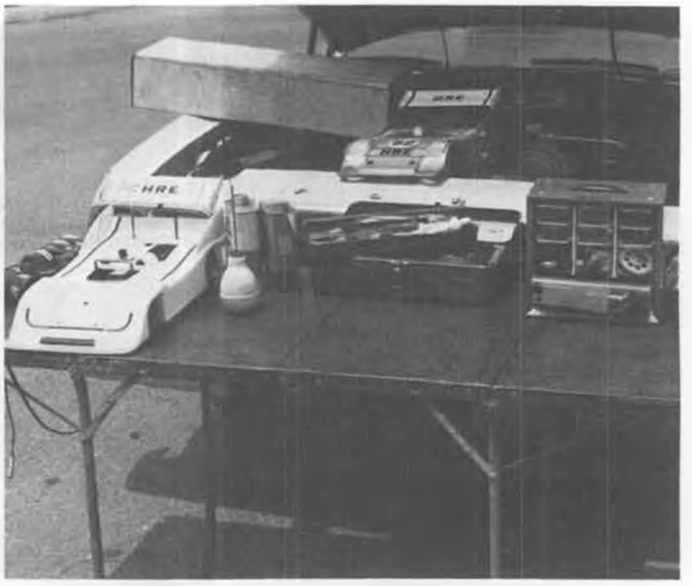
Choose a fairly calm day with soft grass or weeds for first test flights. Be sure model, complete with rubber, balances as shown on plans. Try flying with a few hand winds. Model should climb right and glide left. After a smooth flight pattern is obtained, epoxy prop bearing firmly to nose. A bit of clay on nose or tail for fine adjustment. Cut rudder T.E. and bend for desired circle. Don't put the winder to it until it will fly OK on hand winds. I built Stephanie a little battery powered electric winder which she uses to really wind 'em in. It is a simple thing: a gearmotor mounted on a piece of wood, 2 screen door handles, with a Frisbee screwed on front to keep her from harm by a broken rubber motor. It weighs less than one pound.

"Stephanie's Streaker" doesn't rival a Nordic A-2 in glide, but has on occasion run into a thermal, strictly by chance. On a couple of flights, it was going up in a boomer and the rubber slipped off the prop shaft with a beautiful dethermalizing effect. (Of course, I tried to con spectators that this was a planned effort.)

For lots of fun flying with little building time, try "Stephanie's Streaker." This one is designed only for young folks. (All modelers of any age are young folks.) ●



A couple of years ago, the starter box was prevalent. You still needed a table to work on . . . or crawl on the ground.



The tool boxes and starting equipment don't take much room. There is plenty of space to work. Extra tires in the car box.

R/C AUTO NEWS

By CHUCK HALLUM

PHOTOS BY CHUCK

● What do you need as far as tools and workshop machines to have a winning R/C car? Well, my answer to that is; you can get along fine with a minimum of tools as long as you have determination, desire and a bunch of time. Most people are amazed when they see the area that I work in. Usually, at races, I have a minimum of tools, a small box with all the always necessary items, and then a medium size box with larger, less seldom used tools. The main secret is car preparation and knowing what to expect your car to do. And, knowing what your car is going to do only comes with track time (practice) on your car.

Now let's get down to specifics of the auxiliary equipment. First, at the track, you need your starter, battery, fuel and fuel bulb. Depending on the type starter you use you may also need a table. Photo 1 shows a starter that was prevalent a couple of years ago. Today, the majority of competitors use a hand starter in conjunction with a work table as in Photo 2. To me, the big difference is convenience, but at a higher cost. I constructed the large box starter using an $8.00 Honda motorcycle starter and relay (get it at a junk yard or swap meet) and some 3/4 inch plywood and a wagon wheel. It took considerable time, but was cheap, although you also need booster cables and lead wire. The hand starter shown in Photo 2 typically costs $30 to $40. As usual, you have to pay for convenience.

Nowadays it's easier to carry a hand starter than to use the box above. More flexibility.

Originally, my mini-tool box contained only a small screw driver for adjusting the carburetor, a couple of Allen wrenches for wheels and set screws, a glow plug wrench which also fit the front wheel nut, and a 1/4 in. socket driver. In some small plastic boxes I had extra glow plugs, set screws, collars, front wheel bushings, gear, washers, some nuts and body mounting clips. On many occasions, the above equipment was all that was needed to run for 1 to 2 hours, but the car was ready to go.

I've now converted to a compartmented box with plastic drawers. One drawer has clutch parts . . . since the higher power engines tend to wear the clutches out faster . . . a couple more socket drivers for the other nut sizes on the car, a couple of larger screw drivers, an Allen wrench set in a handle container, an Xacto knife, some miscellaneous nuts, bolts and washers, and a stop watch.

The medium size (field) tool box contains more nuts and bolts, some extra car parts and bearings, extra sets of radio crystals, a jewelers file set, larger water pump pliers (for the flywheel), two crescent wrenches. Phillips screw drivers, a converted 6V soldering iron and solder, copper wire, miscellaneous piano wire, some open end wrenches, marking pens, rulers, scissors, asbestos and cork strips, contact cement, Loc-Tite, needle nose pliers, extra fuel line, surgical clamps (sort of mini-vise grips), 1/4 in. ream, and lexan glue. Photo 3 shows a table and tool box setup at the races.

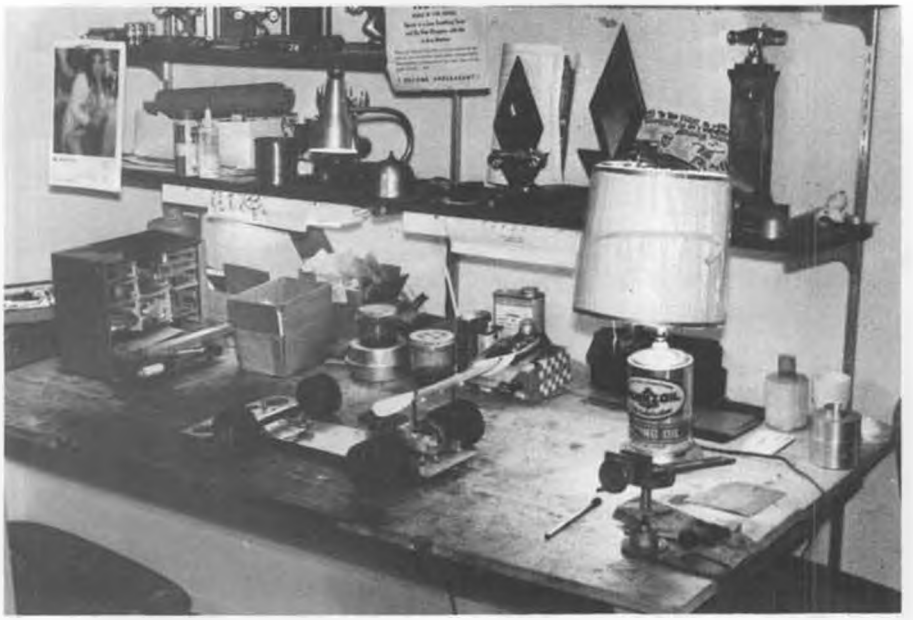
The final box contains the car, transmitter, extra receiver battery, several sets (2 or 3) of front and rear tires, tape, and some extra sheet lexan. The car that's in this box is ready to go and the front and rear tires are balanced and all batteries charged . . . all part of the preparation. Try to go to the track with the car set up for the track conditions you expect at race time (covered in the Feb. 1974 issue of M.B.).

Now let's get to the home workshop. First there should be some more miscellaneous tools; larger screwdrivers, vise-grips, files (including rasps), socket wrenches, hacksaw, coping saw, hammer, mallet, wood plane, a set of 1/64 graduated drills, pop rivet tool, metal shears, calipers, and a few other things which you'll discover. The plane is for cutting

the bottom of the lexan bodies and trimming down plastic bumpers and other parts. For power tools, you should have an electric drill motor and an electric hand grinder. Also, a saber saw is handy for the plastic stuff. Two types of vises are required; a larger table vise, and an electronic assembly vise (see Photo 4). Sandpaper of all grit sizes is necessary; from 400 for roughening the inside of the plastic bodies, to 60 for truing tires. Adhesives required include contact cement, epoxy, silicone (seal), and Lock-Tite compounds.

Two special setups I made are for truing rear tires and balancing front tires. For truing rear tires I use my electronic assembly vise, two bronze bushings, a rear axle, the drill motor, and a sanding block as shown in Photo 4. It's a simple and cheap setup that does the job. The sanding block must be braced against a solid perpendicular surface while doing the tire truing. For front tires, bolt a gear to the front wheel (use fairly large bolts and washers) and tighten the gear set screw to the axle. This arrangement is something like a dog drive on a lathe. Since the front rubber is a little harder than the rear, the sanding block only takes the rubber off very slowly. I use my Dremel with a coarse sanding drum rotating in the opposite direction from the tire, and this gets the rubber off a little faster, but still it takes a lot of time.

The wheel balancer for the front wheels, is shown in Photo 5. It is made from a shoe box. Molded rubber front tires almost always require balancing. On the inside edge of one side of the box there are two razor blades taped to the side. A 1/4 in. diameter tube or shaft slipped through the wheel is set on these sharp (frictionless?) blades and the heavy side of the wheel goes down. Tape (use duct tape) a small lead weight to the inside rim of the wheel on the top. Vary the weight size until the wheel is balanced.



The house workshop is compact. The large tool box and power tools are in cardboard storage cubes just out of the picture.

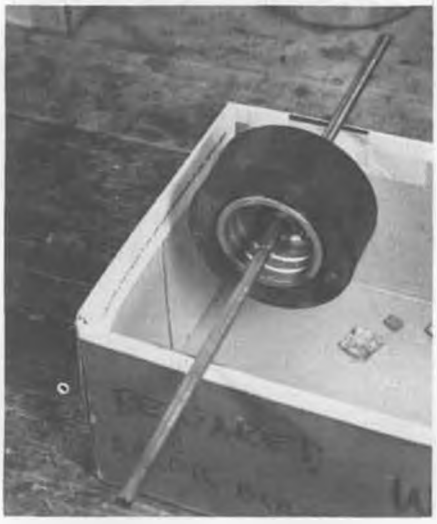
For the rear wheels, I just use the ball bearing rear end of a car. Only mount one rear wheel at a time, and go through the process above. After doing this on several sets of wheels you will have accumulated an assortment of weight sizes. Wheel balancing noticeably improves car handling.

For your small electric hand grinder you will find the cutoff wheel the most useful. Use it for cutting piano wire and tubing, making cutouts in gas tanks for sumps, trimming and making cockpit cutouts in bodies, putting flats on axles, trimming chassis plates, and more. Have some carbide tools for engine porting, and also an assortment of abrasive tip shapes too. A sanding drum with an assortment of paper grits is recommended. A coarse polishing wheel (abrasive and molded rubber adhesive) is good for smoothing up the rough cuts made during engine modification.

