THE MK I: 1964 NATS CONTENDER

RADIO CONTROL MODELER

RM

JUNE-JULY 1964 50¢ FOREIGN 60¢

FIRST SUCCESSFUL RUDDER-ONLY TWIN

THE DOUBLE FEATURE

by Ken Willard

CUSTOM FINISHING TECHNIQUES

by Howard Reed

Frank Justin Tests the Zeus Taurus Combo

RCM PRODUCT REPORT
THE BABCOCK DIGITRAN

The Man, The Plane ...and The Challenge

Λίγα λόγια για μένα.

Είμαι Μηχανικός Ηλεκτρονικός και αυτό είναι το αληθινό μου επάγγελμα εργασίας.

Από μικρός δυο πράγματα μου κέντρισαν το ενδιαφέρον και ασχολήθηκα με αυτά.

Πρώτον ο ηλεκτρισμός και δεύτερον το απέραντο γαλάζιο του ουρανού και ο αέρας αυτού.

Το χόμπι του αερομοντελισμού το πρωτογνώρισα τον Οκτώβριο του 1973.

Μου αρέσουν οι ξύλινες κατασκευές αεροπλάνων και σκαφών από το μηδέν.

Ξεκίνησα να συλλέγω σχέδια, άρθρα, βιβλία και ότι άλλο μπορούσε να με βοηθήσει στο χόμπι από τα πολύ παλιά χρόνια.

Έχω δημιουργήσει μια πολύ μεγάλη προσωπική συλλογή από αυτά.

Από το 2004 άρχισα να ασχολούμαι με την ψηφιοποίησης τους, τον καθαρισμό τους αλλά και να τα μοιράζομαι μαζί σας αφού τα δημοσιοποιώ στο διαδίκτυο (όσα από αυτά επιτρέπεται λόγο των πνευματικών δικαιωμάτων τους).

Σήμερα μετά από όλη αυτήν την εμπειρία που έχω αποκτήσει, αποφάσισα να ψηφιοποιήσω, να καθαρίσω και να ξαναδημοσιεύσω σε ψηφιακή έκδοση και ελεύθερα όλα τα τεύχη του περιοδικού RC Modeler από το 1963 μέχρι το 2005 αλλά και κάποια άλλα.

Σίγουρα είναι μια πολύ μεγάλη, δύσκολη και επίπονη εργασία αλλά πιστεύω με την βοήθεια όλων σας να την τελειώσω σε ένα καλό αλλά μεγάλο χρονικό διάστημα.

Ζητώ συγγνώμη εκ των προτέρων γιατί τα Αγγλικά μου είναι φτωχά.

Δεν είναι η μητρική μου γλώσσα γιατί είμαι Έλληνας.

Εύχομαι σε όλους εσάς που θα επιλέξετε να τα συλλέξετε και να τα διαβάσετε αυτήν την εργασία μου καλή απόλαυση και καλές κατασκευές.

Το όνομα μου είναι Ηλίας Ευθυμιόπουλος.(Η.Ε)

Το ψευδώνυμο μου Hlsat.

Η χώρα μου η Ελλάδα και η πολη μου η Ξάνθη.

A few words about me.

I am Electronic Engineer and this is my true work job.

From small two things attracted my interest and I dealt with them.

First electricity and secondly the blue sky and the air him.

The model aircraft hobby met him in October 1973.

I love the wooden structures from scratch airplanes and boats.

I started collecting plans, articles, books and anything else that could help the hobby of many years ago.

I have created a very large personal collection of them.

Since 2004 I became involved with the digitization, clean them and to share with you since the public on the internet (as many of them are allowed reason of copyright).

Now after all this experience I have decided to digitize, to clean and to re publish in digital edition and free of all issues RC Modeler magazine from 1963 to 2005 and others.

Certainly it is a very long, difficult and tedious task but I believe with the help of all of you to finish in a good but long time.

I apologize in advance because my English is poor.

It is not my mother language because I am Greek.

I wish all of you who choose to collect and read this my work good enjoyment and good construction.

My name is Elijah Efthimiopoulos. (H.E)

My nickname Hlsat.

My country is Greece, and the my city is Xanthi.

Hlsat * H.E * Plans

RCM Magazine Editing and Resampling.

Work Done:

1)Advertisements removed.

2) The building plans of airplanes in full size can be found on websites listed in the table.

3) Articles building planes exist within and on the websites listed in the table.

4) Pages reordered.

5) Topics list added.

Now you can read these great issues and find the plans and building articles on multiple sites on the internet.

All Plans can be found here:

Hlsat Blog RCModeler Free Plans and Articles.

http://www.rcgroups.com/forums/showthread.php?t=2354459

AeroFred Gallery Free Plans.

http://aerofred.com/index.php

Hip Pocket Aeronautics Gallery Free Plans.

http://www.hippocketaeronautics.com/hpa_plans/index.php

James Hatton Blog Free Plans and Articles.

http://pulling-gz.blogspot.gr/?view=flipcard

Vintage & Old-Timer RCM Free Plans.

http://www.rcgroups.com/forums/showthread.php?t=2233857

Contributors:

Scanning by ser001

Editing by Hlsat.

Thanks Elijah from Greece.

DEAR RCM:

ADDRESS R/C MODELER MAGAZINE • P.O. Box 487 • Morro Madre, California

Editorial Policy

Congratulations on your editorial stand! I would like nothing better than to see you make a financial success of RCM and I believe you can do it. Basically, people who have something to sell must advertise and they must advertise in a medium that is effective. More importantly, they must advertise in a manner that in the long run is honest and realistic, otherwise they are merely riding a seller's market and wasting a lot of copy since the stuff will sell any. how. An honest stand has got to win.

John Worth, Executive Director
Academy of Model Aeronautics

Congratulations to you and your stand of the appraisal of different RC products! It is refreshing to find someone with the courage to establish such a high standard for their magazine. I ant sure that there are many, many modelers who are wishing you the best of success.

If space in your magazine permits, I believe that it would be a fine thing to commend those in the industry who have so generously donated their extra time and effort to solving the problems of the modeler. From personal experience, *a sincere* thanks to Hi Johnson (Dynamic Models), David Whitney (Ecktronies), and Dewey Broberg (Du.Bro Products). Modeling could use many more like them.

Blaine D. Barnard
Brigham City, Utah

Just a note to let you know I think you have a fine mag. I think the letter from *Mr.* Fisher (New Haven Reed Banks) was the finest of its type I have had the pleasure of reading. I think Mr. Fisher is wrong when lie says no one will touch his products (but) his letter to you proves he is a be. liever in his (own) product and Pm sure if a fault is uncovered in his equipment he. as well as we, the consumer, would appreciate knowing about it.

Bruce Trent
Indian River City, Florida

I am writing this letter in regard to your editorial policy and philosophy, on behalf of myself and other modelers in my vicinity. You speak of testing the products and investigating the manufacturers of the products which you present in your magazine. If this is true. I do not think very highly of your policy. In your December Showcase you spoke about the new fibreglass models produced by R&L Model Specialties. Upon reading this, I ordered their models and sent cash with the order. Since then, they have cashed my check and I have received neither acknowledgement or merchandise. I have repeatedly written the firm but have received no answer. Are they still operating?

C. Paul Gourley, Jr.
Baltimore, Maryland

We have received numerous letters concerning R&L's "Candy" and "Stormer" kits. We checked with Dick Barnett of this firm and he is working nearly day and night to fill all individual and dealer orders on a first-in, first-served basis. Kits are being shipped as rapidly as possible, but 'they are considerably back ordered. II you have ordered from R&L, please be patient. We would, however, suggest to manufacturers dealing direct that upon receipt of an order and accompanying remittance from a firm or individual, that they make out a stand. ard invoice form, sending a copy of this form to the purchaser acknowledging receipt of their remittance and noting the approximate delivery date.

The Flintatones Hit Back

Recently, one of our leading model magazines presented an article entitled "The Flintstone Event," in which they gave, or seemed to give, the San Antonio area a black *eye.* The writer, Mr. Winters, may know a lot about what used to be good for RC in the old days, but what we need is progress. We consider this — progress — the most important thing in RC.

We feel that using .15's and .19's in 41" birds is progress. Learning how to trim one of these ships for contest performance takes some ability. Around the San Antonio area we HELP the new fellows to fly "hot" ships — what you call "hot." Maybe I *can* just tell you what we do fly and let you decide: Mambo, RO, pulse, Torp .35; Mambo, GC, Torp .35; Separator, RM, Veco .19 and Veco .35's; Falcon, GG, Veco .35; 18" Delta's, SN, TD .049, .051, and .09 (as far as we know these are the only deltas ever flown on an SN escapement); DX.7, Sampey 404, Veco .35. White Cloud, GC, Veco .35; Taurus, REMAT, Veco .45; Tend, REMAT, Veco .35. And then, through the efforts of Pete Petri of San Antonio, a Taurius has been developed — a low wing version of the Tauri. The wing is standard construction with 1" wide strips. The Taurus landing gear is used throughout. The stab is moved to the top, set 0°, as is the wing. This ship has been flown on proportional and reeds with equal success. When flown on Sampey 404, **a** Veco 45 was used with an increased rudder area. With this configuration, the bird weighed out at $5^3$4 lbs. The Taurius's smaller size makes it easier to get to and from the flying field — it is a beautiful flying bird.

This is the type of "Flintstone" that goes on in San Antonio, and, we hope, elsewhere as well!

Thomas J. Hollarn, Capt. USAF
Randolph AFB, Texas

Halt! You guys just haven't seen my Cus. tom Cavalier and Brown Jr. go through the *pattern. Great for combat ...*

The Little Guy

I am writing you this letter to tell you that I am more than excited with your magazine. At last I feel that there is finally a publication where I might have a chance to be heard, being one of the many 'unknowns that I feel are actually the back. bone of this hobby of ours.

I have written to the other "Brand X's", sometimes to just have a question answered, only to be completely ignored. This has given me the feeling that I just don't belong to the 'chosen few.' I wouldn't have probably minded being ignored half as much, but **I** even took the liberty of enclosing ,a stamped self-addressed envelope to further ease any problem that should arise. That was also a lost cause.

After reading your magazine, I found that in just one copy I get more out of same than a year's subcription of the others. Therefore, I have discontinued buying them. The above statement is in no way one that I have made just to elate your ego. You seem to be for the guy that doesn't have either the time or the money to attend all the contests, thereby loses his chance to become a 'name.' This, I like, and from the local scuttlebutt, so do quite a few of the other fellows.

I have a small hobby shop and cater to the fellows that I know are not in the class of the 'greats' in this hobby. Nevertheless, these fellows keep buying equipment, and if they can get a good flight, they are just as happy as the fellow that walks away with first prize at the Nat's. These men cannot, and should not, be constantly treated like a case of leprosy, which you must admit they have been until your (magazine) coming on the scene. I certainly hope in your approach to this field of journalism that you do not forget the 'little guy,' and that you continue to give honest reports on every manufacturer's equipment. We are also very interested in seeing what some other 'unknown' in another part of the country is doing in the phases of this hobby that interests him most. We know, only too well, what the 'names' are doing, as you can pick up any magazine, anytime, and always read your fill about them. It's like the old "Hit Parade" on radio — the 'spot's'

were different, but the song's were the same.

Like the song says, 'Stay as Sweet as You Are.' Good luck.

Frank J. Medaglia
Everett, Massachusetts

Fleet Plans

I am looking for a set of three-views for the Fleet models F-6 and F-106. I am hoping that (your readers) can help me. It would be greatly appreciated.

Gilbert Hortsman
613 Donny
Las Vegas, Nevada 89101

Hawaiian R/C Club

Congratulations on a fine publication — Jerry Cause's article (Q & A For Beginners, Jan. '64) is especially good. Fortunately, I received much the same advice when I started out in R/C two years ago. Since then, I have seen two others drop out because no one could convince them that a full-liouse, high performance multi was not the way to begin.

We have about ***25*** members in Hawaiian Radio Control Club with everything from single channel gliders to full-house multi's; pulse, reeds, and proportional multi all included. We've got a small, but enthusiastic "good-fun" club.

Bob Barnes
Kailua, Hawaii

S.O.S.

Please excuse this scrawled S.O.S., but some two weeks ago we suffered a disaster and lost our complete file of correspondence, catalogs, magazines, etc.... if any U.S. manufacturer has any spare catalog sheets, perhaps you could ask them to send a copy along — we've got to start everything from scratch again. Really enjoy reading The Modeler. The lads scale up all your plans and when the wind drops and the weather warms up, there are some exciting projects waiting for testing.

Malcolm Douglas
R/C Equipment & Accessories
19 Byron Drive, Rawcliffe Lane
York, ENGLAND

How about it, manufacturers... send a copy of your current catalog and data sheets to Malcom.

Who, us?

A few quotes from our membership: "When RCM arrives I have 4 solid hours of reading enjoyment". "The first 2 issues more than paid for my subscription." "Have you gotten your issue, yet? Boy, it's late!"

Anyway, we certainly feel you are doing a bang-up job.

Arnold Lipschutz, Secretary
Valley Forge Signal Seekers
Broomall, Penn.

Who, us? Late? Never.

Cleveland Model News

I have a set of seven copies of Cleveland Model News in mint condition. The insert plans have never been used and there is only slight browning of the edges, as they have all *been* kept in a heavy envelope. What are they worth, Would any RCM readers be interested?

Howard E. Norton
11105 Old Virginia Rd.,
Reno, Nevada

Construction

Features

Departments

RCM's "growing pains" necessitated a delay in releasing this issue while additional newsstand contracts were negotiated. Although the dates are combined on this issue, RCM is, and will always remain, a monthly publication. All subscriptions will be extended an additional month beyond their normal expiration date. We trust our readers will accept our apologies for any inconvenience this expansion program may have caused.

Cover: Mooney Mark 21 sparkles in the sun over Corpus Christi Bay. Photo by Chuck Wolfe.

R/C modeler

EDITOR'S Memo

D
Don Dewey

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There's something about biplanes that always seems to draw a crowd of spectators — perhaps a bit of nostalgia for the old days of aerial circuses, barnstorming, crop dusting, and flying under bridges. There's also something about bipes that occasionally make them almost impossible to trim out. Besides flight testing various pieces of gear, we sometimes sneak in a flight or three on one of our own ships. Such was the case this month with a Wildfire bipe. Equipped with an Elmic Commander escapement, Cox .049, and the new Kraft superhet single, yours truly was trying to bolster his ego after smashing a Schoolmaster, complete with Digitran system, into a concrete embankment. The little bipe had a glide that was reminiscent of free flight days — the power trim was something else, again!

The first flights with 8° downthrust, resulted in a screaming climb, followed by almost continuous loops. Attempts to correct resulted in more loops. First trim corrections were made to the stab, dropping the trailing edge 1/16" at a time, up to a maximum of 1/4", at which time the bipe was scalloping and looping even tighter than before. The next angle of attack was to raise the trailing edge of the top wing 1/16" at a time, again to a maximum of 1/4". This resulted in the same swooping effect. Downthrust was increased to 12° with no effect. If you figure this one out, let me know.

Before changing the subject of bipes — I notice from the many club papers we receive that there's still quite a number of Sterling Wizard bipes around. This has been a ship that seems, in most cases, extremely difficult to trim out for good flight characteristics. One Southern Californian, Tony Bononi, has flown several Wizards with phenomenal success. If you inherit one of these kits, here's the mod's to make: First off, don't try for ailerons — it's a waste. Use a good .35 mill with about 8° downthrust and 5° to the right. Decrease the incidence in the upper wing a bit at a time and decrease the sensitivity (throw) of the rudder-and elevator. Move the C.G. forward of that shown on the plans by 1/4"-1/2". Mount the main gear in the wing, using a Top Flite gear and Taurus type bracing, or if you prefer, use a Cessna type de Bolt dural gear just in front of the wing. If you use the wing mounted arrangement, spread the gear out to 19" tread to tread. And that, according to Tony, should make it fly properly. If you have a Wizard kit around collecting dust, give it a try ...

We're quite proud of the fact that Henry J. Nicholls, the international RC'er about town, has joined the staff of RCM. Henry J. will be doing our engine reviews — a subject on which *he* is quite an authority. No advance notice will be given as to what engine will be tested, and all will be from the counter of Henry J.'s own -hobby shop in London — not from the manufacturer. Three models of each engine tested will be run through the four-day tests and a comparison made as to their variance, one from the other, etc. The mills that he runs through the works will be domestic and foreign makes — those used by RC'ers — and as usual, no holds barred.

Maurice Franklin, one of our English contributing editors gave up the foggy homestead and is now working for Orbit in smoggy Southern California. Brother Geoff, still back in London town will take his place for news contributions from that country. Maurice mentions that since many multi fliers have been experiencing difficulty with the Merco 49 in the form of gudgeon pin and/or piston wear

EDITOR'S MEMO

Geoff Franklin, RCM's man in GB.

in the gudgeon holes, Denis Allen of Merco will supply free of charge a newly modified piston and liner for the .49 — just write D. J. Allen Engineering Ltd., 30 Angel Factory Colony, Edmonton, London N. 18, England. We suggest you make arrangements direct with Denis insofar as postage, etc. is concerned. By the by, deliver• of the new Marco 61 11./C complete with silencer, is scheduled for around May or June.