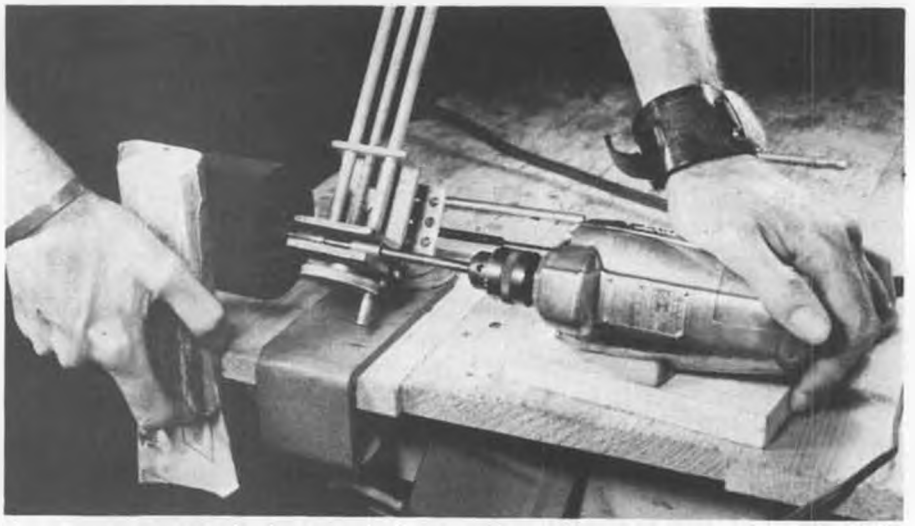
Photo 6 shows where I do most of my work. For the heavier stuff . . . sawing and chassis straightening, etc. . . . I go out to my garage where I have the table vise mounted. Painting bodies is also done there. As you can see, the house workshop has no real metal working tools (neither does the garage). With most manufactured cars you don't need a lathe, mill, or heavy drill press. If I need special parts I've got to find a buddy who has access to a machine shop.

Well, that's it for now. If you have any R/C car related questions, write to me C/O HRE Inc., P.O. Box 4658, Irvine, Ca 92664.

Don't forget the Nationals are coming up July 17 to 21. The R/C car Nationals will be held at the Eastridge shopping center in San Jose, California. I'll be there, and if you have any questions then, look me up. Good luck in your racing. ●



Shoe box converted to a wheel balancer. Razor blades taped to box, weights inside.



Tire truing set up is simple. Note that the bottom of the sanding block is braced against the table. Drill motor should have integral or separate speed control.

R/C Pylon . . . . *Continued from page 23*

result was academic, as Kent turned in a cruising time in the low 1:20's. Thus the first race of the year became history and only the thought of the next race counts now.

Overall, the race was an excellent one, through the leadership of John Garabidian as the C.D., and the able bodied help of Bill Walker as the head starter.

Something new in Formula I was noticed. The sponsoring club, The San Gabriel Valley Radio Control League, had a bar-b-que going all day long on both Saturday and Sunday for the workers, offering hamburgers, hot dogs, baked beans and many different kinds of soda pop and condiments. Every worker was allowed all he wanted to eat, any time he desired. I also noticed a few contestants sneaking over to swipe a morsel or two.

.The attrition rate was about average and no planes were lost to apparent radio failure. Radios have come a long way in the past few years. The only thing that needs to be improved is our thumbs . . .

The contest itself ran very smooth, as eight rounds were flown in two days, with 66 entrants. The end came at 3:30 on Sunday, when the trophies were awarded to the fortunate winners. Speaking of the trophies, they were quite unique indeed. They appeared to be welding rods, connected to each other to form a large pylon, with three planes turning around the pylons together. At the base was a little man with a flag in his hand, looking up at the pylon. They were provided by Joe Bridi, of Bridi Hobby Enterprises. They were the most unique trophies I have ever seen.

The final results were as follows:

STANDARD CLASS
1. Jerry Silverman
   1:35.2, K&B, DARA I . . .
2. Tony Brown
   1:32.8, K&B, DARA I . . .
3. Roy Mills
   1:44.8, S.T., El Bandito . . .
4. Sonny Myers
   1:29.5, K&B, LR 1A . . .
5. Jerry Boyce
   1:33.7, K&B, Minnow.

EXPERT CLASS
1. Kent Nogy
   1:21.0, K&B, LR 1A . . .
2. Jeff Bertken
   1:22.5, K&B, DARA II . . .
3. Bob Smith
   1:21.0, K&B, DARA II . . .
4. Larry Leonard
   1:22.2, K&B, LR 1A . . .
5. Dan McCan
   1:23.3, K&B, DARA II.

The fastest time was set by Terry Prather at 1:17.2, and was unchallenged.

Below is the schedule for the entire year for Southern California.
May 18, 19 - Bakersfield
June 8, 9 - Sepulveda Basin
July 6, 7 - Whittier Narrows
Aug. 24, 25 - Whittier Narrows
Sept. 21, 22 - Las Vegas Nevada
Oct. 12, 13 - Oxnard Air Force Base

These dates are published in the hopes that as many competitors will try to come to as many contests as possible, and also that many people outside the district will try to join us in the fun.

Hannan . . . . . *Continued from page 33*

be used for indoor scale or Peanut models, where the covering comprises an important percentage of the total aircraft weight.

SUPERFINE TISSUE	
Yellow	.966 grams/sq. ft.
White	.866 grams/sq. ft.
Black	.900 grams/sq. ft.
White (glossy)	1.250 grams/sq. ft.
Red (glossy)	1.250 grams/sq. ft.

REGULAR JAPANESE TISSUE	
Orange	1.25 grams/sq. ft.
Red	1.40 grams/sq. ft.
Yellow	1.30 grams/sq. ft.
Silver	1.65 grams/sq. ft.
Brand "A" condenser paper	.83 grams/sq. ft.
Brand "M" condenser paper	.45 grams/sq. ft.
Aluminized mylar (¼ mil)	.80 grams/sq. ft.

→

SAILFISH

One of the prettiest Sailboats you ever saw either Free Sailing, or R/C. Construction is simplicity itself. Die Cut Frame, features Plywood for strength and long life. Printed-planked Deck is Die Cut and ready to slip into rub rail, molded into Sleek Plastic Hull. Kit is unusually complete with Die Cut Mahogany Cabin, Brass Chain, Many Cast Metal Fittings, CLOTH SAILS, Rigging cordage, Mast & Boom Material stamped Rudder and Keel with INTEGRAL LEAD BALLAST, Step by Step Plans show simple assembly. Base shown not included.

HEIGHT 32½"
LENGTH 24"
BEAM 5"

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Kit B23

$12.95

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If no dealer available, direct orders accepted—with 10% additional charge for handling and shipping. (60c minimum in U.S., $1.25 minimum outside U.S.)

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☐ Secrets of Model Airplane Building Including design, construction, covering, finishing, flying, adjusting, control systems, etc. 25c enclosed

☐ Secrets of Control Line and Carrier Flying Including preflight, soloing, stunting, Carrier rules and regulations, Carrier flying hints and control line installation instructions 25c enclosed No checks. Only U.S. money orders or currency accepted

Name _____

Address _____ City _____ State _____ Zip _____

Aluminized mylar 6.00 grams/sq. ft.
tape (3M)

STREAKING REACHES NEW HEIGHTS!

It was bound to happen . . . a streaker flew a hang glider over Escape County, a recreation area in Orange, California, as reported in the Trabuco Tribune. Scale fans might be interested to learn that the pilot was buff colored. ●

Mooney . . . . . *Continued from page 35*

cowl top can be carved from a solid balsa block and then hollowed out for the motor clearance.

One of the questions that is asked from time to time, and that needs answering in some detail is: "Where can I find a three-view of my model?" I'll try to cover the answer as well as possible, but of course, it all depends on the airplane being modeled.

If the model is a common production airplane, that had a large production run, or is still in production, writing to the manufacturer will often result in solving the problem. Some of the larger manufacturers have a public relations department which tries to take care of these kinds of questions. However, you are a "real" scale addict, even these three-views can sometimes be disappointing. Airplanes tend to change after the first three-view is drawn, and it isn't always profitable to bring the drawing up to date.

Three-views have been published from time to time in almost every model and full sized airplane magazine. There are literally dozens of such magazines presently in publication (of which this is one of the best), and there have been literally hundreds printed over the last 60 years. Therefore, a "used magazine" store can be a gold mine of information (see the Classifieds, Page 71). Unfortunately, you won't usually find a three-view of the particular airplane being researched, but you'll get a lot of other inspiration. Following this approach long enough will result in obtaining a rather good library of designs to

choose from. This system will work very well in the larger cities, and most of the avid scale builders I know can't resist hitting a used magazine shop in any city they visit. Sometimes this also works in antique stores in smaller towns.

Large city libraries usually have an aviation section. With modern copy machines, it's easy to obtain a copy of any three-view found in any of their books.

Jane's "All the World's Aircraft" is an annual publication that has been published every year since 1909. It is the "bible" when it comes to scale modelers. The price of a new one is approximately 60 dollars these days, so you have to think a bit before you purchase one. However, most large libraries have a copy or two. The best issues, in my opinion, were 1909, 1919, 1936, 1945, and the latest one. The 1909, 1919, and 1945 issues have recently been reprinted by ARCO Publishing Co. Inc., 219 Park Avenue South, New York, N. Y. 10003.

The Aircraft Year Book was published every year by the Aeronautical Chamber of Commerce of America. The issues up to 1943 have quite nice three-views. Since the war, this book has been somewhat disappointing.

Funk & Wagnalls, of New York, has published several very good aviation books containing data such as: "Aircraft of the Royal Air Force Since 1918", "Vickers Aircraft Since 1908", "Japanese Aircraft in WW II", etc., etc.

Another source of information is a series written by Kenneth Munson. These go by the title of, "The Pocket Encyclopedia of World Aircraft in Color". These small books, of which there are several, cover classes, or ages of aircraft. Each aircraft is shown in a colored two view (no front view, but the plan view is half top and half bottom view), with a summary of its important data. In the last section of each book there is a capsule history of each type, including such things as the

number produced, famous flights and famous pilots. A partial list of titles in this series, published by the MacMillan Company, 866 Third Avenue, New York, N. Y. 10022 follows:

Pioneer Aircraft 1902-14
Fighters and Bombers 1914-19 (Two Vols.)
Fighters and Bombers 1919-39 (Two Vols.)
Fighters and Bombers 1939-45
Airliners Since 1946
Private Aircraft
Fighters and Bombers in Service (Two Vols.)
Helicopters
Flying Boats and Seaplanes
Airliners Between the Wars 1919-39

Present price of each volume is a little less than $5.00 and they are truly delightful little books.

From my point of view, proof of scale, as far as the fun event of Peanut Scale goes, should not require more than a couple of photos of the real airplane, or these Munson two views.

Well hopefully, this has helped some of our readers. Now if I only could find a three-view of the Supermarine S-4, the Zavod V.55, the Aero 101, and the Aubert PA-20 Cigale and PA-204S Super Cigale. *(There's a hint, if we ever saw one! wcn)* ●

R/C Soaring . . *Continued from page 25*

upon the pilot's eyesight, distance of the sailplane from the pilot, sunlight intensity, haze or other sky obscuring phenomenon, and other factors. However, adequate visual contact will be lost significantly earlier than total loss.

In the realm of manned aircraft, instrument equipment and techniques have been developed which permit safe, controlled flight without visual reference to the ground or horizon. When these natural references are not available, the instrument pilot can use reliable substitutes. In a highly simplified form, the R/C sailplane pilot whose craft is beyond accurate visual tracking has a problem similar to the full-scale pilot in weather below VFR minimums. Instead of being airborne without visual ground reference, the R/C soaring sportsman is grounded without visual vehicle reference. Until such time as the R/C sport becomes so sophisticated as to provide airspeed, attitude and other data feedback from sailplane to pilot, we'll just have to make do . . . so to speak.

The R/C sailplane pilot has no instruments as might be available in a full-scale aircraft, but he can have a couple of things going for him: (1) a positive reference control link, and (2) an automatically stable airborne platform. The control link, of course, is the ground-based radio transmitter, and the positive reference is simply the mechanical position of the various levers provided thereon. The automatically stable airborne platform is nothing more than a good, ole sailplane . . . but it sounds sorta zingy.

The idea is to trim the sailplane so that it is automatically stable, and so that hands-off flight, with all transmitter controls at neutral settings, is an acceptable and predictable glide path. With this basis, control changes can be input at the transmitter which will cause variances in performance, but the original flight attitude can be re-established by re-setting transmitter levers . . . without visual reference to the sailplane.

The hands-off flight path can be varied to the preferences of the pilot. A typical setup might provide a compromise glide, somewhere between thermalling slow-flight and a brisk, cross-country penetrating speed. The best L/D speed should be about right. Directional trim . . . in the sailplane, not the transmitter . . . should establish a wide, circular path. This might better be described as a directional tendency rather than a turn, but it must be positive, either left or right.

The automatic stability characteristics of the sailplane must produce hands-off recovery from stalls . . . not just stick-back-till-it quits-flying type stalls, but high-angle stalls such as only can

be accomplished from excess speed. The number of oscillations performed before level flight is regained is not as important as is the actual re-establishment of level flight. Less than about three cycles may indicate too much recovery power. Many more than five or six could get worrisome, but if the amplitude is diminishing, things are moving in the right direction.

To get all this working, considerable flight testing will be required . . . which means ya gotta monkey around a lot. But that's all right . . . that's the fun part. And it beats just driving around.

The first step is simple. Get a little altitude . . . at least tow release height . . . lower the nose to pick up a bit of speed, and haul back on the stick. You're going for a straight ahead, steep-angle stall, so hold in there. At the instant of stall break, release the stick. Like take your hand off it. Start counting the cycles until level flight is regained. If things just aren't working out well, use the transmitter to get things settled down. Might check the May '74 column for ideas about improving pitch stability. If all's looking good . . . as it probably is . . . let's move on.

The next order of business is to set up the desired glide speed. Something a little faster than normal thermalling should be about right. Some of the experts guess as to how the best L/D . . . which is what we're looking for . . . is about 20 to 30 percent faster than minimum sink speed, which is where we're usually thermalling. Sounds great, but how do you do it? Without instrumentation and all that expensive stuff, we can't be very precise.

If you're happy with the way your sailplane is flying, just add a bit of down trim. It won't take much. A 1/64 or 1/32 inch thick shim under the leading edge of the stabilizer just might be enough. Use plywood, plastic or card stock . . . but *never* balsa. If the stabilizer is mounted solid, try one or two turns on the elevator pushrod's threaded-end clevis. A single turn should be plenty for stabilator configurations. Or change the transmitter trims . . . for now.

Back in the December '72 column, considerable verbage . . . beautifully written . . . was devoted to sailplane performance measurement. Nothing fancy. A stopwatch and an honest friend was about all it involved. Stopwatches are easy to find. Some of the techniques discussed might be of interest about now.

Once you're satisfied with the adjustments for the faster glide speed, get'em locked . . . so to speak . . . into the airframe. The various changes must be incorporated in sailplane pushrod linkage and incidence settings . . . with the transmitter stick and trim levers at neutral positions. Ideally, the necessary adjustments will be accomplished by shimming the stabilizer, leaving the elevator at zero degrees incidence relative to the stabilizer. All flying stabilators merely require linkage shifts. Do what is required, because the whole concept depends on the transmitter controls being at the no-signal position when the sailplane is in perfect flying trim.

Directional trim isn't any big problem . . . and there's not much that can be done other than offset the rudder about 1/32 inch. Chances are that your sailplane . . . if it's like most of the rest . . . has a built-in turn tendency. This can come from one of those long wings being a little heavier than the other, or having just a red, curly hair more washout, or both . . . hopefully working together. Could be that the fin is not perfectly true with the fuselage centerline . . . or even an asymmetric fuselage. How about that! Don't fight a natural turning tendency, unless it's too much. That is, don't try to develop a turn that opposes a natural tendency. If you don't have a little turn already working for you, get one . . . with rudder linkage. Transmitter stick and trim levers stay at neutral, as with the elevator. How much turn? Not much. Those amongst us of a scientific bent can consider the proper amount to be approximately one order of magnitude greater than none . . . or maybe a little more.

So what has all this created? A sailplane that has defined and reproducible airspeed, directional and stability characteristics relative to a given data link reference . . . that is, with transmitter controls at no-signal positions. It is, therefore, reasonable to assume that the sailplane will perform or tend to perform in a predictable and similar manner at any time that the transmitter controls are neutralized. The adequacy of visual tracking is not involved.

Probably the most expeditious way to check the preceding hypothesis is with a test flight. Fly the launch and thermal as usual . . . altitude never hurts at times like this . . . working upwind if possible. Comes the test, check the trims for neutral and put the transmitter on the ground. No, don't turn it off . . . just get your hands away from it. Completely. That beauty ought to make big, lazy circles as it drifts downwind . . . correcting its problems as it goes . . . in an easy, level flight attitude. If not, pick up the transmitter, Dummy, there's work to be done. Look at it this way. If all is as it should be, the sailplane can perform the complete flight from tow release to touchdown without input from the pilot. So what's the big deal? Free-flighters do it all the time.

With the neutral, baseline flight configuration established, transmitter trim

changes now can be investigated. Pieces of masking tape fixed to the face of the transmitter adjacent to the elevator and the rudder trim levers will be useful in marking trim lever setting changes.

A few test flights will be required to determine the amount of up trim needed to re-establish the sailplane's best thermalling, minimum sink glide. It should be the same as before this re-trimming exercise started. Mark the masking tape to indicate the trim lever position that gives this speed.

A few more flights will be necessary to establish the trim for a good, penetrating or "distance covering" speed. Before you firm up on this, though, make several long runs with the particular setting to check that too much speed doesn't build up with an extended time lapse. Why go to all this trouble to establish an automatic wing-peeling velocity? You can do that with the stick. Once things seem right mark the tape.

As to directional trim, it's pilot's choice whether to work with just the natural turn tendency or both left and right. A single direction is all that's really needed. Don't know of any proof that a sailplane gets better lift circling one direction or the other in a thermal. No matter what hemisphere you're in. When was the last time you saw a left-handed duck? Anyhow, if you have a preference, follow it.

Three trim settings for the rudder are needed. The first one should be for straight flight. That is, if the sailplane is setup for the very shallow turn discussed earlier. If you'd prefer to have the sailplane track a straight path with neutral trim, that's fine. It makes no difference as long as both a shallow turn and straight flight can be commanded by predetermined trim settings. Make the necessary marks on the tape next to the rudder trim lever.

The next rudder trim position should index a normal, thermalling circle. The definition of "normal" will vary with each pilot and each sailplane. If the turn is so steep as to require more up elevator to avoid loss of altitude than is provided at normal thermalling speed, it's too tight for automatic command.

The last rudder setting is for "I gotta get that damn thing down" conditions. This may be at the hard-over trim position . . . and even that might not be adequate, but it'll have to do. What's needed is a control trim command for a very tight, descending spiral. What's *not* needed is a spiral dive. A tight turn effectively increases wing loading by reducing the vertical lift component so that the rate of sink increases significantly . . . not the forward speed. Two or three descents from altitude will be needed to verify the final setting. Watch for too much speed, and open the turn radius if necessary for safety.

With the several key, trim lever positions established, various combinations can be checked. The worst-case situation undoubtedly will be the spiral turn rudder trim coupled with the high-speed, cross-country elevator setting. This duo could result in a descent like a hawk in shock. Watch for wing shedding velocity. Allow a safety factor for turbulent air conditions. If warranted, add a "red line" mark for the elevator trim to indicate a never-exceed position when spiraling.

Plan a series of test flights that couple each rudder trim with each elevator trim . . . including neutral positions. Go through the full sequence. Make notes about each flight. Terminate every test by returning trim levers to neutral for hands-off recovery. Fly the series a second time to check for repeatability. Consider a test flight satisfactory only if it is accomplished without pilot correction, except for final touch down. All flight attitudes created by the command trim settings must be safe, and execution and recovery must be made utilizing only the marks on the transmitter . . . without visual reference to the sailplane. Cheat now . . . pay later.

The masking tape used during test flights to mark trim lever positions probably looks pretty raunchy. It can be replaced with short strips of narrow, plastic tape or by painted marks. Be sure to make a master copy of the settings before removing the masking tape, and index the master to fixed points on the transmitter case.

If the transmitter is used with more than one sailplane, trim settings for a given craft can be applied on card stock or plastic. These placards can be fitted adjacent to or over the trim lever mechanisms. And nothing says that this idea can't be used in a one sailplane/one transmitter relationship. Besides, Current sailplanes someday get retired . . . in favor of higher performance machines, of course.

Before each flight, during the test phase and subsequently, the mechanical position of the sailplane's control surfaces must be inspected. Without exception, the surfaces must be at appropriate positions consistent with transmitter trim lever neutral settings. The April '74 column touched on a couple of checkout techniques.

The thermal expansion characteristics of some commercial pushrod systems can be a problem. There have been instances where pushrod length has increased, from mid-morning to early afternoon, more than could be compensated by total transmitter trim adjustment. This cannot be accepted . . . for obvious reasons.