While we're doing the foreign bit, we received a note from Dave Skinner, our CE in New Zealand. Seems that RC may Ye a bit on the decline, there, due to an import duty of 45% and an additional sales tax of 25% on imported kits, etc.! Add 70% to the price of a full-house proportional, sometime, and sec what you come up with! Even though Dave's wrangling with the Minister of Customs, communication with the various modelers is still another problem. We *were* surprised to find out that New Zealand alone is larger than England and Wales put together, and yet has a population of only two and a half million! Australia is somewhat similar, with vast areas of empty wasteland. With the RC'ers spread out so far, and with hobby shops few and far between, communication is a serious problem.

"Happy Murray," our Canadian editor sent us a photo which we wish we could have printed... unfortunately, it's a somewhat faded color print that wouldn't reproduce in black and white, and pictures 'ol Bill with the wreckage of a beautiful VK Challenger and a scattered assortment of Digicon proportional gear. Seems that the pie, entitled "Unexplained Phenomenon #4857" was taken after his proportional rig quit in mid-air. Who see you crash smoother with proportional?

While on the subject of proportional, I'd like to reprint a few notes by Bob Bates, which appeared in the Clanking Armor, publication of the Lincoln Sky Knights. Entitled, "The State Of The Art — 1964" or, "To Win A Large Contest, First Find $1000," it goes something like this:

"Remember when a contest could be won with equipment costing 8100 and many times much less? That's just what it is — a memory. The state of the art is such that multi proportional is required in order to win most of today's contests. A good man with reeds can compete against proportional, you say? Sure... if the proportional flyer is only a fair flyer and the reed man is way above average. A winning contest flier **I** talked with recently, stated that proportional will make a good flier out of a fair reed man, or add 10-15% to the good reed man's score. This can mean quite a lot, as there is often less. than15% difference between the first three at large contests.

Of course it won't be so bad this year, as most manufacturers are not delivering proportionals yet and probably won't until next fall. The reason for this seems not to be the lack of a product to put on the market as much as it is in finding time to make them. Most proportional manufacturers also make reed equipment and have all the orders they can fill in this line. Apparently the profit is not great enough to warrant adding more production staff to turn out the proportionals.

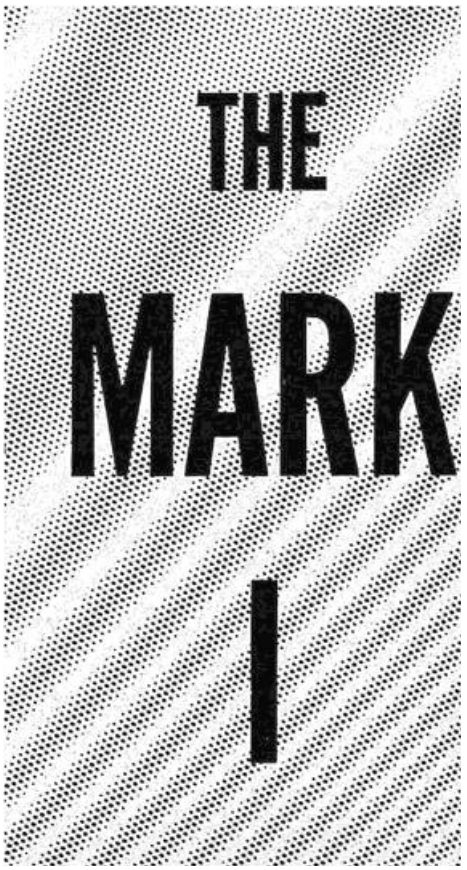
Very little profit in equipment that costs $599.95? Sounds crazy! But then, look at the equipment. A leading unit of the digital type, to retail for $599.95, has 27 transistors in the transmitter, and 34 transistors plus 36 diodes in the receiver, plus 7 transistors *in* each servo. That's a grand total of 89 transistors in one complete outfit, many of which have to be hand picked. Add to this the cost of nicad packs for the transmitter, *receiver,* and servos, plus a charger to charge all three. Put it all together, align and adjust, check out, and you may start thinking about charging $699.95 next fall!

Need these outfits be so complicated, and therefore so costly? It seems so. The leading equipment manufacturers have built up their good names on the quality of their reed equipment, and they are not going to cut corners now and risk that name.

Are good quality, commercially made dual-proportional systems coming? Will they be priced comparable to reeds? I certainly hope so. There are good single-proportional systems on the market for a reasonable price, why not dual?

Until then, how about ideas on a single channel, no-holds-barred event. With the advanced state of the art, maybe the old intermediate class could stand reviving. **Not** to replace any present class but as a new class for those who want to start small and advance by using their ingenuity instead of their pocket books."

'Nuff said. Since the sun is still shining, I'm going back out to the field with my superhet single and Varicomp — see you next month.



The Mark I was specifically designed to take advantage of the 1963 AMA rule change allowing the use of multi-channel or proportional radio systems in Class I.

Prior to this change in rules, you will recall the rudder only model as a small craft of 300 to 400 square inches of wing area, powered by a .15 to .19 cubic inch engine, a single channel super-regen radio system linked to a compound escapement providing only limited power to move the rudder surface. All of this added up to quite a package to keep flying during the demanding contest season!

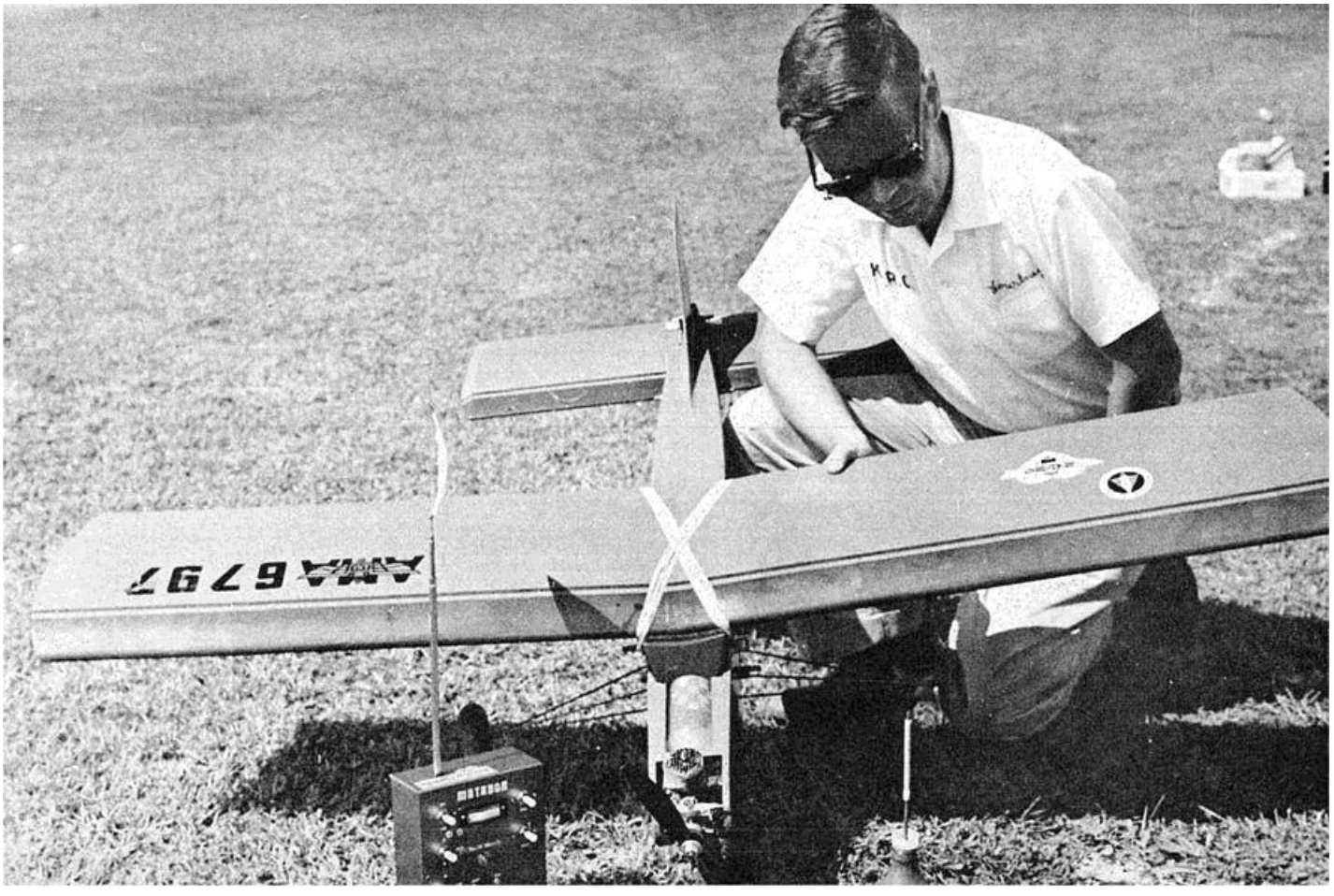
In the fall of 1962, when the current rules were still in the proposal stage, decided to work out a basic design configuration that I would use if the new rules did materialize. Here are the features I wanted for the approaching t 19631 contest season:

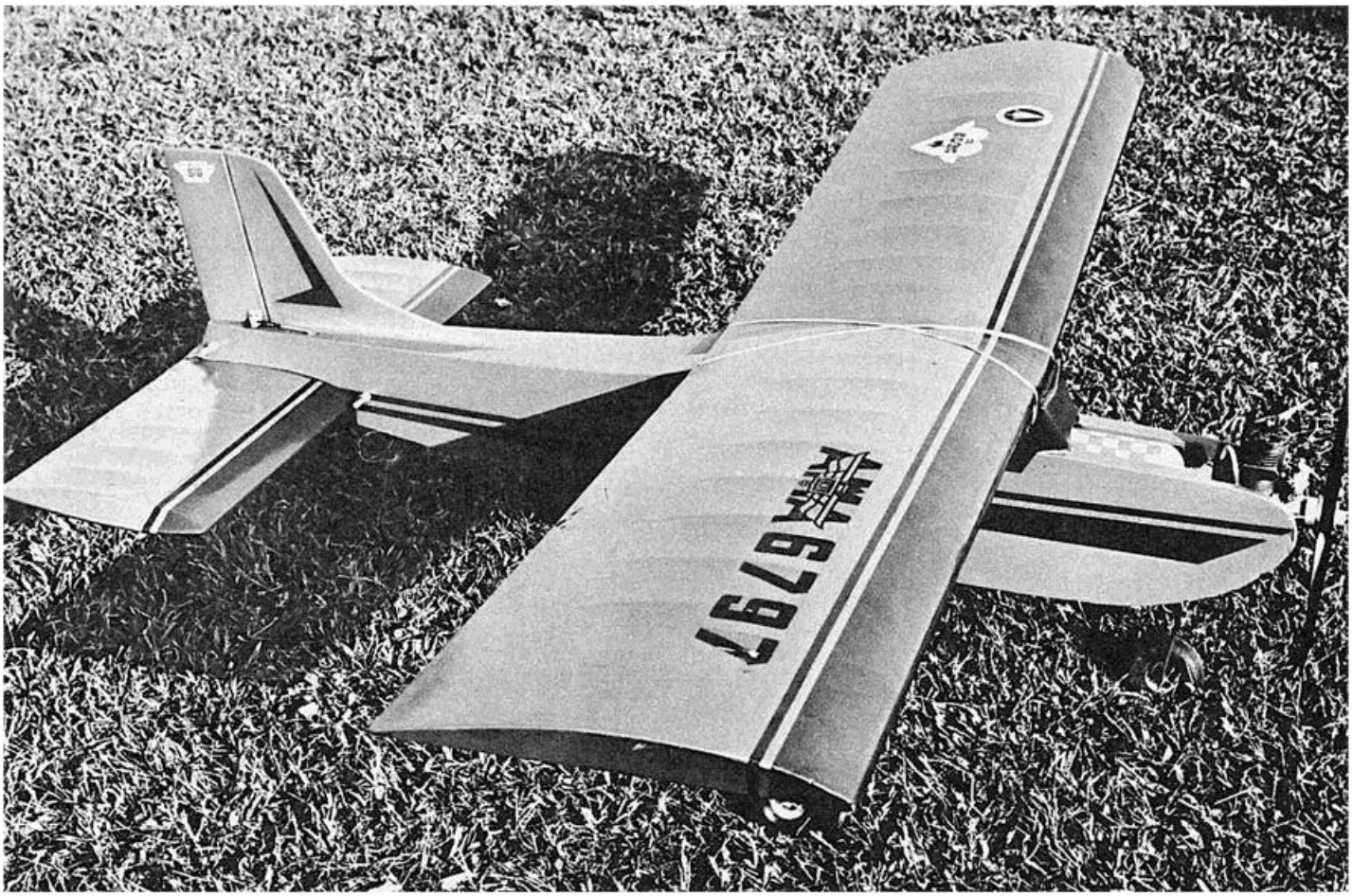
1. A craft strong enough to utilize the .45•.49 cubic inch engines being used so effectively by Class 3 flyers. With this size engine one can expect a dependable low idle with the power at full throttle that's so important in Class I competition.
2. A design large enough to accommodate the heavier engine and radio equipment, while at the same time maintaining the proper wing loading.
3. Good ground handling characteristics.
4. A plane with all the above, plus the ability to perform well acrobatically and penetrate our strong midwestern winds, ever present at contests. Our final aim was a design that would be easy to build, with a pleasing semi-scale appearance and finally to be strong and able to take the rough treatment and flying mistakes that sometimes grounds other planes.

The design was completed during November of 1962 and test flown during the winter months that followed. The Mark I exceeded all my hopes during these innumerable test flights.

The use of up-thrust in the engine has really proved to be a big help in Class I flying. With a .45 engine, the Mark I will pull into loops and other similar maneuvers without the usual spiral dive to gain the zoom speed, and yet at a fast idle the Mark I will penetrate a small gale. During the touch and go and landing maneuvers, a tap of engine speed just before touch down will bring up the nose

Top Rudder Only Design For Total Contest





Perfomance

by Courtney Smith

and flare out the approach for a nice landing. The up-thrust is used exactly like an elevator — low engine down, high engine up. This feature certainly gives the flyer a nice. feeling to have the effect of an elevator in Class I.

You will notice the placement of the main gear is exactly under the model's CG. I have found that this set up makes ground steering and take off corrections much easier. The model will steer, even with the fixed position nose wheel, since the nose wheel is actually bouncing with very little weight on this wheel. On take off, the Mark I will respond very *nicely* to rudder corrections with this gear set up. A small drag brake on the nose wheel fills the bill on the full stop required for Proto Taxi. The wide track main gear helps keep the plane on its wheels during the taxi maneuvers and also is a big help on the landings in gusty winds.

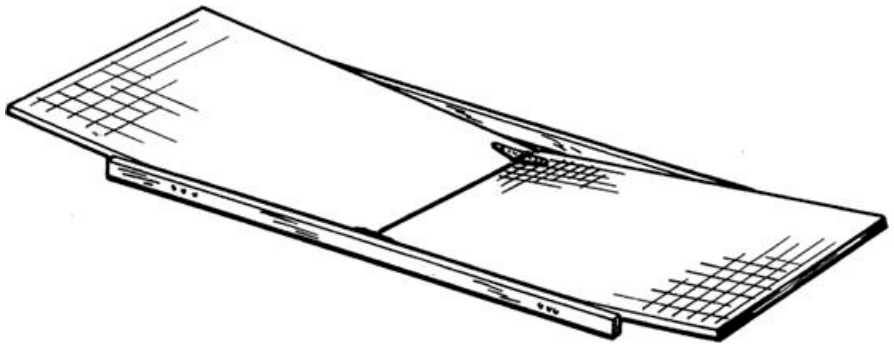
With the large rudder area on the Mark I when you need a lot of action for spins, rolls, etc. you have it, however for gentle pattern turns a pulsing command is a must. The Mark I will stay in a shallow turn once the turn is started and a short beep of opposite rudder will straighten it out. True spins are easy to perform, but must he started under full power from a complete stall. Our spin record to date is 104 turns with *the* Mark I set at the 1963 Omahawks contest after official flying had stopped for the day.

Several of my fellow KC/RC members have built the Mark I design and have had real success with the plane both in -contest work and general sport flying. Last year the Mark I placed first in ten contests with many seconds and thirds. Some of the places were by fellows flying rudder for the first contest season.

I think your first flying day with your Mark I will prove to you that Class I flying has a lot to offer for all builders and is a, real challenge for the competitive flyer.

I have had a lot of help in developing this design, mostly in ideas from my fellow KC/RC members and many contest flyers from the mid west. My thanks to all of them.