One way to enjoy the convenience of plastic tube pushrod systems without the problems some present is to incorporate 1/32 inch diameter music wire as the connection between the threaded

end pieces. The wire passes through the center of the standard, inside tube and is soldered to threaded fittings at either end. It adds little weight, is quite rigid . . . restrained from flexing by the surrounding plastic tubes . . . and doesn't hardly grow at all at flying field temperatures. The accompanying detail details the details . . . so to speak. *(Running your receiver antenna along the fuselage so it's parallel to those wire pushrods could possibly cause occasional signal blockage . . . in certain flight attitudes relative to the transmitter. If you use wire pushrods, run your antenna to the fin or stab tip to form an angle to the wires. wcn)* And that's about it.

It is not suggested that actual "blind" flying be attempted, nor is there suspicion that deliberate out-of-sight flying is practiced. Either would be most foolish and hazardous . . . and certain to incite the wrath of the regulatory gods. Justifiably.

The proposed system offers a technique to help maintain flight safety when visual tracking is of marginal quality or in situations of inadvertent visual loss. The system can serve as an automatic pilot of sorts, and help expedite recovery or improvement of visual contact by utilization of trim command controls. Safe return of sailplanes from extreme altitude of distance situations is also enhanced. The system can be most helpful as a technique for relief . . . no, not *that* kind . . . during tiresome, long duration flights.

The philosophy of system operation is similar to rudimentary instrument procedure: get the aircraft trimmed properly and input minor corrections to maintain the desired attitude and path. There's no reason to utilize the system's advantages only in emergency situations. Every control surface movement creates drag . . . which decreases efficiency . . . which increases sink . . . which reduces performance.

Someone once said, "He who moves most flys low'st." Believe it was an ancient Chinese sailprane pirot. ●

Choppers . . . . . *Continued from page 13*

into rotary wing flight. Strange, that with the large number of full-size Gyro-Copters in the U.S.A., very little R/C model research has been undertaken in this type of flight!

MRC-KALT BELL 212 Another new Bell 212 is in the offing from Kalt of Japan. It is a superbly engineered kit containing a precision gear train in a sealed die-cast housing and intricate body shell molded in fiberglass. New features include radio "out of sight," but accessible through a positive locking front hatch, and a real operating (sliding) door for drive train access . . . no more "push out" windows to contend with! Main rotor diameter is 67 inches, with semi-rigid head. (Also available is a collective pitch head). Designed for .60 power.

Well, that should be enough to start you thinking about you next project . . . I'm sure there are many other R/C helicopter kits and accessories I haven't covered, but it's all I could get my hands on at the moment. We'll try to secure more information and pass it along as time goes by.

* * *

Lee Taylor of Roseville, California, claims the record for the "worst crash" of an R/C model helicopter, and sent pictures to prove it! Lee sez, "The crash was caused by total radio failure at lift-off! Five minutes later, from an altitude of 400 feet, it went into a vertical dive to impact. It survived this crash with only a split fuselage, smashed bubble, and slightly bent tail boom! My repair costs to it were under $40.00."

We really don't like to run pictures of crashes in the magazine, however this one is proof that you can repair or rebuild most choppers for a small amount of money. It is certainly a compliment to the engineering that went into the DuBro Hughes 300 design. An extraordinary recovery!

If I remember right, Lee, I met you in Sacramento last year while demonstrating my Kavan Jet Ranger . . . and your Hughes 300 was a real beautiful machine at that time (you hadn't flown it yet!). As a matter of information, Lee is an A & P mechanic on Army helicopters and has a fine shop. He'd be a good guy to get in touch with if you live in central California and need help. Thanks Lee for the letter and pictures.

* * *

Cliff Cottrell, of Pacifica, California writes of his early experiences in building choppers (4 years ago), and sends photos of his machines! Cliff, I'm sorry the quality of the photos was not quite clear enough to print in the magazine, but your designs are out of this world. Any chance you have some other shots, or could have some taken? Your designs are very pleasing and your meticulous machine work really shows you as a master of the art. Let's hear more from you! Side note: Cliff is an expert at fiberglass and molds, and willing to help others.

Keep the letters and data cards flowing, guys . . . next month, we'll start publishing our "Chopper Chatter Roster," so you can consult with the experts and "hash-out" your problems together! Send us your name, address and chopper history, if you haven't yet done it, so we can add you to the growing family of "helicopterites."

AMA CONTEST RULES

Good news coming soon in the form of organization of R/C model helicopter pilots and the formation of rules for national competition! The very fast rise in popularity and activity in R/C helicopters has certainly dictated the need for a committee to establish a set of national competition and safety regulations. The fact that AMA represents the U.S.A. in world competition and may well be the first country to establish national rules for helicopters, adds to the importance of filling this need! The Chairman of the AMA R/C Contest Board, Bill Northrop, has initiated action in the formation of a Helicopter Advisory Committee to assist the board in formulating competition rules and safety regulations! Drawing heavily upon the membership of the American

R/C Helicopter Association (ARCH) and other knowledgeable R/C enthusiasts, the combined efforts of the board and its Advisory Committee can and will provide the much-needed unification in this fast growing sport. Let's get behind 'em and lend as much support as possible!

FINAL APPROACH

Two final items to close this issue: John Simone advises that the Kavan Jet Rangers should soon be receiving the new modification for the main rotor system (see drawing). It only takes a few minutes to install the device and believe me, it makes all the difference in the world in its performance! After seeing the prototype, I built one in my shop a few weeks ago, but just now got around to flying with it. The controllability is absolutely amazing!!! Fast flight, sudden turns, excessively steep banks . . . WOW . . . performance is *brilliant, positive,* and *super-simple* to keep up with! Do you know the difference in driving a Model "T" Ford and a Cadillac? Well, it's the same thing with the new control! Also, now available are the scale instrument consoles at $10.00, and plastic tail cones at $4.00 each.

Finally, I received a card in the mail from Jerry Broz, Editor and Publisher of Model Helicopter News, stating the intended continuation of the publication. The first 1974 issue is in the final stages of completion and will be distributed about the time you read this column. Welcome back MHN!

That's it for now fella's BCNU next month. ●

Sailing . . . . . . *Continued from page 44*

edies. Some say that the stitching which occurs at the sail's luff will promote turbulence across the sail, while others talk in terms of boundary layers and leading edge spoilers and say that the stitching promotes an attached boundary layer, increasing efficiency.

I don't know. I suspect that the differences can be masked by the heavy rudder thumb of a trigger-happy skipper who over controls his boat. California Cuts have made serious inroads in the 50/800 class, especially in the tall, high-aspect ratio rigs which are appearing on WARRIOR II's and other vessels. The broadseaming allows nice shape to exist across the sail all the way up, even though the chord may be 12 inches or less for some ultra-tall rigs. I'm sure that we'll start to see race results carry descriptions of not only hulls used in the development classes, but sail cuts and manufacturer names as well.

The multi-panel sail uses individual strips of sailcloth in a manner analogous of full-size practice. Vortex used to make paneled sails to special order for the Santa Barbaras, but turned that over to CARR SAILS, as their business increased. Properly made paneled sails require so much time and effort that the prices asked are almost unrealistic.

The photograph shows a paneled mainsail that we spotted at a regatta. It was made during the '73 season for an East Coast 12. As you can see, it is easier to make poor paneled sails than good ones, and the differences in dimensioning are on the order of the error size that one can control while sewing.

Some big boat sailmakers and manufacturers are experimenting with ultrasonic welding techniques to "tack" the panels together for sewing. It will be interesting to see what model yacht sailmaker ventures into the field first. For esthetic reasons only, paneled sails can be made out of flat, non-beveled panels, and a single panel pattern used for the actual sail. All kinds of stripes and other attention getting designs are available, and one is assured of the single panel sail reliability.

Next month we'll take a look at mainsails, their care and feeding. Questions will be fielded by Rod Carr, 7607 Gresham Street, Springfield, Va. 22151. Remember to join AMYA. Dues are only 5 bucks, and can be sent to Chuck Black, 4761 Niagra Avenue, San Diego, Ca. 92107. ●

Ohlsson . . . . . . *Continued from page 43*

full power. However, he managed to mush it along until it was out of the range of spectators before stalling into the ground.

Sparing no effort to make the debut of his Widgeon a success, Irv prevailed on Joe Bridi to conduct the initial test flights. Now that's going real first class! Joe is one of the outstanding flyers in the nation. As Irv sez, how else do you go?

About ten o'clock, the actual tuning of the motors started, with Dan Lutz as mechanic, doing yeoman work. Synchronizing the engines took a little longer than was anticipated. In the meantime, the wind had picked up, causing a considerable wave ripple close in shore. It was evident that flying would have to start immediately, before the ripples turned into tidal waves!

Finally satisfied with the performance and idle of the Torpedo 40FR engines, Joe decided the moment of truth had come. The engines were started and the Widgeon placed in the water. Carefully taxiing from the shore through the rough rollers, Bridi gunned the engines. After a short run, bouncing from wave to wave, he lifted the Widgeon off, only to discover the model was in a complete stall. It dropped back into the water and immediately took off again in a stalled position. This time, the model executed a half roll and plunged inverted into the water. In less time than it takes to tell it, Bob Holland waded out and retrieved the model.

The Widgeon was immediately drained and the motors cleaned. In the meantime,

Joe Bridi was assailed with 100 reasons why the model did what it did. However, Red Barrows stunned the boys with his portable Sankyo TV sound track camera with playback capability! Red estimated there were at least ten different reasons for the stall characteristics, but none of them were valid after viewing the playback! Don't you wish you could analyze your crashes like that?

Carefully scanning the playback (Joe's initial assumption was wrong too!), Bridi decided the amount of incidence built into the wing was entirely too much. Hence, the model was flown with down trim in the elevator on the second attempt. Again, bad luck dogged the project as the port engine sagged badly, and the model settled back in the water after a promising takeoff.

Third time was a charm. Taking off amid a roar of approval and cheers, Bridi carefully steered the Widgeon around the sky. After some in-flight trimming, Joe brought the model in for a fast beautiful landing. Congratulations rang out for Joe Bridi, who so richly deserved the accolades. Poor Joe, after the first two flights, was practically out of his mind.

During the fourth flight, some in-flight glitches were noted so Joe promptly brought the beauty down before some careless transmitter did the model in. Irwin was satisfied, and said that was all for the day.

In summary, more get-togethers like this should be held. Even the wives and kiddies had a good time splashing in the lake. Shutterbugs had a field day. As a matter of fact, in the initial flights so many photos were being snapped, Joe had to taxi the model out quite some distance from the shore.

Maybe Ohlsson will have another coming-out party in about three years, but it will be worth waiting for!! ●

NFFS . . . . . *Continued from page 29*

Headquarters support functions as required or requested by the Committee Chairmen.

e) Otherwise effect the implementation of team selection programs including selection and appointments of Contest Directors, timely tabulation and publication of competition results, final certification of Team Member and Alternate selection and all other administrative details necessary to the conclusive determination of team membership of each class, as well as other requirements specified or implied in the program format as approved by the AMA President.

The selection of committee members is currently in progress, as provided in paragraph 4. A mailing from AMA HQ should be in your hands on reading this if you participated in a team program recently. But if you have not received the mailing and want to participate, send your name, address and AMA license number, to AMA HQ; send $1.25 if you already have AMA membership but do not have an FAI stamp. Response closes in April. ●

Mexico . . . . . *Continued from page 16*

It was really a two fold victory for Bob Root, as both he and Joaquin were flying Bob's design, called the Phony Folkerts. This plane has an impressive list of wins in FAI racing circles, and is soon to appear for the do-it-yourselfer in American Aircraft Modeler. It is also available in kit form directly from Bob.

Which leads us to the "bestest" races of all, the Open. The rules for this are flexible and most anything goes. Racers, and specially designed ships are limited to 40's, though 60's can be used in pattern type airplanes. Entrants ranged from Middle Stiks and Falcons, to the Mathelin's HP-40 powered Quarter Midgets, to a large number of ships obviously designed just for this event.

Of the latter type, another Bob Root design, the Streaker, with Bob Orbit-ing it around the course, appeared the obvious winner from the first. But, as all racers know, it isn't over until the checkered flag. A lot of well flown and hotly contested flying was done. The last round saw a clock fly-off due to a frequency conflict between Bob and Emilio Lozano, with the winners emerging in that order. Marcial Davila was

third in this event also.

To keep the spectators interested during lunch, and other breaks, Luis Castaneda, Mexico's first R/C helicopter pilot, put on demonstrations with his Kavan Jet Ranger. Luis has conquered all the altitude problems and puts on quite an impressive performance with his twirly-bird.

We were also treated to more of those belly-stretching, four course, white table cloth, on-the-field lunches that Mexican contests are known for.

A funny thing happened to me on the way to the contest, department: We were privileged to have Bob and Kathy as guests here in California on their way to Mexico. The evening before they left for Mexico, a group of us flyers had dinner at a local well known and rather classy restaurant. The next day, some of the participants were in the throes of what has become known as Montezuma's revenge. Yet, none of us who went to Mexico had any problem, either while there or after our return.

Our Mystery Girl; a very well known surname in the R/C field. Probably moreso to the old timers of reeds and early days of proportional. The first person to identify her is the winner of one of the delicious Margaritas served at the Holiday Inn, Guadalajara . . . to be paid for and personally served by Yours Truly in September, during the Guadalajara contest.

Hey, up there in the Saucer . . . Adios. See you next Semana Santa. ●

F/F . . . . . *Continued from page 27*

Contrary to some unjust criticism, such as that levelled by Ian Keynes in the January Free Flight News, the wing is very sturdy in construction, if built properly. I have flown mine in windy weather with no bad effects. If intended for very windy (or worse, gusty) conditions, a wire wing tongue mount would be a useful addition. This airfoil has a surprisingly good glide and is intended for rapid all-sheet construction.

LANDINGS (CRASH AND OTHERWISE)

Remember the first few gas models you built? Mine were equipped with wheels. Looked neat. Like a real plane. Then, models came on the scene without wheels. Passe', I guess, but most people kept the wire landing gear there and bent it backwards and called it a skid. Sal Taibi did us one better. His first Stardusters dropped the skid wire and half a wheel. He called what was left a bumper. So, I reasoned, why not do away with all of that stuff and just let the model d.t. onto the fuselage. So I did.

Was it hard on propellers?

Yes.

Fuselages?

Yes.

Engines, dihedral joints and other parts?

Yes.

Back went the skid . . . sandwiched between layers of plywood in the firewall. Worked great until it pried the firewall apart and worked itself out . . . and couldn't be replaced without major surgery.

Then came the breakthrough! Grind the wire to a tapered end. It worked . . . until it bent itself into a facsimile of a potato chip and poked holes into the bottom of the fuselage before it pried the firewall apart. So, shock coils wrapped into the wire became breakthrough Number 2. And finally, make them easily removeable by using a drilled and tapped landing gear mount. John Tatone markets just such a product, and he sells coiled landing gear wire, too. You can make your own with a good pair of round nose pliers and some muscles. Or you can purchase the ones NFFS makes for FAI power and similar weight models. If you've ever been close to one of these ships as it 'galumphs' into the ground, you wonder how it ever stays in one piece. A mount which allows removal of a damaged gear can be made from aluminum or magnesium sheet drilled and tapped to accept a retaining screw. So, a word to the wise is to skid before you dethermalize!

THREE-VIEW FOR JUNE: THE FANTASY 325 BY DAN SOBALA

I respect greatly the flying of Dan Sobala. His designs have the appearance of simple practicality. They are not impressively up-to-the-present-fad, but do they fly. Such a design is this month's three view.

Designed in the early 1960's, the Fantasy has placed in the top three in over 80% of the contests entered. A thin, flat-bottomed section was initially used, giving the model a fast climb, but only a marginal glide in neutral air. With a change to the 4407.5 NACA section, the glide improved to better than average while the climb speed was

only slightly affected. The climb pattern of a slight left spiral requires only left thrust with zero rudder offset. Glide turn is by stab tilt. The present fly-off rules in Category II place larger 1/2A models at a disadvantage, so the Fantasy is probably a good bet using an .09.

SHOW YOUR COLORS

Every once in awhile, someone comes out with a case for the colors to use to make the errant free flight visible in the sky and on the ground. Modelers have put flashy mylar tape on wing tips, fuselages, and many other places, and found that it grays-out whenever skies are overcast. Others use dark tissue on the undersides of wings and stabs so that the model appears dark in the sky. They also put bright colors on top so that the model will show up in a field.

From Aeromodeller comes some other suggestions. It seems that the Physical Society of London did some research with traffic lights and came up with the following colors and their relative visibility in miles:

Red	3 to 3½ miles
Green	2½ to 3 miles
White	2 to 2½ miles
Yellow	1 to 1½ miles
Blue	½ to ¾ miles
Violet	½ to ¾ miles

Orange-yellow to vermillion-orange colors have been commonly accepted after many tests in actual aircraft operation as the most visible colors contrasting with land, sky and water. These colors are also resistant to fading.

So, there it is. Do your next model in orange-yellow and red, or risk offending the Physical Society of London. Just thinking about that combination of colors, however, offends my stomach. I think I'll stick with red and black.

BOEING MANAGEMENT ASSOCIATION SCHOLARSHIP CONTEST

Every year, the BMA puts on a contest just for the under-18 crowd. This year is the fifth Annual, and the prizes are $1750 divided amongst three places. This is an excellent opportunity for a free flighter to pay part (or most, if your name is Marty Thompson, who is finally too old this year after winning three years in a row) of his higher education. Last year, nearly 80 contestants participated. There are the following free flight events: ½A gas, Unlimited Rubber, Hand Launch Glider, Cargo, Towline Glider, Indoor Hand Launch Glider, Indoor Easy-B, and Helicopter. There are other events in Control, R/C and Rocket. A contestant must enter events from two of the categories. For additional information, contact The Boeing Management Association, P. O. Box 3707, Seattle, WA 98124, Attn: Ted Caputo. ORGN 4-1830. Mail Stop 79-65. The BMA announces that it will provide lodging to individual contestants after application. Oh, yes . . . the dates are July 13 and 14, 1974 at the Kent, Washington Space Center.

THE KING WHO DIDN'T BUILD OR FLY MODELS . . . A FABLE

Once upon a time in a far away land where there were miles and miles of flying sites and not too many fliers, in the year 3 B.P. (Before Pylons), there lived a model club king who never built or flew models. One of his subjects, a knave, constantly embarassed the king by asking him questions, such as: "King, why do you never build and fly models, since our clubdom has a huge flying field and many members who fly?"

To which the king would answer, "I do not build and fly models because way back in days of yore, I did build and fly models, but now I am too busy assisting all of the members in my clubdom and so I never get around to it."

Shortly after one such discussion like this, the king went into seclusion and there was much speculation by the other knaves in the club. Knave No. 1, who flew rubber powered models, conjectured that the king was building the perfect rubber model because the king always demanded perfection in his clubdom.

Knave No. 2, who flew gas powered models, thought that the king was designing the ultimate in gas powered models so that the club might prove

victorious in the upcoming kingdom-wide contest to be held in the sauna province of Louisiana.

Knave No. 3, who flew towline gliders, knew that the king would devise the ultimate in airfoils to equip his ultimate Nordic.

And so the debate raged until one sunny and thermal-filled day, the king emerged . . . empty handed.

A cautious gasp filled the knaves' mouths. And to the unasked question, the king replied, "I just didn't get around to it." And he reentered his room.

The knaves decided then and there to approach the king at the next meeting of the clubdom. So they plotted and they planned. They devised a simple solution for the king and for his endless excuses.

As the meeting of the clubdom was called to order by the king, the knaves silenced themselves and after the reading of the minutes, the treasurer's report and a report from the flying field, Knave No. 1, who was elected to lead the clubdom in approaching the king, stood up and stammered, "Uh, Sire, the clubdom is aware that you have not recently built or flown a model."

"Yes," said the king.

"And," continued the knave, "the reason is that you have never gotten around to it."

"That's correct, " he answered.

"So, the clubdom has selected me, sire, to assist you in your plight by presenting you with this little reminder of our concern."

With that, he stood and went to the king and pinned to the king's vest this button:

"And now," concluded the knave," let no man ever hear you say that you never got A Round Tuit."

End of fable.

End of column.

PS: You can present an honest-to-pylon Round Tuit to your favorite procrastinator simply by Xeroxing (never cut a Model Builder Magazine) this Tuit and epoxying it to an old Dewey (Don?) button.

(Winner of May's Mystery Model contest, in spite of an 8 day handicap, was Joe Norcross, Hawthorne, Ca. Model was Larry Conover's "Pelican" Cargo Clipper.

Beam . . . . . *Continued from page 11*

short, stubby nose. Prior to the loss of my original in 1958, I had switched to a new K&B .15 engine which provided additonal nose weight as well as more power. Considering the fact that I would now have a digital set with full throttle control, I decided upon an OS Max .20RC to power the updated version. It is surprising to note that even the new Beam was slightly tail heavy. If you set out to build a Beam yourself, I would now recommend a heavier .19 engine and muffler, such as the Veco .19, or possibly the Webra .20. This extra weight would be helpful.

Another item of consideration was the gas tank. Lou Andrews had used a Walker Pressure Tank and Regulator. These worked great but are no longer available. Room had to be provided for a modern day, plastic, "clunk" tank. The plans show how I literally boxed in a tank directly behind the engine. My present plane uses a 3 oz. Pylon Brand slant type tank. The 3 oz. capacity is a little stingy for a .19. If you choose a larger tank, it's only a matter of enlarging the box enclosure. The key point is that you end up with access only from the front. This way, the box is sealed and no residual fuel can find its way back into the radio compartment.