I'm sure you'll agree that Class I flying has really changed in the past season.



Fast, easy to build, and versatile wing jig is the key to true construction, per. feet alignment. Details included in article.

is noted on the plans. I have used this method for some time and it definitely cuts building time to a minimum and always produces the true wing so important in RC work. Carl *uses a* 6'6" x 1'6" hollow core house door, which usually can be purchased from a damaged freight dealer for under $5.00. Saw the door in half and, using two strap hinges, set the dihedral angle. Brace with 1x4 strips to hold the angle. This jig will set flat on your work bench and can be moved to other areas in your shop while the glue is drying. Most of the fellows rule the surface of the jig with a ball point pen with 3" grids since most wing rib spacing are 3" or can be modified to 3" spacing.

I make the wing first since this seems to move the fastest in construction and also can be put aside to age while the other major parts are under construction. After cutting out the required number of wing ribs from 3/32" firm stock, pin down the bottom 1.e. and t.e. sheeting, the bottom center section sheeting, the bottom spruce spar and the 1/2" x %" leading edge (straight stock here to avoid warps). The bottom cap strips are glued into place to complete the bottom surface of the wing. Now add the wing ribs and the dihedral braces. These braces are made of 3/32" plywood. The area between the spars in the center section is filled with hard 1/2" sheet cut to fit. Also a 3/32" plywood dihedral brace is doubled across the I.e. section. Now the top spruce spar is glued into place along with the top t.e. sheeting, the top I.e. sheeting and the top cap strips. Complete the top center section sheeting and the sheeting on each wing tip. Be sure to extend the tip sheeting past the last wing rib so the tips can be completed after the wing is lifted off the jig. Complete the tip by gluing the 1/3" tip plate in place (a tip block could be used here, but I find a built up tip is easier and takes less time to complete).

The stab can be built on one panel of the wing jig. Block up the I.e. and t.e. the necessary amount and add ribs and all sheeting. Again select firm straight stock to prevent warps. The rudder and fin arc cut from 3/16" stock. Using the new plastic hinges on the rudder has proved to be a real improvement over the old type sewn hinge — both in appearance and freedom of action. The .020 thickness seems to work best for this size of rudder area. Notice the fuse top is cut to accept the fin. The fin extends through the fuse and is braced inside the fuselage. This method prevents breaking the fin off the fuselage in case of flipping the model on its back.

Fuselage sides are cut from Ye x 6 x 48 hard balsa and should be cut as a pair to avoid misalignment. Glue in the doublers, motor mounts, and drill all the dowel holes. Add formers F•2 and F•3, and when dry, pull in the nose section and add F4. Then pull in the tail section and complete the top and bottom sheeting with 3/32" stock.

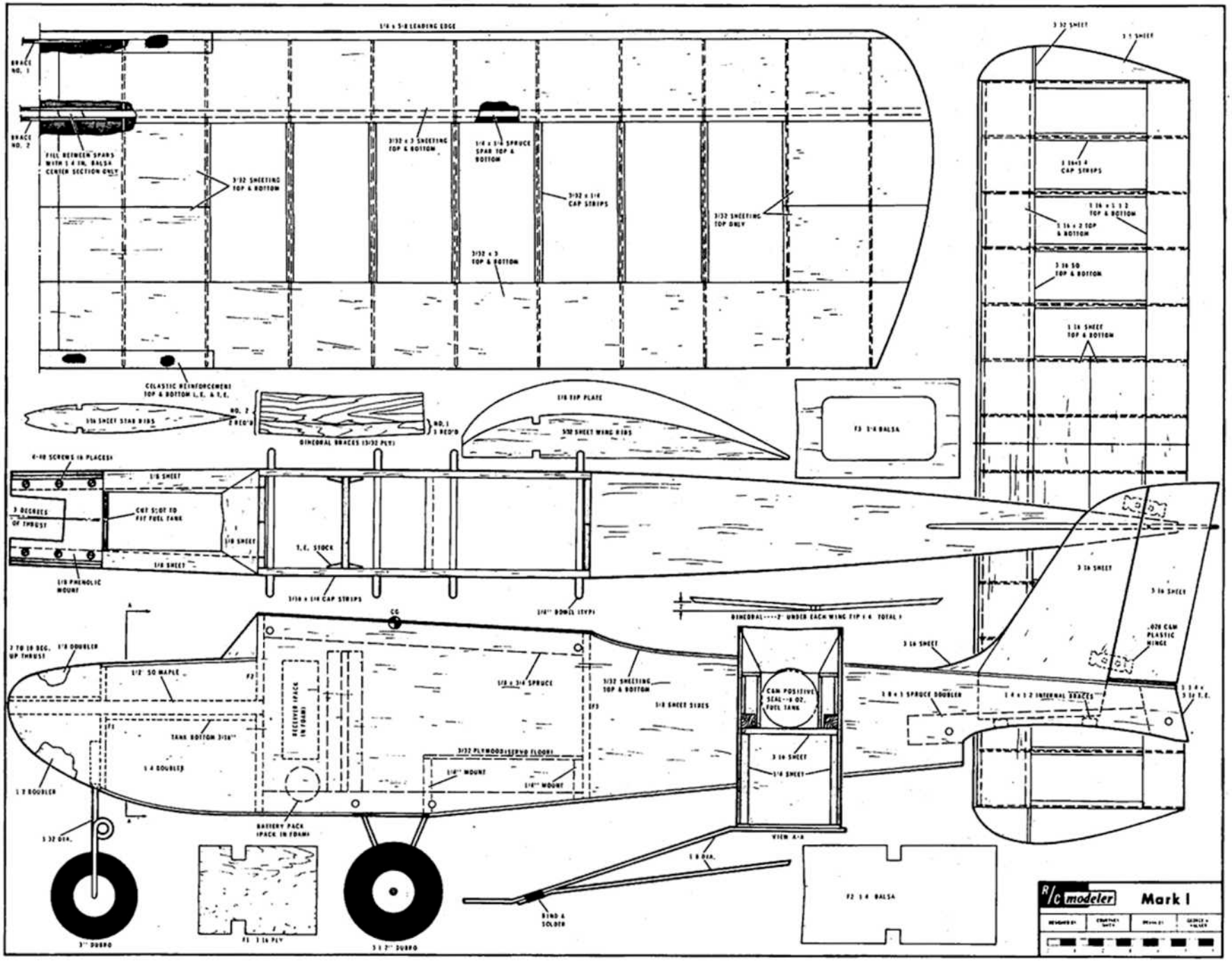
We used silk on the wing and stab and gas model silkspan on the fuse and rudder. Three coats of clear dope and two coats of colored dope complete the job.

Our Mark I uses a Veco .45 for power, using a 11" x 6" prop, a 6 oz. C&M clunk tank, F&M Midas•Matador radio equipment. The weight ready to fly is 61/2 lbs.

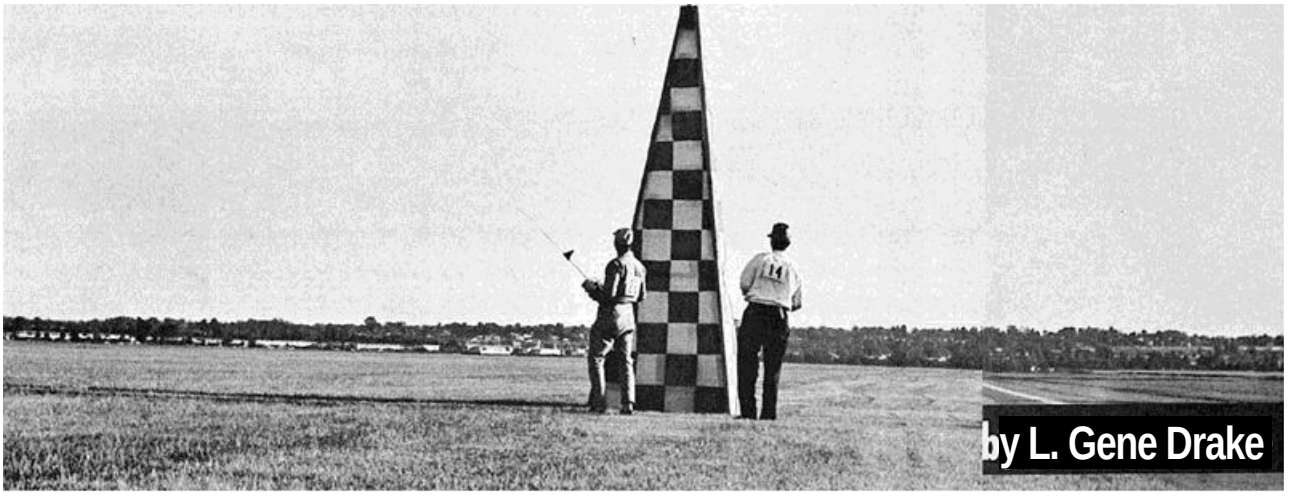
I have had a great deal of pleasure developing this design and real satisfaction seeing other fliers have good luck with the Mark I. Best of luck to you when you fly yours.

With the amazing array of trophies behind it, the Mark I may be top Class I contender at the 1964 Nationals.

The Mark I, one of the finest, all-time Class I designs, and a top competitor under the new rules.


1/4 x 5/8 LEADING EDGE
BRACE NO. 1
BRACE NO. 2
FILL BETWEEN SPARS WITH 1/4 IN. BALSA CENTER SECTION ONLY
3/32 SHEETING TOP & BOTTOM
3/32 x 3 SHEETING TOP & BOTTOM
1/4 x 3/4 SPRUCE SPAR TOP & BOTTOM
3/32 x 1/4 CAP STRIPS
3/32 SHEETING TOP ONLY
3/32 x 3 TOP & BOTTOM
3/32 SHEET
3 1/2 SHEET
3 3/4x3/4 CAP STRIPS
3/16 x 1 1/2 TOP & BOTTOM
1 1/4 x 2 TOP & BOTTOM
3/16 SQ TOP & BOTTOM
1/4 SHEET TOP & BOTTOM
COLASTIC REINFORCEMENT TOP & BOTTOM L.E. & T.E.
1/16 SHEET STAB RIBS
NO. 2 2 REQ'D
DIHEDRAL BRACES (3/32 PLY)
NO. 1 2 REQ'D
1/8 TOP PLATE
3/32 SHEET WING RIBS
F3 1/4 BALSA
4-40 SCREWS (6 PLACES)
3 DEGREES OF THRUST
1/8 SHEET
CUT SLOT TO FIT FUEL TANK
1/8 SHEET
1/8 SHEET
T.E. STOCK
1/8 PHENOLIC MOUNT
3/16 x 1/4 CAP STRIPS
1/4" DOWEL (TYP.)
DIHEDRAL----2" UNDER EACH WING TIP (4 TOTAL)
3/16 SHEET
3/16 SHEET
.020 CAM PLASTIC HINGE
2 TO 10 DEG. UP THRUST
1/8 DOUBLER
1/2 SQ MAPLE
F2
1/4 x 3/4 SPRUCE
3/32 SHEETING TOP & BOTTOM
1/8 SHEET SIDES
CAM POSITIVE SEAL--16 OZ. FUEL TANK
3/8 x 3 SPRUCE DOUBLER
1/4 x 3/2 INTERNAL BRACES
3/8 x 3/4 T.E.
3/16 SHEET
1/16 SHEET
TANK BOTTOM 3/16"
1/4 DOUBLER
1/2 DOUBLER
RECEIVER (PACK IN FOAM)
3/32 PLYWOOD SERVO FLOOR
1/4" MOUNT
1/4" MOUNT
3/32 DIA.
BATTERY PACK (PACK IN FOAM)
VIEW A-A
1/8 DIA.
BEND & SOLDER
F2 1/4 BALSA
F1 3/16 PLY
3" DUBRO
3 1/2" DUBRO
R/C modeler
Mark I

The Man, The Plane ...and The Challenge



by L. Gene Drake

Many "how-to" articles have been written for the beginner, the amateur, and the expert. All of these articles have been aimed toward helping the individual in understanding the build. ing, installation of equipment, and fly. ing of radio controlled model aircraft. After becoming enthused over this hobby, the Man and The Plane find their way to a contest ... and meet The Challenge.

From the local club contest to the supreme challenge, the World Championships, come people of all sizes, shapes, and ages to prove their skill — the man, his plane, and his pride meeting the challenge to pit his abilities against those of others. Everyone is equal. There are no handicaps given. Many go just to enjoy the fun and the festivities, thus becoming a part of this feeling of competition. It's a great feeling just to be able to join and talk with others who feel equally enthused about the hobby. This all sounds very gay and exciting, but ...

... just how enjoyable was the last contest you attended? How about the one before that or even before that? Was there that feeling of excitement in the air? Or was there just confusion and discontent? With all of the development in aircraft and equipment — from the relayless single channel to the super-proportional — from the simple flea-powered model to the finely tuned bomb — clear to the incessant complaints about the rules — why aren't there more frequent and better organized contests? Why does this problem of contest attendance exist? No one seems to know the exact answer, but most all will agree that there is a problem. — and for all problems there surely. is some kind of answer.

It is my feeling that a part of this problem exists because quite often the ones running, or attempting to run, a contest are the very ones who don't feel they are skilled enough to enter competition themselves. They are the individuals who give their time so the good pilots can become even more proficient. And yet, this in itself, illustrates a flaw — how can the inexperienced be expected to know the demands of the experienced contest flier? To add to this problem, these demands are ever increasing. We won't guarantee that from now on all contest will be the picture of perfect harmony simply because you read this article. How. ever, we do feel that you can be assured of better contests if all lend a hand and help each other organize, run, and standardize the AMA sanctioned contest, and by following a few simple -Do's and Don'ts. By standardizing, I mean that all contests should be similar in structure, so that the contestants doesn't have to spend half the day just trying to figure out what is going on!

Normally, contests are given, or spon. sored, by RC clubs or affiliated organizations, so we will consider that if you are involved in a contest, then you also fall in one of the aforementioned categories.

Rule 1: Don't play the hero part, i.e., don't try to do it all by yourself. It isn't worth all the work and sweat. As much as the truth may hurt, you — by yourself — cannot properly organize a well-run Open contest. If you arc in a position to recruit help, volunteer the whole club if possible. This is one case where too many hands in the pot doesn't necessarily spoil the broth. Notice, I said it doesn't necessarily spoil it, but choose your commune chairmen carefully.

Up until now, I've considered you as an individual, but let us consider you as one of a group. There are certain steps that even a group should follow. The main thing is (and I can't emphasize this too strongly)

— **you must be organized**. Remember —your contest will be a direct reflection upon your group. Organization is the key to most of the problems. In the organization of the dub or group, committees should have a person for their chairman that knows, or is familiar with, the type of work his committee will be doing. The responsibility for choosing this chairman is up to the Contest Director.

Speaking of CD's, the larger the contest, the more important it is for you to stay out of the committees. Use your chairmen much as a manager uses his foremen. Your block of command should look something like Fig. 1.

Once the committees arc established, hold frequent meetings of the chairmen, since what one committee does may well effect another. Just what committees you may need is hard to determine here since each contest is different. Another deciding factor is the number of personnel available. The following is a suggested list, but should be increased or decreased in order to satisfy the needs or limits of the club.

A. Publicity
B. Properties
C. Prizes
D. Judges
E. Administration

This is a list of the important phases of a well-run contest — a breakdown of this list would go something like this:

A. Publicity:

This should be run by a person that is either familiar with this line, or who knows the right people. In either case, this person, -or persons, should have the initiative (as in all the committees) to go ahead on his own without continual prompting. The Con. test Director(s) have enough to do without holding the hands of his chairmen. The word publicity almost speaks of itself, and includes the press, radio, T.V., and guest appearances. Be sure not to overlook one of your biggest assets — the city fathers. With these gentlemen on your side, it will make your job easier, especially with the press. One word of caution, however **—don't go to busy people without facts and figures plus an outline of your aims. Don't** waste their time with meaningless babble — it won't get you much publicity, and it certainly won't help your cause. Of course, don't forget pamphlets to all the local hobby shops. Try to get all the publicity you need, but don't **over** publicize a small contest. 'Nuff said.

B. Properties

These items are important, so don't slight the people on this committee. There are the contestant areas, spectator areas, monitors (if possible), tents, tables, chairs, ropes, stakes (for setting up the fields and pits etc.), vendors, parking for contestants and spectators, etc. This committee is responsible for seeing that the field is set up before the contest, maintenance during the contest, and cleaned up again after the con. test. This is, normally, a cut and dried process and is usually handled well. However, there are two things that a lot of clubs, electronic rental agencies, and your ment sources possible, including other local clubs, electronic rental agencies, and your own local electronic whizzes. Some contests seem to seriously lack the necessary equipment that is so very important to a well-run meet. Uumber Two is Spectators versus Contestants. This is not an AMA event, so try and keep the spectators up to about 600 feet from the flying circle, but within 100 feet of the pits!

C. Prizes

The most important thing that can be said about prizes is to make them worth going after. Righ here and now a word of advice — **don't** give useless items as prizes, such as giving an escapement to a Multi winner, or brakes to a single channel winner! As for trophies, spend as much as the size of your contest will allow. Everyone likes to be able to display a beautiful trophy on the shelf. A good rule on trophies is to emphasize quality rather than size. As an example, the Wright Brothers Memorial held in Dayton last year had several trophies valued at over $100 each. However, don't bit local hobby dealers up for big prizes for small contests. Most dealers and hobby shop owners will cooperate if they are dealt with in a businesslike and respectable manner. Take what they offer and advertise them as sponsors. You will find it makes your job, as well as his, a lot better: Remember, too, that potential contestants may shop there!

D. Judges

The best individuals for this position are those who are bipartisan. You would be surprised at those who are willing to help those who are involved in Boy Scout work, community projects and affairs, or perhaps the Junior Chamber of Commerce. You never can tell. You might even advertise at the hobby shops for just plain "Joes" for judges. Include in your ad that there will be a training session for all judges. Regardless of where you acquire them, they **must** have an adequate training session, even if they are members of your own club. It's important that all judges qualify the maneuvers with similar scores. This training should be reasonable close to the contest date. Through the use \ of trial flights and an advisory instructor, each judge will know what is expected of him. This way you will have an evenly judged contest which greatly adds to the popularity of the overall meet. If this is to be an Annual event, popularity is very important.

E. Administration

This is, possibly, the most important of all, since this is what the contestant sees. This one factor can make or break your contest. This will, too, take the wholehearted cooperation of everybody concerned, **but —** the whole administrative effort must be controlled by **only one man.** Too many hands in **this pot will** ruin it! This takes the greatest of precautions, for one must be able to make all necessary adjustments for proper handling of any situation that might (and definitely will) arise. This means that a very flexible, but thorough, plan must be developed for the organization and management of a first class contest.

First of all, break this thing up into the different groups that must be taken into consideration:

I. Program
   a. What type, or types, of competition?
   b. The schedule for these competitions.
p. Flight line, or lines.
   a. Frequencies
   b. Number of flight lines
   c. Maintaining scheduled flights
3. Miscellaneous aids to the contestants

In the order of its listing, what would be involved in each? None of these categories arc difficult as they might look, but each does deserve due consideration. It is to these areas that most contest failures can be attributed. All the ads, the prizes, etc., cannot make an enjoyable affair out of a poorly administered meet. In order to aid you in your efforts, the following can be used as a guide:

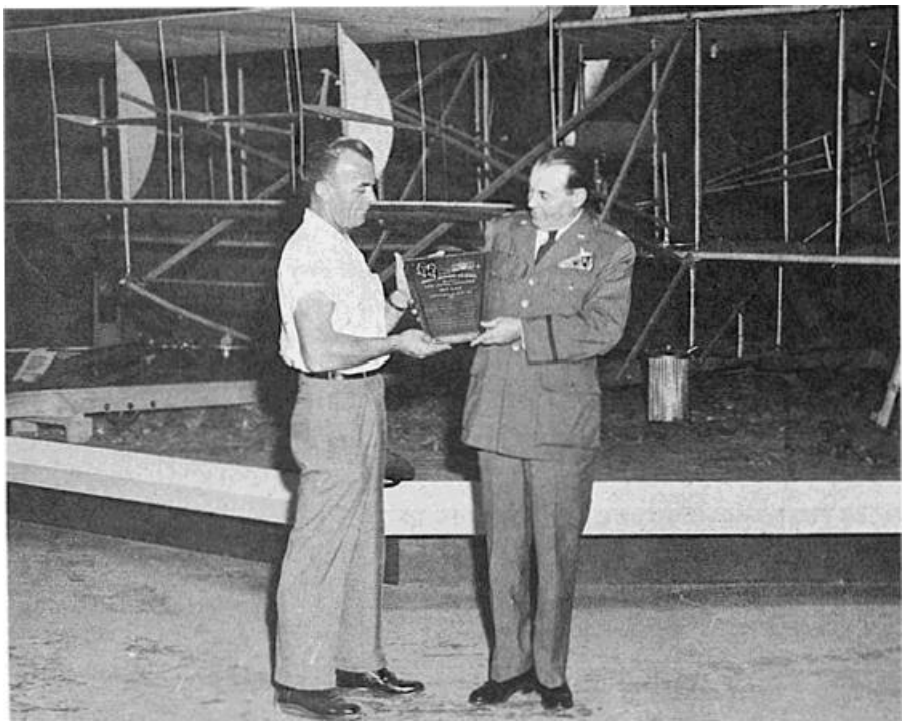
Programming

This may, or may not, be as easy as it sounds, depending upon what you are planning. Even if it's a standard Class **I, II, III,** Scale and Pylon type of contest, you still have some planning to do. Remember the spectators and donors who deserve consideration. Try to make the contest as close to an air show as possible. For example, pylon racing is an excellent crowd pleases, so try to schedule this event during the mid-afternoon when the biggest crowds are in attendance. The same goes for Scale. Something I, personally, would like to *see* put in more active use are the deviations from the usual above-mentioned classes. The events that might prove to be the most thrilling of all would he team precision flying (formation flying), with teams of from two to five planes each. Perhaps the contest could run the precision pattern including Proto Taxi and Touch-and-Go. Then, possibly, one or two predetermined maneuvers could be executed. The total points multiplied by the number of planes performing might he one of determining the winning team. In addition, other events such as Navy Carrier, Open Pylon (no restriction), Bombing, and Limbo, could be added, to mention just a few. There is one word of caution, however — he sure to pre-announce these events' including all rules and requirements as per AMA specifications. That should give something to think about while laying out the contest program.

Flight Lines

This is probably the most hectic part of the whole contest. This is the part that will be continually changing during the entire program schedule. We've all seen contests where only one flight line created an utter state of confusion, and yet, at the Wright Brothers Memorial Contest last year. there were three flight lines going most of the time with no confusion at all. This can be attributed entirely to the efficient way in which the administration was handled.

The most difficult facet of operating the flight lines is keeping track of who's to go where, when, and why. One key point at the Wright Brothers meet was the registration forms. These forms were really small manila envelopes (Photo 1) that had the registration requirements printed on the front. The score cards (Photo 2) just happened to fit in the envelopes. The only other thing needed was a container for these forms. A box with pigeon holes, minus pigeons, was utilized. Now, how to put these materials to work. Let's consider this as the start of Round One using one flight



First place radio control championship trophy from last year's Wright Brothers Memorial Contest. Placed in the Air Face Museum.

Class I Nat's Champion Bernie Williams — the man and the plane prepare to meet the challenge.

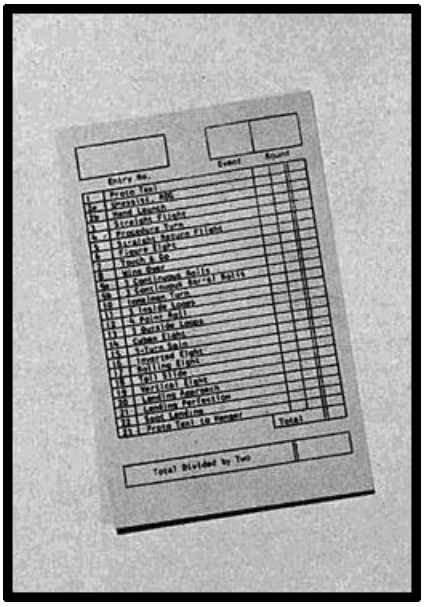
line. Place a blank score card half way into the contestants envelopes (Photo 3). This score card, protruding half way out of the envelope, and in the present round pigeon hole, identifies those contestants who have not yet flown in this round. Now call the first three contestants out. Pull their score cards out of the envelope (leaving the envelopes in place) when they report in. Give them their score cards and request that they report to the flight line pit. The Pit Chief collects the score cards, hands the first one to the judges assistant (someone to write down the scores), and you're off and running. When several pilots have finished, send a runner to pick up the score cards from the judges assistant. The cards are then totaled. This total is recorded on the front of the envelopes and the card is inserted all the way into the envelopes. The envelopes are then placed in the "next round" slot. By this method, you can tell at **a** glance who hasn't flown yet, who is in the pits, and who has com• pleted the round.

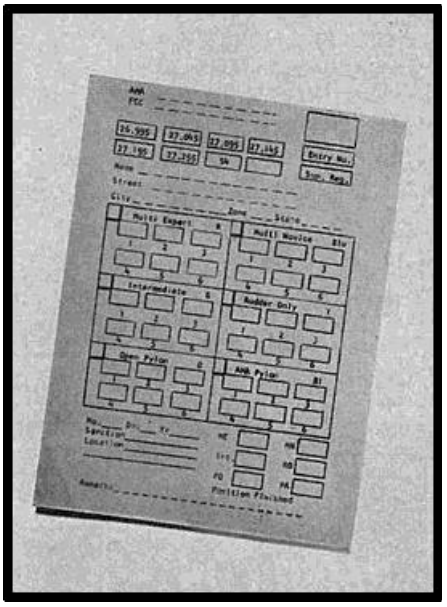
Simple? Surely, and it ***has*** additional merits to recommend its usage. In order to expand to more flight lines, simply add more pigeon holes, sorting the contestants by frequencies. In this fashion, and if you are planning on utilizing more than one flight line, it is a great advantage to have field phones if you can acquire them. (Have one of your electronic boys build you an intercom.) It is very necessary for the Pit Chief to check and see that all contestants are there when they are supposed to be. The contestant numbers should be in order. That is to say, if the Pit Chief has numbers 9 and 10, then contestants 9 and 10 should also be there, unless there is **a** prior notice of cancellation. In this way, no one gets out of order and the individual contestant has **a** reasonable idea of when he will be next "up." This, I understand, was a real sore spot at the '63 Nat's.

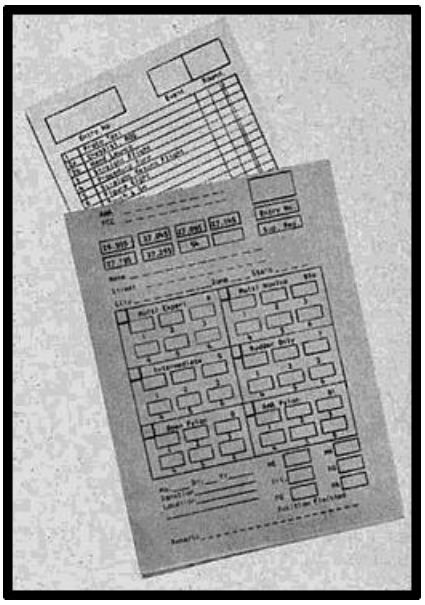
From this point, you arc on your own. Contestant aids weren't mentioned because this would be so varied and would depend on too many variable (actors. The best rule of thumb to follow is just to say, "Make your contest as pleasant and enjoyable as possible!'

These have been a few common sore sprits and a few fundamentals that I hope will help in promoting better and more consistently organized contests. Our thanks go to the WORKS Club of Dayton, Ohio, for the photographs and help on this article. These arc the gentlemen who put on one of the finest contests I've ever seen — the Wright Brothers Annual Memorial. If you can, be sure to attend the one to be held June 27.28. 1964. at Wright Field, Dayton, Ohio. Prizes galore and four flight lines for superhet and six meters only.

Best of luck to you on your next con. test. Make it a good one.







Three simple steps in a well formulated program for contest organization.

DOUBLE FEATURE

First completely successful rudder-only twin engine design

In the constant search for something new and exciting in RC, *several twin* engine designs have appeared. There's a real thrill to the *sound of two engines* as the model zooms through the sky, but when one of the engines quits, unless the pilot is really on the ball, the results are usually disastrous. This is particularly true if the model is a single channel job with no motor control.

There are several ways to solve this problem, all of which will be discussed in a forthcoming article. For example, the simplest way is to design a model with tamdem engines on the center line. This isn't quite as challenging or exciting, though, as the more common placement of engines on either side.

Then, too, you can always take the chance that your system—whether it involves a common fuel supply, or topping off both tanks just before launch — will make both engines quit at the *same* lime. This will be *true most of* the *time, but there* will *always be that one occasion when you goof on* the *needle valves, or* a piece of dirt gets in one fuel line, and your luck subsequently runs out.

So, the thing to do is to make sure that if one engine quits for any reason, the airplane is still fully controllable. The easiest way to do this is to have the thrust of each engine directly through the center of gravity, or at least, nearly so. This is pretty hard to do with the engines *mounted on the wing — although you can* come fairly close by using small diameter props, mounting the engines close to the fuselage, and toeing the engines outward. This toe out angle is large, however, and the overall appearance of the model suffers accordingly,

And *that is why* the Double Feature was designed. I took a leaf out of the Lockheed jetstar design, mounted the engines aft of the wing, then cocked them in so the thrust line of each engine goes very nearly through the Center of Gravity. The angle is not so large as to be unsightly, yet single engine flight is very easy to control lust by the simple escapement method — like most single channel sport fliers use. Obviously, if you were to use a proportional rig like the Septalette actuator and a C&S or Otarion "double ended" receiver, your single engine control *would* be *even simpler.* And, *a larger version with multi-channel* equipment would be just about as easy to By *as any single engine design.*

For you single channel enthusiasts, then, here is the Double Feature:

Fuselage

This is *about as simple as you can get. 1/16" sheet sides with 3/4" square* longerons and vertical bracing makes it a very rugged structure, yet by rounding the corners the result is a very pleasing fuselage line.

Up forward, *where* the *fuselage line curves, two types of side reinforcement* are possible. I used the old trick of softening the 34" square longerons by soaking them in water and then curving them to fit the fuselage line. Then you pin and glue them in place until dry. If you prefer, you can cut *out 1/4" flat stock material to* fit curve.

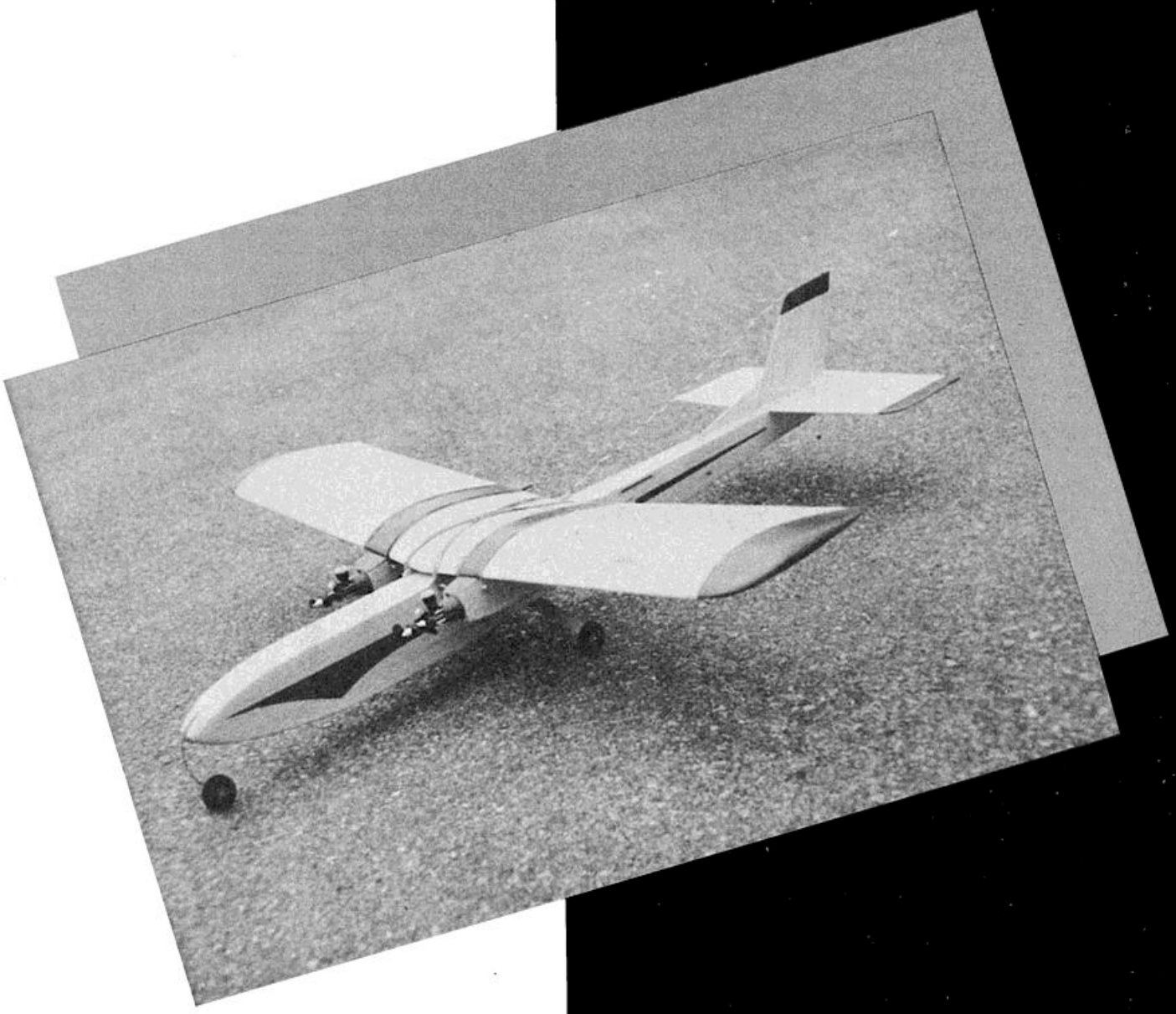
The other bracing *of 1/4" material* at the *nose makes a strong backing* for *the noseblock..*

Mounting the 1/8" plywood motor mount crosspiece involves a 1/8" notch in the longerons and the additional brace below it for strength.