Certain structural changes were made to increase strength where I felt there was a potential weakness. The original wing structure had a single 3/32 sheet balsa trailing edge. This type of structure depended on silk covering to provide the proper strength. With our present day Super Monokote and Solarfilm covering, the basic wood structure must be strong by itself. To correct this, I simply added a bottom piece of sheet (1/16 was sufficient) to the trailing edge, which now resembles more closely our present day wing construction. It's a good idea to fill in this hollow trailing edge at the center section with balsa, and also wrap fiberglass cloth around it, so that the wing rubber bands don't damage the structure. The horizontal tail never gave us any trouble so we stayed with the original design. We did, however, provide for elevator control, which was not on the original plans. Remember to select light balsa here to prevent a tail heavy situation.

The fuselage of the original was complicated by an assortment of doublers and triplers which I felt I didn't want to duplicate on the present model. Section views have been provided on the plans to help in the assembly operation. The exact placement of the doubler and some of the spruce support pieces are actually unimportant and can be varied to suit the individual builder.

The engine is actually mounted on a piece of 3/16 inch plywood, which in turn is bolted to 1/2 x 5/8 inch hardwood bearers. The plywood mount is designed to break away during a strong impact, thus saving both the fuselage and the engine *(Many of us used to use 3/32 or 1/8 micarta for breakaway plates. wcn).* This idea, which is quite common today, was called out in Lou Andrews original 1953 plans. It would have been nice to mount the engine inverted, as Lou did in the original, but the addition of a muffler made this somewhat impractical.

No attempt was made to provide a steerable nose gear. You could easily do this if you wanted ground maneuverability. Although not shown on the plans, a small tail skid might be a good idea. Since the horizontal tail is mounted on the bottom of the fuselage, it is quite vulnerable to damage, especially when flying off rough fields. Note also, that for the same reason, the elevator control horn is mounted on the top side of the elevator.

Installation of the R/C equipment was an interesting chore. My original carried hearing-aid type B+ batteries (45 volts), filament batteries (1.5 volts) and escapement batteries (3.0 volts), in addition to the receiver and escapement. Seems hard to believe that we had to have all those batteries. The current installation involved a 1969 vintage Kraft four channel system, of which I chose three channels to operate rudder, motor and elevator. The servos must be mounted as shown on the plans if you want to have any hope of balancing the finished product.

One interesting side light to this design is the rather generous cabin windows. This is the only plane I've flown where I could actually observe the operation of the servos through the side windows. The receiver and 550 mah Kraft battery pack were wrapped in foam rubber individually and placed side by side under the fuel tank box. I must admit that my particular radio exhibited poorer than normal range as a result of this somewhat congested equipment layout. It never affected any of my flights, but it was obvious that I didn't have available the maximum range I was accustomed to having. R/C layouts can have a considerable effect on range. This is why a good range check is always important the first time out with a new plane.

One of the final signs of progress was the use of Super Monokote covering on the wing and tail. Who would have believed, twenty years ago, that we would have made such advances in our hobby? The fuselage was finished with Hobbypoxy products, using the brush-on technique. Specifically, I used two coats of clear, two coats of filler thinned 50%, and finally two coats of color.

The all up weight of my new Beam was 3 lbs. 4 oz. with the three channel digital equipment. I honestly can't recall the weight of my original model. I suspect it was in the same category. Possibly the original was a little lighter in weight. At any rate, the wing loading on the current version works out to 20 oz./sq. ft., which provides great trainer performance, especially in conjunction with the flat bottom airfoil.

As noted before, we didn't bother installing a steerable nose gear. All flights to date have been hand launched, exactly as we did in the old days. In fact, most flights have been launched, by myself while holding the transmitter in the other hand. It doesn't take more than a couple of steps to get it in the air. The O.S. MAX .20, of course, has plenty of power for this little plane. The best feature I found with hand launching is that you don't have to be concerned with the conditon of the landing strip at your local flying field. Traditionally, our fields on Long Island turn into veritable mud holes during the winter months. As a rule we don't make any attempt to resurface the area until early spring. In most cases I personally wouldn't fly between December and March. But this past winter, thanks to hand launching, I flew quite often. Landings with the Beam are quite slow, which minimizes the possibility of damage while flying off a rough surface.

How did the rudder-only Beam fly twenty years later? Well I have to admit I cheated a little initially. My original radio installation was worth approximately $50.00 or less. In contrast, my current airborne system is worth over $200.00. With this in mind I made the first flight using rudder, motor and elevator control. I'm glad I did, since in my case, I needed some nose weight and also down thrust in the engine. Had I not had elevator control I would have likely crashed on the first flight.

After trimming was complete, I unplugged the elevator servo and flew rudder-only, plus throttle. The first several flights were absolutely nerve

racking. My years of instinct had me constantly commanding the non-existent elevator. Remember, with rudder only, to get out of a steep climb you must turn the plane. One of the biggest concerns in rudder-only flying is going too far down wind without the ability to penetrate the prevailing winds back up to the launch point. Years ago we lost many planes this way, even though the radio was still working perfectly. Because of this fact it is especially important that you have your name and telephone number affixed to the plane.

Finally, I took the complete plunge and disconnected the throttle servo. Now I was flying true rudder-only. I found it to be *very* uncomfortable! In fact, I honestly feel that pure rudder-only flying should really be limited strictly to calm weather conditions. With the R/C equipment set up as shown, I can easily select the servos I want to match the prevailing wind conditions. As a guide, I would recommend rudder, motor and elevator for winds above 20 mph, rudder and motor for winds of 5 to 20 mph, and rudder-only when the wind is less than 5 mph, to dead calm.

I'm sure many modelers must remember the old Class I R/C rules which called for competition flying using rudder-only plus throttle. With the advent of reeds, and then multi-channel digital sets, the Class I category was effectively retired around 1965. You have to appreciate the fact that at that time many of us had pursued R/O flying and all its hazards and heartbreaks for many years. The possibility of flying reliable, low wing stunt planes, with simultaneous proportional control of all surfaces, was too good to pass up, and so we literally jumped at the chance. But looking back now I can see that maybe we shouldn't have been so hasty to drop Class I. It takes a very special kind of flying skill and patience to compete in Class I. Spot landing a plane without elevator control, various wind conditions, is a real challenge. Essentially, all of the old Class I flying towards the end of its existence was done with reed equipment, which meant that you commanded a full movement of the rudder with each signal. A gradual turn, as was the case with escapements, was only performed by pulsing the rudder switch on the transmitter. With today's proportional control, and especially with the inexpensive two channel "bricks" now available, rudder only (Class I) competition flying could be a reality again.

(Speaking with our AMA R/C Contest Board hat on, one of the main reasons Class I was dropped was the fact that in its closing days, rudder-only planes had become highly specialized freaks. Planes were big 60 powered monsters with at least 5 degrees up *thrust in the engine, and two servos on rudder. With up thrust, the ships flew straight and level at about ½ throttle. At full throttle, they would loop directly from level flight. The throttle, in a very large sense, became the plane's missing elevator. By linking two servos, somewhat in parallel, at the rudder, large and small amounts of full rudder could be applied at the proper moments. Finally, with no reclassification system [Today's classes can all be flown with the same plane. Back then, you would have to use different airplanes entirely in Class I, Class II, and Class III] a certain few rudder-only fliers dominated all contests around the country, killing nearly all interest in an event which should have been for those who were breaking into competition. wcn)*

In closing I'd like to express my appreciation to Lou Andrews for all his important contributions to our hobby over the years. Additionally, I would like to thank Mr. Earl K. Smith, Executive Vice President of the Paul K. Guillow Co., for granting me permission to do this update on the Beam. ●

C/L . . . . . *Continued from page 46*

prover, such as amyl nitrate, is also beneficial, but the engine will run without it.

The first basic fuel mix for learning to operate the diesel engine, can be equal parts of each of the three basic ingredients. This will start and run the engine easily, and is not difficult to measure. Of course, when you start trying for top performance from your engine, it will be necessary to experiment with different fuel blends and additives.

To this end, I am going to list various chemicals that are known to be useful in diesel fuels, and I will present a long list of tested formulations from prominent team race flyers. I will not try to say what is the very best, since this is an area of much speculation and controversy, as it is with glow engines.

Almost any type of oil is suitable for diesels; vegetable, petroleum, and synthetics. Use your favorite! Kerosene must be clean! Be careful of buying at service stations, since they sometimes use it as solvent and pour it back into the drum! Ether can be anhydrous, diethyl, or petroleum. Anaesthetic ether is generally not suitable and is more expensive than the other types.

Other chemicals that are sometimes useful in small amounts. . . 5% or less . . . are amyl nitrate, amyl nitrite, nitro ethane, nitro benzene (oil of myrbane) nitro methane, benzine, heptane, white gas, and iso-octane. These have various effects. Some make the engine run smoother, some give a lap or two more

TEAM WORK

An honest airplane in the hands of an expert pilot is a tough team to beat. Dave Shadel, of El Segundo, Calif., and his Monterey, have won 19 trophies in their first year together. Dave, an LSF Level IV pilot, also showed his club how to hand launch into a 35 minute thermal flight. (Some guys have all the luck!)

The Monterey, a 100 inch span thermal trainer, is available from Astro Flight for $34.95 . . . You may obtain one from your dealer, or if you wish, order direct from Astro Flight, Inc., 13377 Beach Avenue, Venice, California 90291. (213) 821-6242. California residents add 6% sales tax.

range, others add a bit more speed. I would not advise random experiments until you are able to run a "plain" fuel consistently and without problems.

When ready to start flying your racer, pick a mix from those listed. It can be mixed in quantity and stored like any glow fuel. Use a light proof container with a tight sealing lid and keep it cool as much as possible. Next time I will give some advice on how to start, adjust, and run your diesel.

DIESEL FUELS
(As used by some notable modelers).

McCollum-Hodgkins - 1972
15% blendzall oil
30% diethyl ether
55% kerosene
1.25% amyl nitrate

Dick Place - 1964 English World Champ
22.5% castor oil
35% ether
33.5% kerosene
7.5% heptane
1.5% ethyl nitrate (nitrous ether)

Pete Brandt - 1964
20% castor oil
30% ether
46% kerosene
2% nitro benzene
2% amyl nitrate

Claus Maikis - West Germany
20% oil
30% ether
45% kerosene
3% nitro methane
2% amyl nitrate

MVVS No. 1 - Factory Formula
10% castor oil
10% paraffin oil
30% ether
47% kerosene
3% amyl nitrite

Plotzinjs-Timofeyef (USSR) World Champs - 1972
16% machine oil (120 centistroke)
8% castor oil
30% ether
46% kerosene
1.20% amyl nitrite

USSR 1964
6% castor oil
17% tractor vaporizing oil
31½% ether
42% kerosene
2% nitro benzene
1¼% amyl nitrite

Drazek 1964
20% mineral oil
33% ether
42% kerosene
1% nitro ethane
1% nitro benzene
3% amyl nitrate

Dolgner-Burke 1960 USA Team
19% synthetic oil
42% ether
38% kerosene
1% nitro ethane
2% amyl nitrate

MVVS No. 2 - Factory Formula
25% castor oil
25% ether
47% kerosene
3% amyl nitrite

Stockton-Jehlik - 1966 World Champs
5% castor oil
10% paraffin oil (125 centistroke)
3% STP
2% Dupont 3311 detergent
¼% moly disulfide
30% ether (anhydrous)
50% kerosene
1½% amyl nitrate

Stockton-Jehlik 1967
20% oil blend
30% ether
50% kerosene
6% heptane
1½% amyl nitrate

Italian Team 1966
28% oil
15% ether
57% kerosene
1½% amyl nitrite

Webra Racing Fuel
25% castor oil
32½% ether
40% kerosene
2½% amyl nitrite

A DELIGHTFUL PLACE TO FLY

That's North Isalnd Naval Base, in San Diego, where twice yearly, the Mission Bay Prop Twisters sponsor a two day contest. May 5 and 6 were overcast and cold, but the competition was hot and friendly. Really a fun weekend. I did not hear of any complaints or see any major arguments . . . just a lot of happy modelers. If you missed it and live in the west, start planning for the next one in October.

For your edification and enjoyment I shall now present you with the list of events and joyous winners.

F.A.I. T/R

1. McCollum-Hodgkins	4:24.0	9:23.0
2. Jolly-Kusik	4:41.2	9:37.5
3. Harness-Wildman	4:47.0	10:13.6

GOODYEAR

1. Tim Gillott	6:54.8
2. Jeff Hoffelder	7:01.4
3. Joe Dutched	7:22.1

SLOW RAT

1. Dale Long	6:58
2. Dave Braun	7:07
3. Joe Dutched	7:58

AMA RAT

1. Tim Gillott	5:04
2. Jeff Hoffelder	5:22.2
3. Dan Barker	5:28.2

AMA FAST COMBAT

1. Sonny Brewster

2. Tom Zon
3. Bobby Peterson

AMA SLOW COMBAT

1. Bobby Lucas
2. Howard Brown
3. Mike Noland

STUNT JR./SR.

1. Nick Bompehsiero	322
2. Fred Walker	239
3. Robert Peterson	146

STUNT – OPEN

1. Bob Whitley	513.5
2. Tom Lay	507.5
3. Norm Whittle	502

SPEED I

1. Jim Wade	FAI Sr.	116%
2. Max Snyder	FAI Sr.	109%
3. Robert Spahr	FAI Open	101%

SPEED II

1. Max Snyder	C Sr.	134%
2. Rebekah Snyder	A Jr.	100%
3. Max Snyder	B Sr.	92%

NEW RECORDS

Bob Spahr	Open FAI	150+	mph
Chuck Schute	Open FAI	150+	mph
Jim Wade	Sr. FAI	130+	mph
Max Snyder	Sr. FAI	123	mph
Max Snyder	Sr. C	161.36	mph
Becky Snyder	Jr. A	113	mph

I DON'T TAKE STATIC FROM ANYONE'S AIRPLANE!

. . . Static shock buildup from the lines that is. Those of you who fly over a good soft grass field, and have power lines somewhere within a mile of the field, probably have been zapped a time or three. To stop the annoyance, you probably held your handle with a rag or wrapped tape around it, somehow trying to insulate yourself from the shocks. Your remedy didn't work all the time did it? Those annoying jolts were still tickling your fingers.

Well people, you simply had the wrong solution for the problem. The problem is that you are inducing voltage in your lines by flying through a magnetic field, created by the power lines on that distant ridge over there. This is aided by the moist ground over which you are flying (you are the armature of a big electric motor). The voltage, current or whatever . . . I really don't care exactly . . . builds up in the lines until it has enough force to arc across from the lines, to your fingers, to ground.

"Ok, so how do I insulate myself from the juice?", you ask.

I don't! I connect myself to it! If you don't allow the power to build up in the lines, then you won't feel it.

Use some bare copper wire and twist it onto your line connecters and wind it all around the handle grip. You are now part of the circuit, and as such, are not affected by it any more. If you still get 'hit' occasionally, then take off your insulating shoes and fly barefoot in that cool grass. After all, you do fly for fun, don't you?

P.S. This trick won't help a bit if you come in contact with a power line. **DON'T FLY NEAR OVERHEAD WIRES!** ●

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

the kinks and production problems are solved before producing quantities. Obviously this is an engine worth waiting for. . . and also I'll look forward to the .40 and .15, which will follow the .61.

Kraft also tells me that radio production continues at record rates. For the largest manufacturer of R/C equipment in the world, this is really something. . . The auto business may be slack, and other industries feeling a pinch, but the hobby business seems to be booming!

Probably one of the most interesting planes to me was the "Hoss Fly," shown by Jay Lewis' shop, and manufactured by Micro Flite Models, P.O. Box 2034, Fort Worth, Texas 76101. This sport/trainer has some very advanced constructional techniques that place it in the category of "futuristic" models. To be specific, this plane has wing ribs made of foam sandwiched between sheets of hard paper. The ribs are clean cut and about 3/32 inch thick. They are about the same weight as balsa but have remarkable strength. . . far exceeding a balsa rib in the same type wing. One of their trainers was accidentally flown into a tree, by none other than Jay Lewis himself, and although the engine was demolished, the plane was intact!!!

Pricing on this new plane was not determined at the time of writing, but you can drop them a card and get more information. Micro Flight just may have found the way to help ease the high cost and the shortage of balsa, by finding a superior substitute for balsa in certain parts of model construction.

Ace Radio Control has added some new items to its catalog, and they are all needed items. . . especially the "builders triangles" made of aluminum. They have 30-60-90 degree angles plus straight edges, of course, and are priced at only a buck fifty for four of them in a set. Then there are some LED's (light emitting diodes) for those of you who roll your own stuff. Ace has incorporated some in their Continuity and Voltage tester, which sells for only $5.95 assembled or $4.50 in kit form. It'll tell you plus and minus polarity and will check for continuity in any wire or cable. Ace knows that some of you happen to leave your transmitters on from time to time, run your battery packs down, and then miss a day of flying. So. . . they offer a transmitter off-on indicator featuring

one of the LED's. It only needs an 1/8-inch hole, and is simplicity itself to hook up. You can tell at a glance that your transmitter is on. . . or left on. Only $1.19 and stock number is 22K22.

It is almost for sure that by the time you read this, I will have flown my "Quick One." This nifty plane by JEM Enterprises, of 521 Bies St., Michigan City, Indiana 46360, went together very well. The foam wing was sheeted in one evening, and the rest of the plane took surprisingly little time. This is the plane you have seen pictured many times with the fin pointing down rather than up. . . If the landing gear wasn't on the bottom, one would think it was upside down. Reports are that this is a fantastic performing sport plane, and I'll report later on my own flights.

Now that the flying season is really here, it looks as though I got in just under the wire, since the workshop (New House!) is finished and I'm back in business. . . i.e., building, crashing, building, and such.

There are plenty of contests scheduled around the south this year. . . From May through July, for example, there is one each weekend within driving distance of Nashville, Tenn. (hometown). For those of you who fly the contests. . . either for fun or in grit-your-teeth dead earnest, there is plenty for you. For fun flying, Quarter Midget Racing seems to be going strong all over the country.

Formula I racing is all but dead in the Southeast, except for a spot or two in Florida. R/C soaring, on the other hand, is catching hold extremely well. So, there is something for everybody. . . either sport or contest.

Months ago I talked about the plane I had in my head that "one of these days" I'd like to design. It's still in my head, unfortunately, but sooner or later I've just got to get it down on paper and build it up. (*Take a look at the Free Flight column, Frank. There's a button that may be just what you need! WCN).* SkyGlas, of Nashville, told me they might make a fiberglass fuselage for it, along with Foamcore wings and maybe kit the thing. . . This was some time ago and I haven't gotten the lead out yet. The plane, as I visualize it, is straightforward in design (that is, I stole a little bit here and a little bit there) and is so conventional that it might not win prizes for sleekness or innovations in shape. . . but fly and fly good, it will do. However, don't hold your breath waiting for it. . . In the meantime, if any of you R/C'ers have original designs or modifications of existing designs or kits, I'd sure like to have a good snapshot and a few details. Other modelers are always interested in such achievements and I will sure try to include the pictures in my column.

Next month I'll tell you how I'm doing at building and trying to fly my Du-Bro Hughes Helicopter. . . Years and years of flying R/C and I'll bet I can't fly the thing. We'll see. . .

Frank Schwartz R/C Editor
2400 West End Ave.,
Nashville, Tennessee 37203 ●

F/F Scale . . . . *Continued from page 00*

to remove the convex shape. Place aluminum tubing inside the axle hole so there is a good bearing.

With a paper circle cutter, make four discs to whatever size is appropriate for your scale model. Paint them and then make a hole large enough for the axle to pass through two of them. Glue these discs onto the inside face, using silicone rubber cement. You may find that you will have to cement the discs onto the tires themselves. For this reason use silicon rubber cement. Place the tire onto the axle and solder the cup-shaped washer in place (cup down). When finished, simply attach the outer discs in the same manner as the back ones, remembering that they do not need a hole through them. I think you will agree that this enhances the appearance of any model, including old-timers, using this simple method. Trexler airwheels are also quite light in weight. Incidently, Sig handles all sizes, including the bladder that inflates them. Incidentally, Trexler tires can be preserved by using Armor All, an automotive product for treating tires, leather, vinyl, etc.

Finally! I have finished and flown Flyline's Bellanca Skyrocket! For those of you who have never seen this kit, you are in for a real surprise. For starters, the price is only $7.95, which is extremely reasonable considering all the materials furnished in the kit, such as scale wheels, decals, covering and cylinder materials. It is a 3/4 inch scale model, giving it a span of 34 1/2 inches. I would like to point out some of the changes that I made in the construction, and a few others that I would recommend.

I decided from the onset that it would be flown rudder-only R/C, using an Ace pulse system. This radio ideally lends itself to scale models of this size. I built the model pretty much according to the drawings, except that the tail outline was completely laminated, using basswood. I made the stab in one piece, but if I had to do it over again, I would separate the elevators from the stab, using stiff copper wire.

The landing gear, as shown on the plans, is mounted rigid. I made mine so that it would flex. A rigid gear is disastrous on hard landings!

The Baby twin actuator was moved ahead one bay in the fuselage, which helps the C.G.

Admittedly, the front end of this gas model gave me the only serious problem during construction. So that others can avoid the same pitfalls, here's a suggestion. Glue all the nose blocks in place. Make up the crankcase, along with the cowl shutter plate. (This portion is removable.) When all these parts are dry, sand everything to shape, and you will achieve the proper contour. I had sanded the permanent blocks separately from the crankcase and cowl shutter only to find the contour all out of whack! It was necessary to add considerable filler on the underside of the cowl to remedy the problem.