If you prefer a tractor type installation, it can be done by installing the engine mount further to the rear.

Another method would be to make a removeable plate of 1/8" plywood on which you *could install any one of several* "power packs" as shown in the design variations. *Then you could* change the *power* system at *will.*

I think you'll find that the fuselage goes together very easily just by following the plans. Some of the detail in the mounting structure for the escapement will have to be modified if you use an escapement other than the Babcock, or if you install a proportional actuator. However, with the 1/16" plywood hatch arrangement, it's easy to set up any type of bracing required. I like the system of using a slotted crosspiece glued to the bottom, so the Babcock escapement backplate slides down into the slot, and the top is screwed to the basswood block *at the* top. This *also* makes it *easier to* install the torque *zeds, which* are standard 3/16" square balsa with .040 wire ends bound and glued in place.



by

KEN WILLARD

Wing

The wing is a standard Top Flite Schoolmaster wing, with the dihedral increased to 7° in each panel. The big fin of the Double Feature makes it necessary to have more dihedral than the Schoolmaster. You can use less, particularly if you install proportional control, but the 7° gives excellent stability, and looks good as well.

Tail Surfaces

Use *1/8"* medium stock, cut to shape. It is desirable to keep the tail surfaces fairly light for reasons of balance.

Landing Gear

Main gear is a standard deBolt aluminum gear, screwed on the hardwood mounting plate. You'll have to widen the tread by decreasing the angle of the bend.

The nose gear is the same as I used on the Virus model. It worked so well there that I've stayed with it. Use 3/32" wire since the Double Feature is a little heavier than the Virus. You'll have to open up the curve just a little when you're sliding the wire in place through the noseblock.

Radio Installation

Admittedly, things are a little tight up in the equipment department, but you have to keep the weights well forward to counter balance the weight of the rear-mounted engines. But, there's enough room for any of the small receivers and two E91 cells, or even four in series-parallel, if you need the weight. Potted nicads will also fit.

Finishing

This is a matter of choice, and since this is not a "beginner" type article, I won't go into finishing techniques. On my model I used Hobby Poxy — two coats is all, with a sanding job in between. If you want a glassy finish, a coat of the filler between the two coats of Hobby Poxy will do it.

Flying

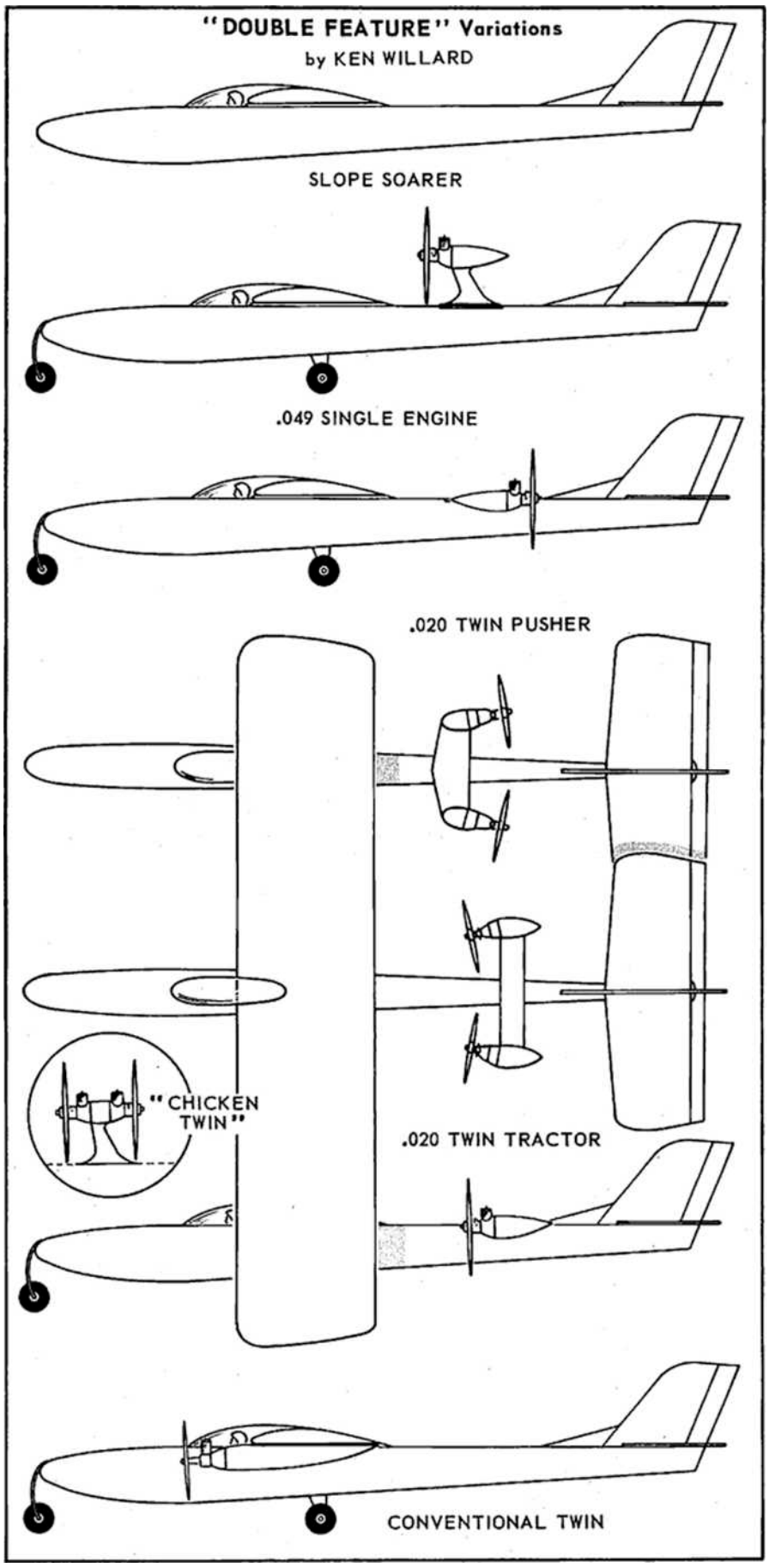
There are a couple of tricks worth copying here, so you can get acquainted with your Double Feature. I'm not going into the standard bit about test gliding and adjusting. You've read that before — these are what you might call "twin tricks."

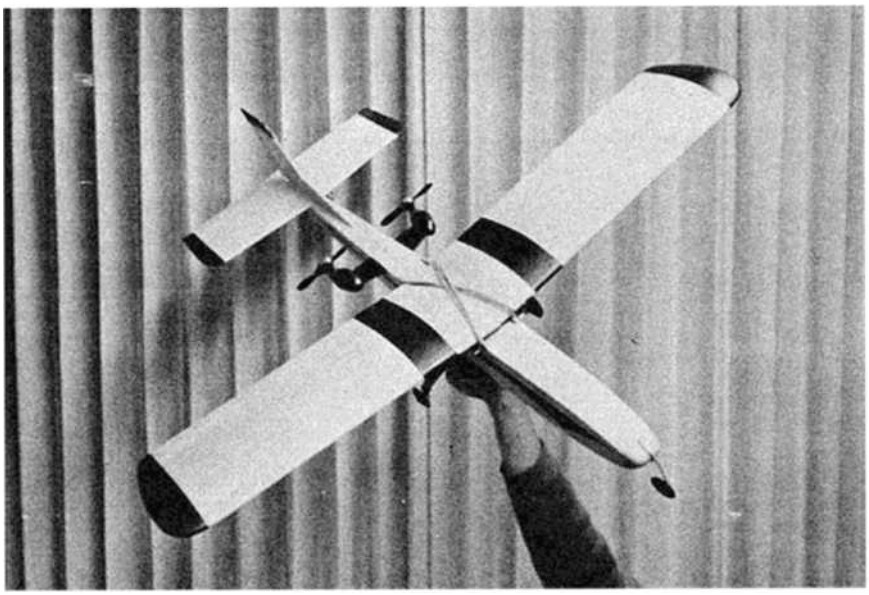
First, put the props on backward to reduce the thrust on the initial test flights. The propos can be hand carved, or Grish 5-1/4-3" pusher props with the tips cut to make them 4 *1/2"* diameter, 3" pitch.

Next, put some washers behind the engine mounting screws at the inside points. This cocks the engines in a little more so that the thrust lines actually pass through the C.G. After a few flights, you can remove the washers one by one and observe the amount of turning which results in single engine flight. It's a matter of preference as to how much offset you want to have.

Third, top off both tanks before flying, and you'll only have a few seconds of single engine operation on the test flights — unless, as I mentioned earlier, you goof on the needle valve settings or get dirt in one engine. Later, when you get to know the handling characteristics, you can purposely top off one tank and get single engine operation at the end of the flight.

Finally, be sure that your model is trimmed slightly nose heavy at first. Because





The Double Feature – simple construction plus twin-engine performance.

of the long nose moment and the distribution of weight, the Double Feature is sensitive to elevator trim. The reason behind the nose down trim is obvious — if you have a stalling, swooping flight, and only one engine is running, then at the end of each swoop, the fin becomes less effective at the same time that the offset thrust of one engine becomes more pronounced, and your control is marginal until the speed builds up again.

Variations

For those of you who like to experiment, I've included some design variations in sketch form.

The slope soarer was suggested by my good friend, Walt Rady. I haven't tried slope soaring yet, but everyone who has is enthusiastic. Perhaps for this version, and in order to increase the glide ratio, an increase in the wing span to about four feet would be worth trying.

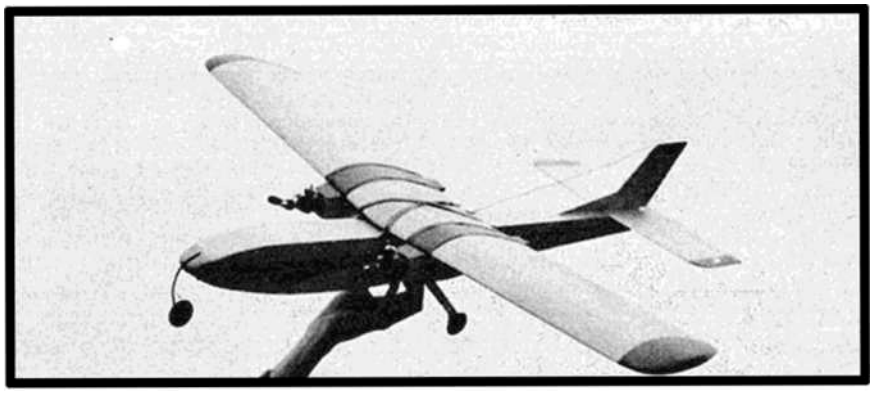
The single engine version is for all you modelers who have an .049 lying around and want to put it to work. Also, you could put two .020's up there in push-pull style. I call this the "chicken twin" — for those cautious modelers who do not trust side- mounted engines, but like the sound of two mills!

The tractor design (is it a tractor, or still a pusher, since the engines are behind the C.G.?) with the engines behind the propellers, allows you to use regular props with the TeeDee .020's. The power is greater here because the prop blast improves the scavenging at the exhaust. Also, with the engines ahead of the props, the exhaust gases occasionally get sucked into the venturi air intake and you get a power loss. However, it's not serious.

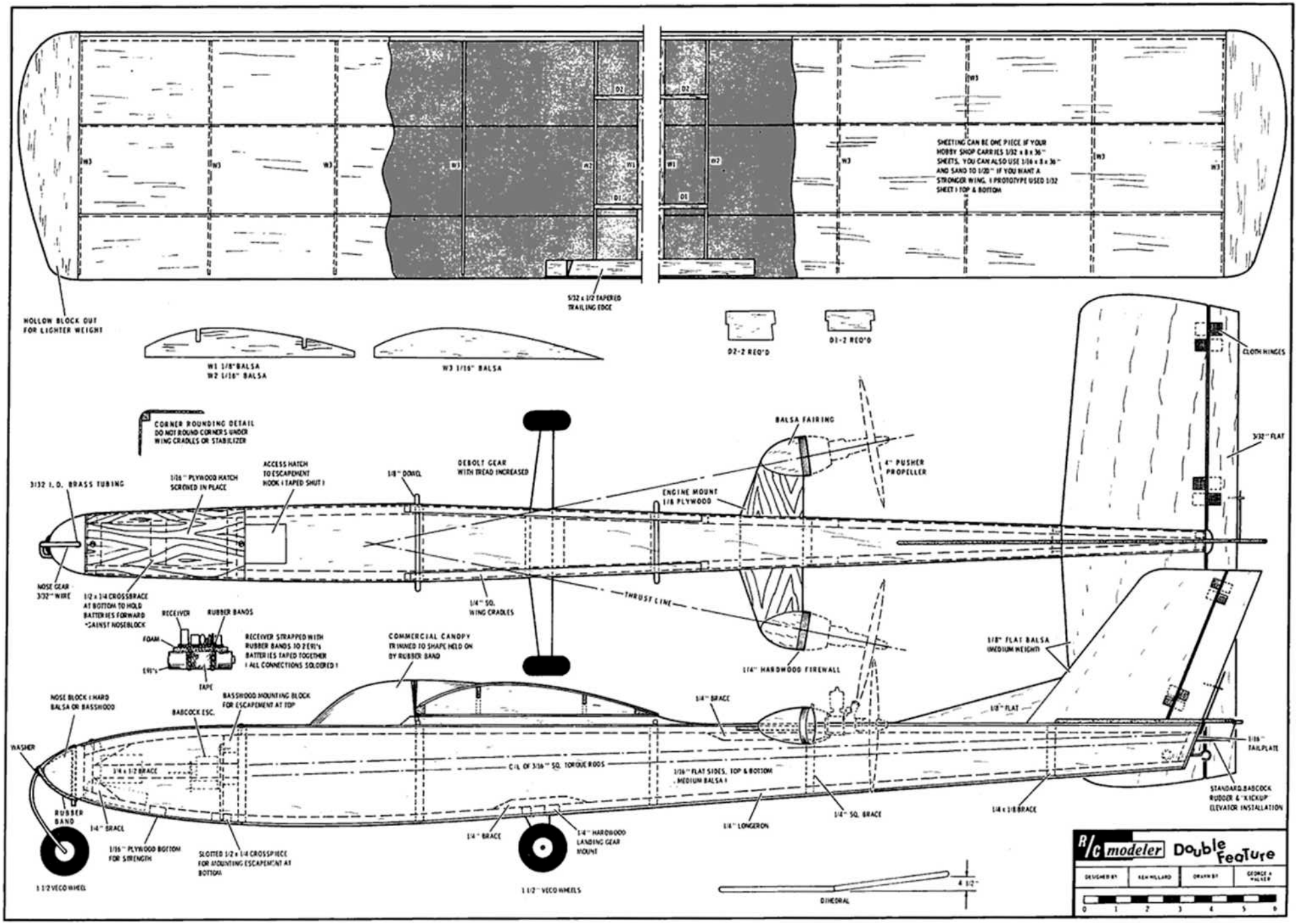
For those of you who prefer the old- fashioned type, wing-mounted twin, the design configuration is shown in the sketches.

This version was flown quite successfully, although recovery time when one engine quits is substantially less (50%) than the twin version with the engines mounted aft. The torque problem, of course, is greater, as is the overall flight speed of the Double Feature, but can still be considered far more controllable than any of the conventional single channel twins available today. To prove this point, the conventional twin prototype was flown from launch to landing on one engine only, with completely controllable flights. The C&S Septalette would he excellent for this application.

At any rate, no matter which configuration you select, you'll lie well pleased with your model. It has a very sleek appearance, is easy to build and fly, and when you start up both engines, watch out! The crowd will come running to watch the Double Feature Show.



A more conventional version – requires a little more experience on the button.


HOLLOW BLOCK OUT FOR LIGHTER WEIGHT
5/32 x 1/2 TAPERED TRAILING EDGE
SHEETING CAN BE ONE PIECE IF YOUR HOBBY SHOP CARRIES 1/32 x 8 x 36" SHEETS. YOU CAN ALSO USE 1/16 x 8 x 36" AND SAND TO 1/20" IF YOU WANT A STRONGER WING. I PROTOTYPE USED 1/32 SHEET I TOP & BOTTOM
W1 1/8" BALSA
W2 1/16" BALSA
W3 1/16" BALSA
D2-2 REQ'D
D1-2 REQ'D
CORNER ROUNDING DETAIL
DO NOT ROUND CORNERS UNDER WING CRADLES OR STABILIZER
3/32 I.D. BRASS TUBING
1/16" PLYWOOD HATCH SCREWED IN PLACE
ACCESS HATCH TO ESCAPEMENT HOOK & TAPED SHUT
1/8" DOWEL
DEBOLT GEAR WITH TREAD INCREASED
BALSA FAIRING
4" PUSHER PROPELLER
ENGINE MOUNT 1/8 PLYWOOD
CLOTH HINGES
3/32" FLAT
NOSE GEAR 3/32" WIRE
1/2 x 1/4 CROSSBRACE AT BOTTOM TO HOLD BATTERIES FORWARD AGAINST NOSEBLOCK
RECEIVER
RUBBER BANDS
FOAM
E91's
TAPE
RECEIVER STRAPPED WITH RUBBER BANDS TO E91's BATTERIES TAPED TOGETHER ALL CONNECTIONS SOLDERED
1/4" SQ. WING CRADLES
THRUST LINE
COMMERCIAL CANOPY TRIMMED TO SHAPE HELD ON BY RUBBER BAND
1/4" HARDWOOD FIREWALL
1/8" FLAT BALSA (MEDIUM WEIGHT)
NOSE BLOCK (HARD BALSA OR BASSWOOD
BASSWOOD MOUNTING BLOCK FOR ESCAPEMENT AT TOP
BABCOCK ESC.
1/4" BRACE
1/8" FLAT
1/16" TAILPLATE
WASHER
1/4 x 1/2 BRACE
C/L OF 3/16" SQ. TORQUE RODS
1/16" FLAT SIDES, TOP & BOTTOM (MEDIUM BALSA)
STANDARD BABCOCK RUDDER & "KICKUP" ELEVATOR INSTALLATION
RUBBER BAND
1/4" BRACE
1/16" PLYWOOD BOTTOM FOR STRENGTH
SLOTTED 1/2 x 1/4 CROSSPIECE FOR MOUNTING ESCAPEMENT AT BOTTOM
1/4" BRACE
1/4" HARDWOOD LANDING GEAR MOUNT
1/4" LONGERON
1/4" SQ. BRACE
1/4 x 1/8 BRACE
1 1/2 VECO WHEEL
1 1/2" VECO WHEELS
DIHEDRAL
4 1/2"
R/C modeler Double Feature
DESIGNED BY
KEN WILLARD
DRAWN BY
GEORGE A. WALKER
0 1 2 3 4 5 6

Custom Finishing

By Howard Reed

Part II of a discussion series on model finishing techniques

The quickest method for finding a dozen different ways to finish an R/C model is to simply ask any group of modelers at the local flying site. When you are through taking notes and the dust has settled, you will have heard of just about every material and method under the sun. This is not surprising when you consider that modelers are a rukged breed of individualists, each with his own particular methods and ideas. In the final analysis, however, a good finish is the result of skill, plenty of elbow grease, and time — regardless of the materials involved. There is 'no real substitute for these pre-requisites, and the end result will be in direct proportion to them.

This article covers the use of standard hot fuel-resistant dopes (butyrates) and suggestions for avoiding some of the pitfalls that commonly occur in its usage. This material works well with a minimum of equipment, is readily available, and is compatibile with the dusty garages and basements most of us substitute for the clinical laboratories illustrated in a majority of articles on painting and finishing.

Equipment

Good brushes are high on the list of important items. A cheap, stiff brush leaves in its wake a stream of shedding hair and, all too often, long rows of corrugations. Another problem with cheap, dime-store quality brushes lies in the fact that they usually have bristles too short to hold a sufficient quantity of dope with the end result that the dope does not flow out evenly and smoothly. Your best investment are the brushes purchased in the art supply stores (some hobby dealers stock these better quality brushes). Initially, you may think they are expensive, but with reasonable care these brushes should last for years, and are infinitely more economical in the long run.

Spray equipment will reduce the time required to apply the material and give even, smooth results. Good results can be obtained from the inexpensive units if you will take the. time to learn how to use them properly. Even fly sprayers have been used to produce reasonable results on the smaller models. Here's where a little practice with left-over dope will pay off. Try varying the amount of thinner, air pressure, and air-paint mixtures so you learn to "fog" on light, dry coats and wet, flowing coats.

You will also find numerous uses for several sizes of sanding blocks made of hardwood and firm rubber. The rubber blocks work best on contours and when used with wet-or-dry finishing papers. The latter, by the way, should be on hand in 340, 400, and 600 grits. Rubbing compounds can be obtained at your hobby dealer or the local auto supply stores. They should be of a very fine grit.

Construction

A finish begins with what lies underneath. Even glue joints play an important part. Many modelers, for example, use white glue in construction and find that when dope is used over it, all exposed seams begin to raise. Use regular model cement on all joints that go through to the covering. If you can't, then these areas must be isolated from the materials that cause a reaction in the white glue. For this purpose, use fibreglass resin or Hobbypoxy clear in a thin coat over the seams. When set, sand smooth and fair in the edges, being careful not to sand through to the glue underneath.

Since structures always seem to pick up a multitude of miscellaneous dings and dents, it's a good practice to put off final sanding until just prior to covering. Examine the framework carefully, noting all mars in the surface. Many of these can be raised to the level of the surrounding surface by putting a. dab of "spit" on it. Others can be removed by steaming the area with a wet cloth and an iron. If these operations fail, one last resort is "goof putty" — plastic balsa.

When sanding, make it a standard practice to use sanding blocks — wood blocks for the straight areas and rubber for the contours. Start with the coarse grits for maximum .wood• removal and taper off to the final sanding with 900 wet-or-dry.

Covering

Before applying the covering material, the structure should be adeljuately doped. The amount of dope to use is best determined by the method you use to apply the silk. If you apply the material wet, the wood areas will have to be sealed to prevent moisture absorption. Moisture will cause the sheeted areas to ripple and wave.

At this time, note any coarse wood grain areas. These should be brushed with sanding sealer and sanded smooth. The covering material should be ironed as it comes from the package. This will remove the numerous creases. Also, be sure to use **sharp** razor blades for trimming the edges.

After the structure is covered, dope the areas where the covering comes in contact with the wood. Then, if the covering was applied dry, wet and shrink the open areas such as between the ribs, etc.

Surface Preparation

The first fill coats of dope in the open areas are important when using porous material such as silk. Dope has a tendency to run on the inside surface and harden into globs that will show through the paint. One method to help prevent this situation. is to use dope thinned to the consistency of water, doping at first over the open areas and **not** over the edges where the material contacts the sheeted sections, such as cap strips, leading edge sheeting, etc. Do not brush in strokes using the flat of the brush, but use side strokes in line with the narrow tip of the brush. As the covering is filled up, work up to, and over, the edges of the under sheeting.

Stay with this method until the pores are filled, then switch over to flat brush strokes. If a glob appears on the inside, wipe your brush dry and rapidly brush over the area. Turning the surface over so it is held upside down will also help while brushing. This sounds like a time consuming process, but using such thin dope the drying time is very fast. This makes the application almost a continual process with no elapsed time between coats.

At this point, the covering is on, the pores are filled, and when examined against the light, the weave and wood grain should show. Now, lightly sand with 400 wet-or-dry (used dry) to remove the fuzz and smooth out the trimmed edges. Mix half and half clear dope and sanding sealer, thin to spray consistency, and apply three to four coats of this mixture, or until you can see a smooth, even build-up on the surfaces. Before any further work, allow ample drying time. Several days are normally required in warm conditions, and substantially longer in cooler

The author's well-known Voltswagon — patience, elbow-grease, and know-how

weather. You can substitute brushing this mixture if you want, but *be* sure to flow the coats.

After drying, wet *sand all the* surfaces with the 400 grit wet-or-dry. Use the rubber sanding blocks for the straight and contoured areas. Use your fingers and a small square of the finishing paper over the areas of covering not backed up by wood. Sanding sounds like a simple process, but if a few requirements are not observed, you can get in trouble. Go very easy on any edges and on the open areas. It is surprising how easily you can cut through these places! Watch for any build-up of dope on the finishing paper or you'll be wondering where all the grooves came from. When the surface can be held up at an angle to the light and a smooth, slick surface observed, it is ready for painting. If the grain in the wood and the weave of the material is still apparent, the preceding process should be repeated.

Painting

If this is your first RIG model, or a multi-trainer, it is a good idea to use a simple, one-color pattern. This will make the inevitable repairs much easier and in. crease learning time in the air. The choice of colors that are visible at a distance and do not blend in with the background will be advisable. At any rate, keep the color layout within your experience and ability. An elaborate layout looks much worse when improperly applied than a simple, well done effort.

Simple outline sketches of your model can now be laid out and colored. These will aid you in determining any problem areas and also give you an idea of what the finished product will look like. When the pattern is finalized, lay out full size cardboard patterns using french and ship curves for smooth outlines.

In order to insure proper distribution of the pigments, prepare your paint by ample stirring. The addition of a plasticizer such as "Warp Resistor", a few drops of castor oil, or similar material, will aid the dope in retaining its elasticity for longer periods of time while reducing some of those troublesome warps.

The choice of the right thinner is a commonly overlooked, but very important item. Some thinners are too "hot." When "hot" thinner is used, the prepared surface will soften excessively. This is evident when the weave of the material starts to show up again as the thinner dries. Experience using various brands will show you the ones that work best for you.

The first coats of color dope should be primer coats. White is excellent for this purpose and can be masked off for pin stripes and other details. It will also give a touch of "brightness" to other colors used over it. Apply enough coats for an even color with no dark spots, showing through. Check all surfaces and wet sand any fuzzy or rough spots previously missed. Touch up any of these areas as required.

Using your cardboard templates, very lightly transfer the color pattern to the model with a soft lead pencil. Apply masking tape with a slight stretch and rub it down to insure an adequate seal. Further seal the edges of the tape with a brush coat of clear dope. This will keep the paint from bleeding under the tape. The exposed areas that are to be a different color or left white will have to be masked off with paper. Shelf paper from the kitchen works fine and comes in different widths for convenience. Be very sure everything is securely covered, or "you'll wonder where the yellow went!" Be careful not to lay your masking tape down on a dirty or dusty surface as the exposed adhesive will pick up everything with which it comes in contact, resulting in ragged paint edges. When not in use, keep your rolled masking tape in plastic or paper bags.

Begin to apply the paint light, even coats, watching for runs that come from not keeping the spray gun moving. If any disasters occur, let them dry and then wet sand them to a smooth surface. If you have a heavy rubbing arm it would be advisable to apply a few extra coats to prevent you from rubbing through. Shoot for an even color build-up; keeping in mind that extra paint means extra weight. Use care when removing the masking tape — if it is jerked off, it can lift the soft surface of the paint underneath. *Get* re corner started with your fingernail and slowly pull it back upon itself. Be particularly careful in the corners and along the feather edges.

Polishing

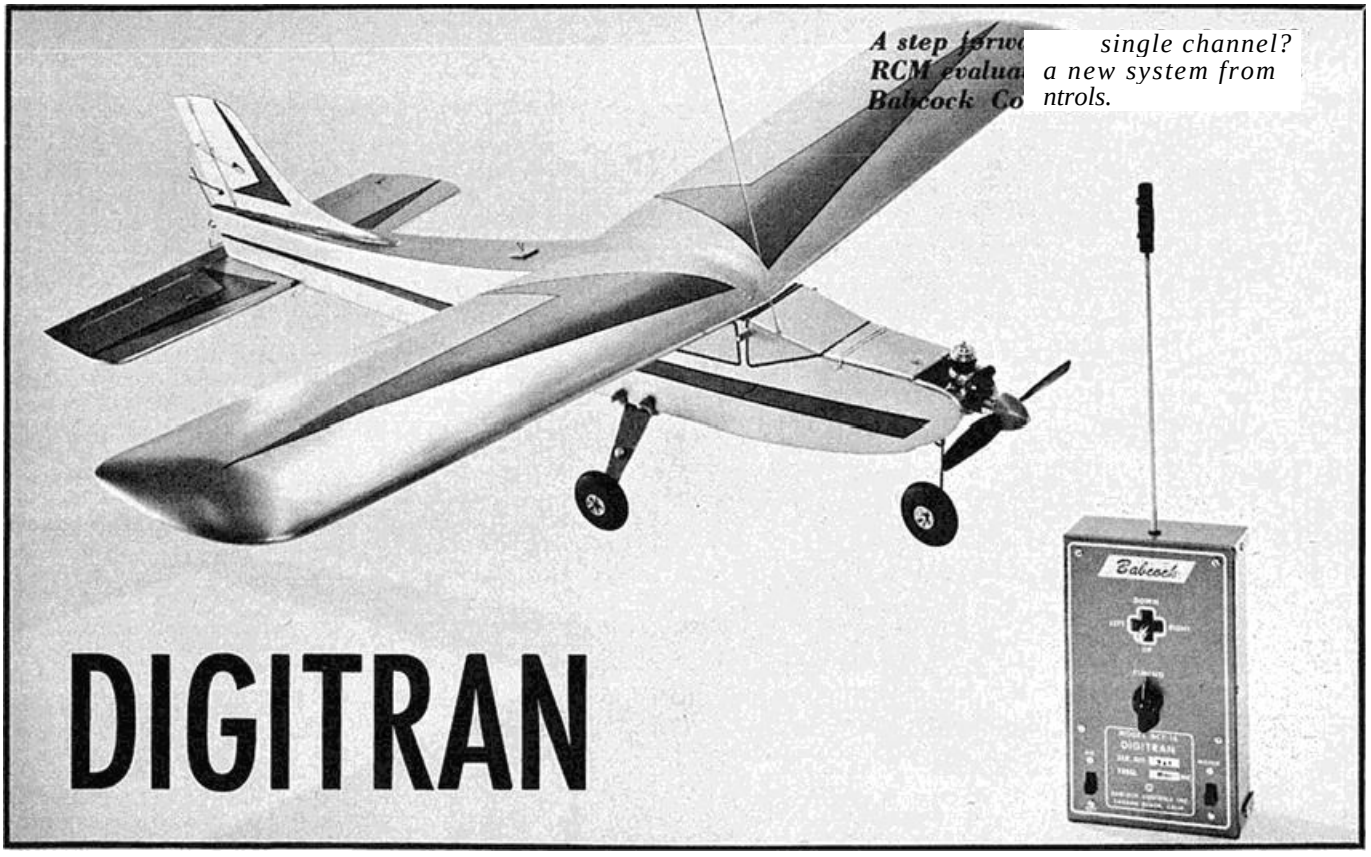
Before the final polishing operation, wet sand the raised edges caused by the masking tape 600 finishing paper. Now all that remains is to polish the paint to achieve a satin finish with a deep lustre. Use a soft cloth dipped in a mixture of liquid detergent the type used for dishes) and water. The detergent acts as a lubricant for the rubbing compound. Use only small amounts of rubbing compound and keep your strokes long and straight. Don't use a circular motion. Again, be careful of the edges. Until you get the feel of the surface as it smooths under the cloth, it is better to go *easy* and light several times. Wash off the compound in the corners and in the edges of the control surfaces with warm water and detergent. Dry with a soft cloth. To bring up the final gloss and color, wax the surfaces using a cleaner wax such as Simoniz Vista or DuPont 7 new car wax.

Maintenance

After the amount of work expended in finishing a model it deserves a reasonable amount of care to keep it looking new. If you mixed your own color shades it is a good practice to mix more than required so you can have some on hand for repair work. In addition, a wet sample is much easier to match. Many of those dings your model will eventually pick up in handling can be removed by steaming the affected area with a wet cloth and an iron. The whitish mark left by this treatment can be removed by polishing the area with cleaner wax. This wax can also be used to remove many fuel stains.

After each flying session wash off the engine and motor compartment with white gas. Use your squeeze bulb to squirt under the engine and a toothbrush on the head and cooling fins. Wash the castor and dirt off the finish using warm water and *detergent.* Use a detergent that will wipe dry with no evidence of streaking. Needless to say, stay away from the ones with bleach additives! Finally, give the ship a- quick spray with Johnsons "Pledge" and wipe it off. This will remove any dullness left from washing and leave a protective waxed surface. It's a good idea to bring your Pledge when traveling to a contest. It will clean the oil and dirt when the home base facilities are not available.

Your next surprise and reward will come when someone taps you on the shoulder and says, —"Say, buddy how many coats of dope do you use?"



The `Digitran' single channel system from Babcock bas created more than the usual stir of interest. To all intent and purposes, here is a superhet single channel system that allows the RC'er to obtain right and left rudder, up and down elevator, and two speed motor control, along with a timing device on the transmitter that keeps the escapement in phase. Seemingly a further development of the original "poor man's multi,' how well does the new Babcock system work? Is it for the beginner? Is it an `ultimate answer' for single channel escapement operation?