I used the Williams Bros. 3/4 inch scale cylinders and made my own cylinder heads. The Cox .020 Pee Wee engine was fitted with an intake tube directly behind the tank, to the bottom of the fuselage,

so that it gets fresh air when running. It is then mounted on an "O" ring so that thrust adjustments can be easily made.

The wings are super-easy to build, and I have only recommendations to make. Place some reinforcement between the root rib and the second rib so that the covering, when shrunk, will not pull the root rib. If you don't, it could give more dihedral than required.

My model was covered with Japanese tissue and given three coats of nitrate dope. I then painted the entire model with Floquil yellow mixed with nitrate dope. Since this finish is not fuel proof, I gave the entire model a thin spray coat of K & B resin, using 50% satin and 50% gloss for the catalyst. This gives about the right amount of gloss for the model. The "Skyrocket" weighed exactly 8 oz., ready to fly. The C.G. worked out just right with no additional weight required.

After charging the batteries overnight, the much anticipated test flight was at hand. The field that I tested in had grass two feet high; very ideal when unexpected events occur. The Pee Wee was given only partial fuel. With the .020 peaked out, the model was heaved into wind. The flight was spectacular even though the Bellanca never went higher than about thirty feet. Finally, by finding the right propeller (a wood Tornado 6/4), the Bellanca Skyrocket really gained some altitude. All I can say is that it's really a ball to fly. The Bellanca Skyrocket would make an excellent F/F model, but if you choose to power it by rubber, it would have to be lightened considerably.

Without doubt, this is really a fine kit to build and . . . Flyline is coming out with an early Stearman, and the trusty OX-5 powered Curtiss Robin. I can hardly wait!! ●

Counter . . . . . . *Continued from page 6*

75 photographs, and 70 diagrams. It is an excellent book to recommend to the newcomer who is loaded with questions and needs a single source for the answers. Check with your better hobby shops or write direct. The price is £1.50 in England.

* * *

In recent weeks we've been building a Hegi Cobra helicopter and had the occasion to use, for the first time, a new epoxy being marketed by Gas Model Products, 110 Valley View, Southgate, KY 41071. Called "Kwik Set Epoxy," this two-equal-part material begins to stiffen in 5 minutes and is firm in 15. Two 4-oz. poly bottles with spout caps sell for $4.95.

What we especially like about this product is the fact that it has plenty of body and won't run all over the place during those first few moments. Even better is the fact that it does not appear to become brittle with age. Where some epoxies can be chipped away if necessary to "revise" construction, Kwik Set has to be dug out bit by bit and puts up one helluva fight. In spite of its thick consistency, it appears to penetrate wood surfaces quite well, bonds styrofoam and is coffee (with cream) colored when cured.

Other products by GMP (Gene Steinkamp and Don Robinson) include Styro Stik Foam Wing Skin Adhesive, Latex Fuel Line, Zip Engine Additive, Motor Kleen for removing varnish, and a stand-off scale Messerschmitt BF 109E kit which features fiberglass fuselage and foam wing and stab. Write for details.

* * *

We have just taken delivery of the first real-life production model of the much talked about Hobie Hawk. This interesting 100 inch span R/C glider has been designed for mass production as a completely or semi-finished model, employing some of the very latest materials and manufacturing techniques. Ours is a completely finished version in yellow Monokote and epoxy paint, and packed in its foam shipping/storage/transporting container. A two-channel Logictrol LRB (Little Red Brick) radio will be installed, and after sufficient testing, we will present an in-depth review of the whole package. . . probably in the next issue. ●

Workbench . . . . *Continued from page 4*

that a lot of his height sank into his feet!), we'll need someone who will devote practically all of their time, energy, and devotion to AMA. Johnny's business (he owns a hobby shop in Dallas) has had to take second place to AMA since he came into office in 1971, and it was only after his ill health turned totally critical that he became temporarily "invisible."

Frankly, at this point in time, we don't know of anyone who is more suitable for the job of AMA President, and suggest that you keep your ear plugs in place, keep your best jokes to yourself, and keep John E. Clemens in office for two more years.

THOSE *$#&@ RULES!

This is the title of a commentary on the subject by Chuck Anderson, Editor of the Coffee Airfoiler, Tullahoma, Tennessee. As one who is constantly in the middle of it when it comes to R/C competition rules, being R/C Contest Board Chairman, we feel Chuck's comments are worth repeating.

"We finally got the 1974 Rule Book and gripes about them are beginning to make their annual Spring appearance in bull sessions, newsletters, etc. These new rules really shouldn't come as any surprise since all important rule changes have been presented earlier in the Competition Newsletter. Some of these gripes are justified, but it's a little late to be letting your views known.

"We can't do much about FAI rules, but all proposed AMA rules changes are published in the Competition Newsletter, along with a request that all interested parties transmit their views to the appropriate district contest board member. This doesn't take any more time than a short bull session and will accomplish much more.

"What's the solution to rules problems? The first step is to be informed about proposed rule changes. If you fly in contests, then you can't afford not to take Competition Newsletter. The second step is to make your views known to the contest board members, district VP's and AMA Headquarters.

One method of accomplishing this is through the club newsletter. I send the Airfoiler to AMA, Johnny Clemens, Jim McNeil (Dist. V VP), and all District V Associate VP's and contest board members. This keeps the people who vote and run AMA informed of the activities, problems, and complaints of our club members. This method does not take the place of submitting rules change proposals. That is left up to the individual, however, it is not as difficult as you might think. Why not give it a try?"

Right! Why not? You have until September 1 of 1974 to submit proper rules change proposals for 1976-7.

WHO WERE THEY?

We've already received numerous letters from readers regarding the photo in last month's issue of the 1936 NATS winners. In answer to requests coming in, we will republish the photo and identify everyone thereon, once we have a complete list. The names Bruno Marchi, Hewitt Phillips, and Albert Judge have been added to the hints we gave last time. Bert Pond is there too, and no doubt we'll hear from him any day now. (*Last minute note. Jim Adams, Santa Ana, California, a SCAMPS member, has just sent in complete identification. We'll republish the photo as soon as possible. WCN)*

MORE IDENTIFICATION

While we're on the subject, George Finch, writing for the Valley Flyers (Los Angeles) newsletter, points out that FCC regulations 95.101 and 97.99 both state that owners of R/C transmitters must affix a Transmitter Identification Card (FCC Form 452C) or a plate made of a durable substance, indicating the station call sign and licensee's name and address to the transmitter, in an area where it is readily visible. This would also help contest workers in charge of transmitter impounds. LET'S GET LEGAL. (*'Scuse me while I go put DYMO embossed labels on my REMOTENGETROLSIGNALOUTPUTENBOXES!)*

Still with the Valley Flyers, we note that the club recently held speed trials, and when you think of all the "guestimated" speed claims you've heard, it's sort of interesting to see some fairly accurate figures.

Unfortunately, we don't know the exact description of some of the planes involved, but take a look at these fastest speeds in various categories:

Class I, 1/2 A	
Kent Nogy	73.82 MPH
Class II, .15 Engines	
B. Nickle	111.29 MPH
Class IV, .61 Engines	
J. Fogelson	126.38 MPH
Class V, Biplanes	
J. Replogle	86.36 MPH
Class III, Formula I	
Bob Smith	184.87 MPH

We'd guess that Class II were Quarter Midgets and Class IV were some of the hot pattern ships, such as 'Cudas and the like. Bob Smith's speed of 184.87 and T. Swift (has the legendary Tom Swift returned?) at 183.35 makes you realize that these Formula 1 birds aren't travelling that much short of the world record, which is just over 200 MPH!

Come on Bob, let's get another world record back into the United States!

THINGS TO DO

The busy Central Jersey Radio Control Club has scheduled a S.A.M. NATS warm-up contest for "Old Time Free-Flight" controlled by radio, on June 9, 1974, at Middlesex County Model Airport, Piscataway, N.J., Classes A, B, C, and D, plus Antique (pre-1938) and .020 Replica will be flown. The CD is Jim Clark, 1127 Denmark Rd., Plainfield, N.J. 07062, (201) 756-1364).

The WHIRLWINDS of Southwest Michigan are having their 3rd Annual Glider Contest for Standard (100-inch or less) and Open (all sizes) on June 23, 1974. Flying site is near Exit 27 of In-

terstate 94, on U.S. Route 33. Contact Roger Scher, Box 10, 604 W. John Beers Rd., Stevensville, Mich. 49127, (616) 429-3148.

* * *

The Western New York Free Flight Society will be sponsoring its Fifth Annual Free Flight Contest on July 20, in Pike, New York. This is the only club in Western New York that promotes free flight competition, and at last year's contest, had modelers entered from Canada, Ohio, New York, Pennsylvania, Michigan, and Connecticut. Events include 3 classes of power, Unlim. Rubber, Towline Glider, H.L.G., a special Old Timer Event, and High Point Award. There will also be two Junior Only events; H.L.G. and 1/2A Power.

Contact John Carls, Box 152, Custer City, Pa., 16725 for further information.

* * *

The San Diego Argonauts will be hosting the North American Model Boat Association (NAMBA) 1974 Nationals in San Diego August 3 through 10, at the Mission Bay Model Yacht Pond. Contest Coordinator is Bob DeBow, and his wife Alice DeBow is Public Relations Coordinator. They may be reached at 4415 Longbranch, San Diego, CA, 92107, (714) 222-1991. Chairman Kirk Kuykendall is at 1730 Ebers St., S.D., CA, 92107, (714) 224-0115.

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We told ya they're busy! The Central Jersey Radio Control Club will hold their 15th Annual Eastern States Radio Control Championships on October 6, 1974, at Rutgers Football Field "E," Piscataway, New Jersey.

This contest actually has a very long history, as it began way back in 1937, at Hadley Field, South Plainfield, N.J., and the Contest Director then, as now, was Leon Shulman. It became an R/C contest in 1959 when the CJRC Club took over sponsorship. This year's affair will include A, B, DN and DE Pattern, plus AMA and Sport Scale.

Flight programming will employ the Shulman Flight Processing System, and assisting Contest Director Lee will be Steve West and Herb Foster. For further information, contact Frank Dresch, 9 Willow Ave., Piscataway, N.J. 08854, (201) 356-5379.

MODEL BUILDER BINDERS

Delivery of dark green vinyl covered MODEL BUILDER magazine binders with gold lettering is expected in about four weeks. Orders may be placed now, at $4.95 each, postpaid. Californians include tax. One binder should hold first 14 issues (1971 and 1972).

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1¾"	**Spinner**	**$1.19**	**$2.29**
2"	**Spinner**	**$1.29**	**$2.49**
2¼"	**Spinner**	**$1.39**	**$2.75**
2½"	**Spinner**	**$1.49**	**$2.95**
2¾"	**Spinner**	**$1.59**	**$3.15**
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