These are the questions we asked, and subsequently tried to determine after receiving one of the first Babcock Digitran production models. To begin with, the BCT-18 transmitter operates at an input of 100 milliwatts (18 volts) at 11 ma to a modulated oscillator. The antenna is a center loaded, quarter *wave* whip Consisting of several metal rods, connected by small brass ferrules, the base section must be inserted carefully into the transmitter to avoid breaking the soldered connection within the transmitter case

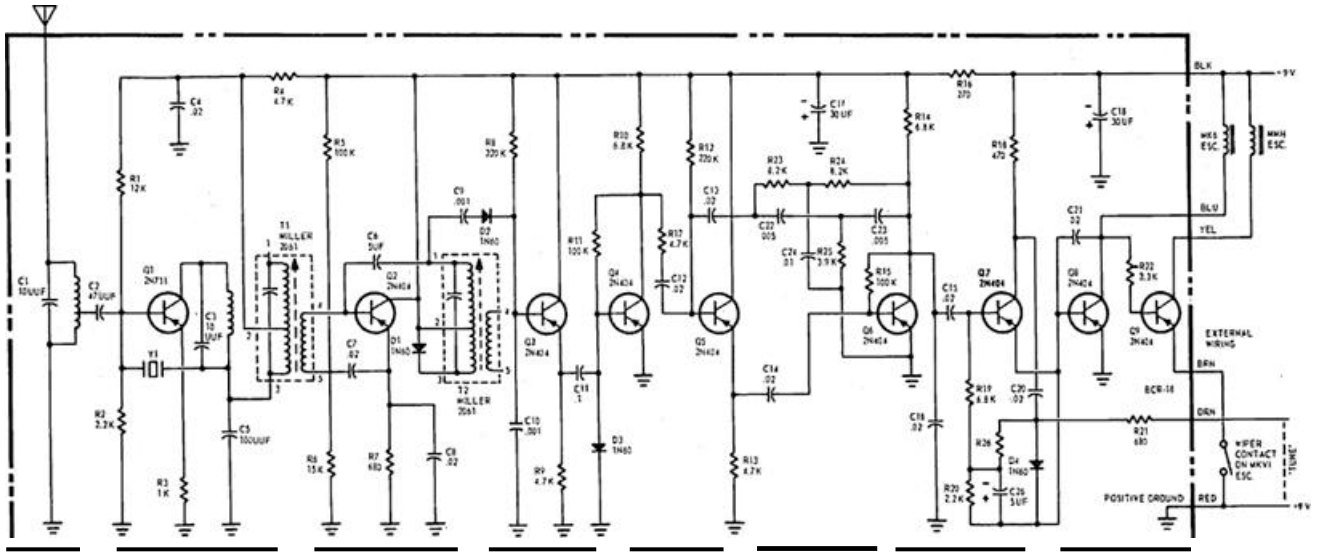
'Within the transmitter itself, transistor Q3 is a series modulator and modulates the oscillator Q4 at high level. Transistors Q1 and Q2 form a multivibrator at 3500 cycles, which is quite high, but under the maximum 4000 cycles allowed by the FCC. Diode D2 prevents over driving Q3 in a downward direction. This results in extensive positive peak modulation. Input to Q4 on modulation peaks in 4/10 of a watt.

Transistors Q6 and Q7 with the associated components form a lop sided multivibrator of a low frequency which keys the tone multivibrator with a short time off and long time on so that the Mark VI escapement is keyed accurately. The speed is as high as the Mark VI is able to accept. Diode **DI** performs the keying function. Transistor Q5 in association with Diode D3, capacitor C10, and resistor R17, with R15 (timing control) form in essence a one shot multivibrator time base which controls the number of pulses put out by Q6 and Q7.

S2 is the control stick, and its various positions with associated resistors R19, 20, and 21, vary the pulses of command. A proper setting of R15 for the fourth (down) position, makes the other pulses fall into place. Switch **S1,** in conjunction with C9, forms a discharge circuit which, through R4, gives a "quick blip" command from the multivibrator Q1 and Q2 for motor control. You will notice that "quick blip" can be given repeatedly because in the back position, **S1** shorts out C9. Si is a spring return slide switch. All transistors in the unit tested are as noted on the drawing, and are of American manufacture by the RCA company. All components are American:

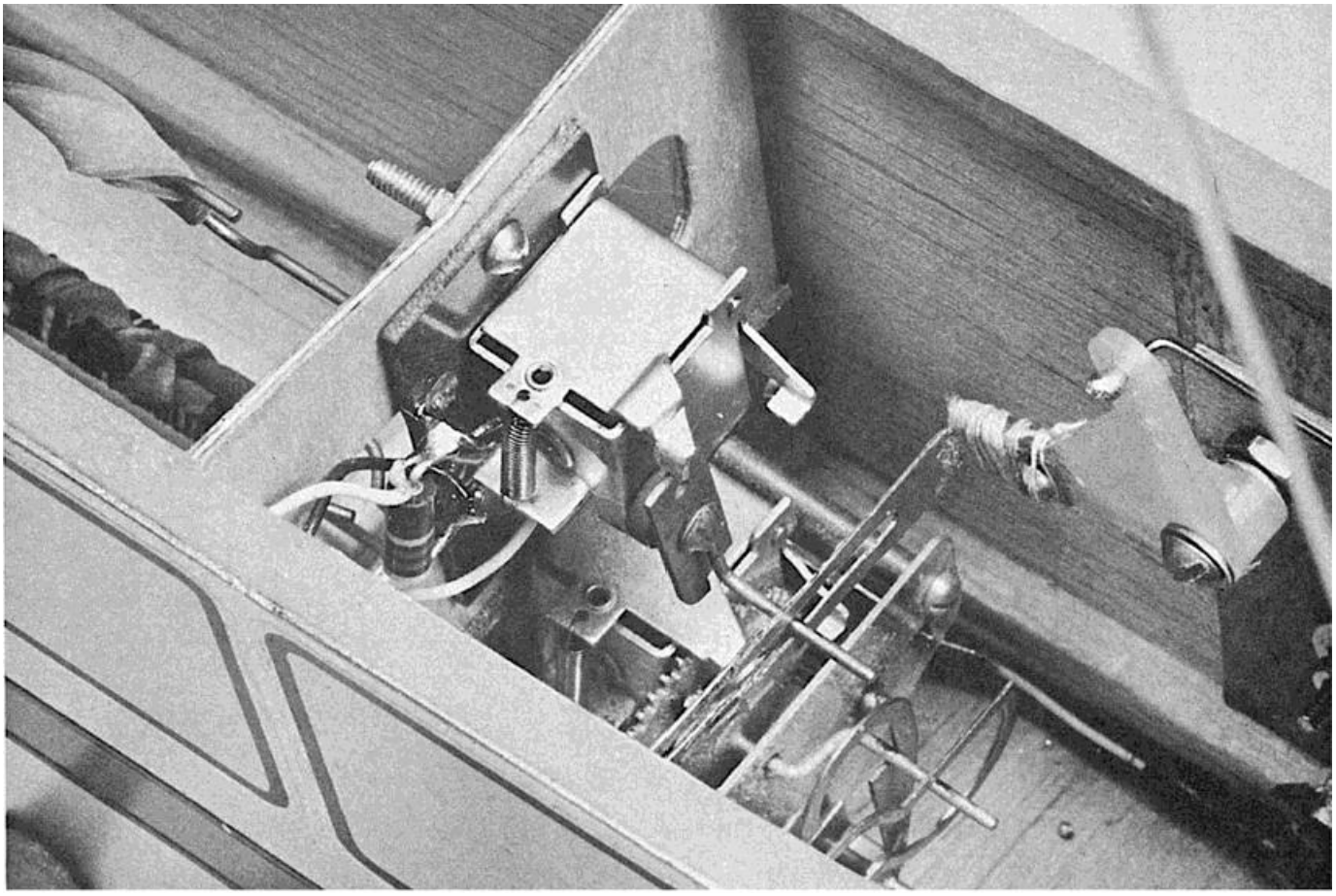
The BCT-18 transmitter is intended for use with two 9 volt transistor radio batteries, although ample room is provided for larger size 9 volt energizers.

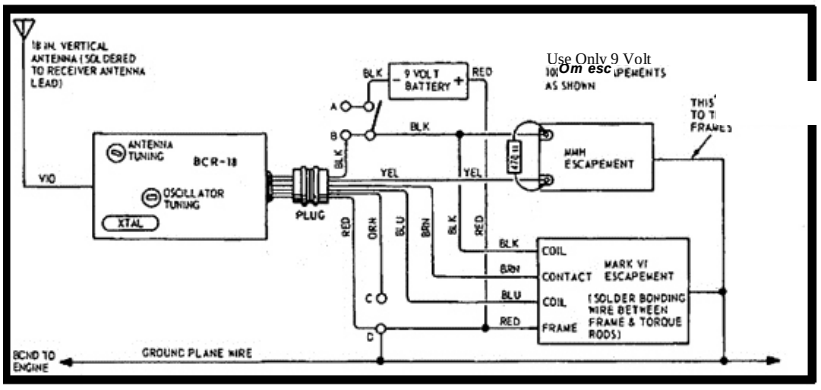
The BCR-18 receiver is a nine-transistor superheterodyne with some quite unusual design features. Unlike a super



BCR-18 receiver schematic. This new superheterodyne is an outstanding step forward in receiver design by one of the best known names in the radio control field.

RCM's Schoolmaster and Digitran installation. Nine-tenths of a watt delivered to the all-new 9-volt, 100 ohm escapements. Note push-pull throttle arrangement.





regenerative receiver, the superheterodyne is subject to shot effect noise and does not contain the self-limiting characteristics of the super-regenerative unit. Originally, the BCR-18 had a 37.5 KC IF in the interest of maximum sensitivity. However, this made mandatory, by its selectivity, a low frequency audio tone. It was found during flight tests that this was subject to CB interference, and therefore it was decided to return to the conventional 455 KC IF amplifier. Referring to the schematic, you will note that high level detection is accomplished by Diode 1)2. No AVC is used. However, Diode DI is an IF limiter which holds pulse and other noises to a reasonable level. To catch such noise as remains, Diode D5 assisted by the Diode formed by the base and emitter of Q4 serve as a back. to-hack limiter. It will be noticed that impedances are matched throughout the audio amplifier by virtue of going from a grounded collector to grounded emitter to grounded collector, etc.

A very high modulation frequency (3500 cycles) is used and the parallel T network composed of R23, R24., R25, and C22, C23, and C24 form a selective network to eliminate spurious audio response from voice frequencies.

Yet another unusual circuit is used, and this is associated with the relay driver transistor Q7. It will be noticed that this is a version of the Babcock "Trans-Flex" circuit. Transistor Q7 operates as both a grounded emitter and a grounded collector simultaneously. Audio rectification is accomplished by Diode D4 and is filtered by R26 and C26. If any shot noise or instantaneous random interference comes through the audio amplifier, it will be noted that the resistors associated with C26 form a slow charge and fast discharge circuit. Thus, noise of a random character cannot return to the base of Q7 whose emitter controls the current through Q8 which is a conventional direct 9 volt escapement driver.

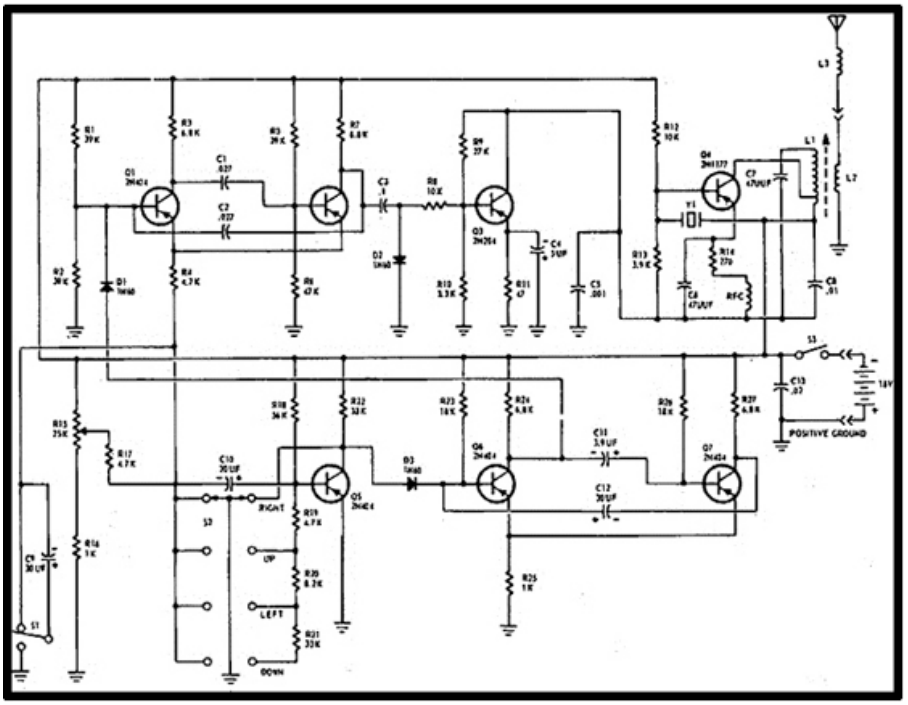
Transistor Q9 performs 'the "quick blip" motor control function in the conventional manner. The receiver operates at 9 volts and at this voltage, puts 8.8 volts across the escapements, or close to 9/10th of a watt. The escapements will operate down to 6 volts and arc 100 ohms. It will he seen that this receiver has tremendous noise and interference protection, and evidences extensive engineering and design considerations. In actual tests, a "walkie-talkie" CB transciever right next to the antenna did not cause misoperation except by whistling a very critical tone.

The new Babcock Mark VI 9 volt escapements are, to our way of thinking, another improvement over a well-liked and previously superior escapement, Without any polishing or modifications, the Mark VI and its companion 9 volt motor control escapement were put through 1000 cycles on the bench at various rates of speed, without missing or "hanging up" on a single command.

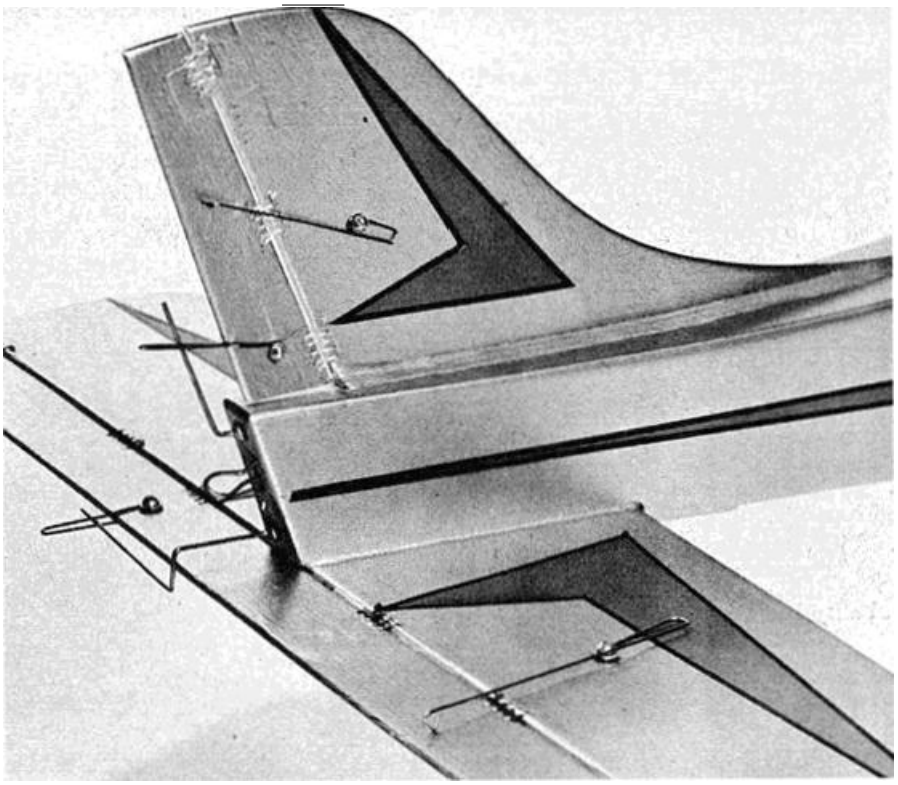
For our installation, we constructed the Top Flute Schoolmaster, making no modifications except to replace the die-cut fuselage upright bracing with harder 3/16" square stock. The installation and wiring of the Digitran system is shown, employing a tuned "ground plane" antenna system, consisting of an 18" vertical music wire whip and a ground wire running inside the plane from the tail to the nose, where it is grounded to the motor. Besides the on and off switch, are four nuts and bolts used for tuning. Bolts C & D arc connected by a jumper, while a #49, 2 volt flashlight bulb is connected between A & B With the transmitter antenna removed, tune the bulb to its brightest. Move the transmitter a short distance away and repeat this operation until fine tuning is accomplished.

A Cox Medallion .049 with throttle was used in the gold and red Schoolmaster. A bellcrank was attached to the side of the fuselage, as shown in the photo, and two Babcock motor-minder linkage joined together to form a yoke. Bench testing of the motor control portion proved that it was extremely reliable. We used 1/4" rubber on the motor control unit and 3/16" rubber on the main escapement.

All control surfaces (rudder and elevator) must have spring centering. Be absolutely certain that you use thread (figure 8) binges, completely free of any stiffness,



Digitran transmitter schematic. Tx operates from two small 9-volt transistor radio batteries available at any drugstore. Again, Babcocks practical and thorough design considerations are immediately apparent.



Attention to details, such as control surface linkages and centering springs, will assure a lot of air time with this digital single channel control system.

RCM Editors find the Digitran to be a significant advance with the single channel sport flier foremost in mind.

We **do** recommend this system to the sport single channel flier with prior flight experience behind him, but with a caution to pay attention to the small details and to the elimination of all "bugs" — cycling through the escapement about 400 times, proper centering of the surfaces, absolutely free control surfaces, proper "throw" of the motor control escapement. etc.

Our overall feeling, pending further flight tests, is that the Babcock Digitran system is a reasonable priced single channel system, performing the basic functions of a six channel multi rig, and is, perhaps the first major advance in single channel escapement operation in the past few years. It is capable of operating most of the designs. engineered for single channel operation from 30" span to 4^{1}h feet and up to 35 size engine. We cannot make a recommendation that would cover all applications. We would rather suggest **that** you see your dealer. or write to the manufacturer, and ask for a copy of the installation and operation sheet, then decide for yourself if you feel that the Digitran is for you.

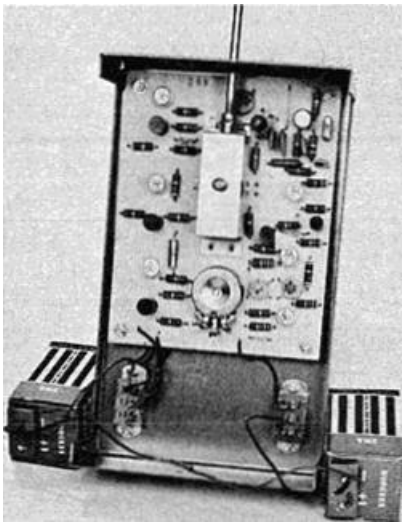
The DIGITRAN

and that light spring centering is used. The photograph will illustrate the type of spring we evolved from considerable experimentation. Lighter centering is required for the rudder than that used on the elevator. We feel that a better type of centering mechanism is the spring wire and eyelet arrangement used by Ted Strader, and illustrated on the plans of his designs, as well as in certain recent issues of Flying Models magazine.

Flight tests of the Digitran came to a quick demise due to a pilot error on the part of the Editor (not at all uncommon!) and the one and only malfunction of the quick blip motor control. The Schoolmaster roared off down the runway, veered into a sharp right turn, and subsequently smashed into a concrete wall at approximately 30 m.p.h.! The end. result was one *very* short-nosed Schoolmaster, fractured Cox, and one still-working Digitran system!

Despite the pilot malfunction, the Digitran has proved completely reliable in extensive. testing under various and often deliberately adverse conditions.

Inside the Digitran transmitter. Large batteries used only for our tests.



PILOT'S LOG

by Robinson Blackwell

It was the first weekend since New Year's that the weather forecast indicated good flying weather. Our old, reliable Raider 10 prototype had been previously dusted off, pre-flighted, and all the small, but necessary, trim changes and general routine maintenance checks performed in anticipation of the coming Sunday. A few battle scars had had to be patched over, including some minor unsightly damage which followed a late 1963 bout with a concrete runway — this, the result of accidental down elevator instead of engine advance on a low-speed, low-level pass. Another scar or two had been awarded for a high speed prang-in on takeoff with some down trim and loss of contact due to the transmitter antenna not being fully extended — an absolute necessity for center loaded units.

The long-awaited day dawned bright and clear, with only a slight trace of breeze. The dirt runway turned out to be in poor shape, soft and uneven, from the ravages of winter snows. The Raiders first takeoff required the full strip to become airborne, the ensuing flight strictly average with the landing snubbed off and difficult due to the soft runway.

On the second attempt, we found that we could get airborne with very little dif. ficulty by using full up trim and up elevator to hold the nose wheel out of the soft dirt. I expected a snap-roll tendency with the semi-stalled takeoff attitude, but the Raider went right out and up, much to my relief. This flight showed up a trace of right turn — although not enough to warrant an aborted flight and return. The Raider was put through the pattern and on into the advanced maneuvers. Right drift, which becomes more progressive in the Vertical 8's, was handled easily by executing this maneuver while traversing cross-wind with the cross-wind itself used to counteract the drift. Repetitions of this maneuver were made with the heading almost correct for entry and recovery positions.

The model was next run through an outside loop which was a trifle too large in diameter, due to the small amount of preset, up trim. Bringing the ship around, I reset the trim to level flight at full throttle when penetrating the wind. Putting the Raider into a 360° turn, the ship went on downwind to pick up speed, at which time I followed with a touch of down elevator.

And then it happened! As the Raider tucked under, **I** saw a momentary flash in the sun, and realized that the bronze colored Diem nicad pack had been thrown clear of the ship! At the same time, a helpless feeling surged through me as further attempts to control the Raider evidenced the loss of contact and the obvious lack of control. The Raider 10 was now positioned at about 100 feet of altitude, with full down elevator and a slight left aileron correction to offset the right drift. As far as I was concerned, with this final set-up, the ship was a total loss from this point **on** in.

We watched as the low-winged Raider went into a loop, followed by another, then another, for almost five full minutes. The drift was gradually working the model into a steep banked attitude due to the effect of left aileron. This steepening of the turns was forcing a loss of altitude, and the final touch-down occurred when the ship went into a small grove of trees, ripping its way through the bare branches, cartwheeling out of this, and making a very final and graceful spare-parts landing on the porch roof of a farm house at the and of the grove.

When we examined the Raider, we found that the battery pack had forced its way upward by the pressure of the maneuvers, pressing the fuel tank and hatch cover up against the rubber band hold-downs. The pack had somehow managed to work its way past the tank, out the hatch between the bands, followed by the tank and hatch cover snapping precisely back into place, leaving nearly ten minutes of fuel in the tank!

He watched, helplessly, as the bronze pack flashed momentarily in the sun .. .

The countdown on the airplane? Fuselage scarred but structure intact — rudder broken but repairable. The wing was basically intact, including servo, linkage, center section, and 80% of the spars. The required repairs were confined to about 35 running inches of leading edge planking and ribs. The radio gear was undamaged, and the Diem pack was finally located by the side of a nearby road, subsequently proving to be in good working order!

It is expected that we will fly the Raider again within the coming week, weather permitting. We will never forget the unusual accident with the battery pack, and learned perhaps, that attention to the smallest details — such as the hold down requirements for the receiver/servo pack — are among the most important aspects of reliable flying.

Dart & Sons, R C Modelers

Howard Dart and his two sons, Bob and Bill, of Lakewood, N.Y. could be considered average radio control modelers.

Except for the fact that they have their own private airstrip and flying field. And, they fly combat. R/C combat, that is!

The Dart's became interested in radio control after witnessing a model air show some five years ago. In typical fatherly fashion, Howard hoped that Bob, then 16, and Bill, 12 would become enthused enough about the hobby so that he would have an excuse to start building. After all, what would his neighbors and associates think about a grown man building and flying model airplanes strictly for his own enjoyment?

Pursuing his new-found excuse, Howard, Bob, and Bill, started out with single channel equipment, the trio becoming quite proficient and often having all three planes in the air simultaneously. Most of their flying was done at their own landing strip behind their home where Howard kept his full-size Cessna.

The next problem was what to do with three planes in the air at once. Formation flying was tried first — a sorry sight, according to the Darts, inasmuch as they would consider themselves fortunate if they could all come together in the same area once during a single fifteen minute flight. Even then, one of them would be going the wrong way!

One day, while practicing their "formation" flying, Bob dropped in behind Bill and knocked off a portion of the fin on the latter's ship. And for the up-and-coming "Lakewood Blue Angels," combat was born on that day.

Howard Dart and Space Control at a warmer time of year.

It didn't take long for the Darts to discover that cutting a length of paper ribbon behind the plane was far more economically feasible than chopping planes out of the air! The first attempts at combat were not much to rave about. There was enough difficulty in simply staying in the same area. They soon had this corrected by picking a pre-determined area of operation, i.e. a 200 foot radius from where they stood and an altitude not to exceed 150 feet. Then things began to get interesting. After each flight they would be perspiring as if they had just completed a like amount of physical exercise. Still, the streamers would come back intact. Dart and Sons then entered Phase Two of Operation Combat.

Realizing that cuts were impossible by going after the end of the streamer, they tried another approach. For example, if you had someone on your tail and you pulled an Immelmann, go for the tail of your opponent as you pull out of your recovery. On this type of maneuver, the object was to try and entice him into getting on your tail, going directly away from you. That way, as you come out of the Immelmann, you have three points of reference — your plane his plane, and yourself. This almost always guarantees a cut. If you have a slower plane than your opponent, the above mentioned maneuver is best, but when caught in a circle, the only chance with the slower and less maneuverable ship is to suddenly cut the throttle and let your opponent pass on the inside. Then you try to cut in to get the streamer. In vertical loops, the best advantage is to lay on your back on the top and let the faster plane pass, making a dive as he goes by.

Snow, skis, streamers, and a trio of Barnstomers.

Out of an Immelman, three points of reference.

With their increased knowledge, the Darts combat proficiency increased. As did the mortality rate of their combat ships! It was decided that a set of rules and procedures covering specific different situalions was needed. For example, it is a cardinal rule that when a left turn fight is in progress, all combatants adhere to the left turn. When a head-on pass is being made, each plane keeps to the left. On a turn, when two or more ships arc turning together one indicates that he will go high, the other stays below at all times. The same rule applies for straight passes over the field. And all would have ended well, had it not been for Bill. In every squadron there's a guy that just has to fly under bridges, and Bill Dart was no exception. Waiting until his father and older brother were fighting it out tooth and nail, he would get into the act by a nerve-shattering entrance from the opposite direction!

The planes used by Howard, Bob and Bill for combat are Barnstormers, an original design evolved over the years. Utilizing a 2415 section, wing area is 560 square incites. In configuration and construction, it is a direct descendent of the Breezy Sr. wing, tapered in planform and thickness, and sheeted only in the center section.

The fuselage is constructed from 3/32" balsa with 1/32" ply doublers extending back 18" from the firewall. The firewall, itself, is constructed of two pieces of 3/32" ply. One fuselage bulkhead is located at the leading edge of the wing, one at the trailing edge, and one at the tail. The ship is powered by a K&B .45 and uses a 6 ounce tank, deBolt dural gear and 2%" wheels. Space, Control proportional gear is used with all up weight never exceeding 4% pounds. Over 100 Barnstormers have been built by the Darts and other modelers in the New York and Pennsylvania area. The ships trim out flat at top speed and in the glide, and will do every maneuver including tumbling! Top speed of these combat craft have ***never*** been officially clocked, but Bob Dart flew over the field in a Piper Cub while Howard dropped his Barnstormer in next to the full sized craft. The Pipers air. speed indicator registered 80 m.p.h. as the Barnstonmer pulled away in a slight climb! Another indication of the speed of this ship is that it has never been beaten in Open Pylon competition.

And that's the story of one man's family and their pleasure — combat. All three are excellent fliers and could excel in any phase of RC competition ... if they could stay serious long enough to compete. Bob, for example. 'during a New York contest bit season, was half way through his second round when be spied a hawk in the area. You guessed it! He blew the whole works by taking off after the hawk.

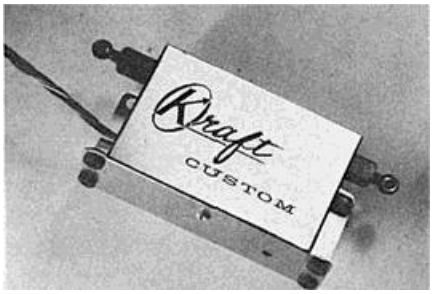
And Bill?... he went so far as to challenge the Chicago Untouchables. But rumors have it they're getting a title too old ... reflexes slowing down, and all that.

As for the neighbors Howard worried about some five years ago — they're all flying RC themselves — having a ball and getting quite good at it too.

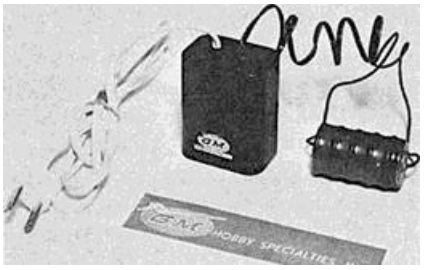
Dart and Sons R/C Modelers.

SHOWCASE '64

New Multi Servo From Kraft — The Kraft multi servo designed by Don Mathes, chief of mechanical engineering, layout design, and production control for Kraft Custom Radio, has been released for shipment to Kraft Franchised Dealers. The new reed servo features extremely high quality workmanship, linear push-pull movement ad. justable at both ends, and a precision (not toy type) motor designed to Kraft specifications. Currently being bench and flight tested by RCM for complete evaluation at a later date, the new servo will start at a load of 3.6 pounds at 2.4. volts. Motor RPM is 4200 with no load. Drain at full stall is only 250 ma, with a idle drain of 40 ma. With this new motor, the standard servo battery pack for a full multi will last four times as long as with conventional servos. The relayless version is priced at 829.95 and the relay type at $14.95. The new Kraft Custom Servos arc available at all local franchised Kraft dealers or, if ordered direct from Kraft Custom Radio, full credit will ***be*** given to the franchised dealer nearest the purchaser. Circle **#1 on the Reader** Service Card.

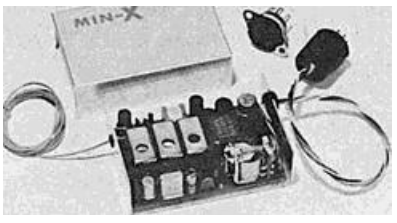


GM Battery Charger — a 20 ma and 40 ma battery charger is now on the market available through GM Hobby Special. ties. Ready to plug into any 110V AC household outlet this charger will take up to 9 volts in series and charge at the rated 20 mills or 40 mills for the required time to restore nickel cadmium cells to their full power. Priced at a reasonable $6.95, this unit is ready for delivery from GM Hobby Specialties,. Dealer orders welcomed. **Circle #2 on the Reader Service Card.**



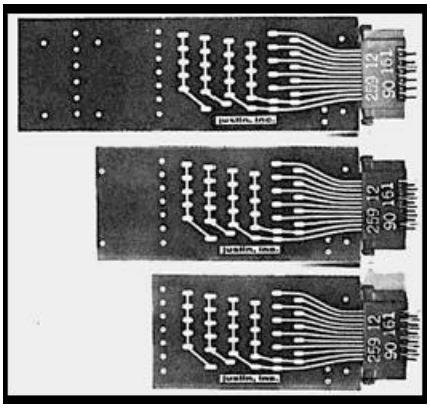
Single Channel Servo — A single channel rudder control servo, tested by RCM, is now available from Royal Products. This three position unit utilizes one of the cleverest gearing principles we have seen, and seems to work quite reliably with standard superregen relay type receivers. We did experience difficulty with the unit when coupled with a superhet receiver, and suggest that further experimentation with filter networks is necessary if the unit is to be used with some of the more sensitive superhets now available. Weight of the unit is 2 ounces, length We; width 1%"; depth 1". Motor drain at idle is 45.50 ma, **and** at full stall, 150.160 ma. Gears are nylon and work on a very positive cam action. Centering is excellent with no play. This is a very powerful motorized actuator that provides selective right or left rudder and third position switching of an engine control servo or escapement. The cam action of the servo allows you to obtain third position control on dead center. Price is 12.95. Circle **#3 on the Reader Service Card.**

SHS-1 Receiver & TCT-1 Transmitter —Min-X Radio, Inc. announces the production of their new tone selective single channel superhet for pulse and escapement applications. Employing a fully arc suppressed relay output, the new receiver is said to virtually eliminate noise problems so often common to these selective units. 3.3.6 volts, pen-cells or nicads, are used for a power supply. Weight is 3% ounces, size 1" x VA" x 2%". Operating temperature range is 30° to **140°.** Current drain on idle, 4 to 6 ma; signal on, 30 to 35 ma. Selectivity is listed as 5 KC, sensitivity 5 microvolts, Tone 1000 CPS, and 100% modulation. Case for the SHS-1 is gold anodized aluminum. The matching TCT-1 transmitter is a tone controlled all transistor single channel unit utilizing a single Burgess 0.6 or equivalent **9** volt supply. Battery life is said to be approximately 30 hours "on time." Weight is 2 pounds with battery. Size: 2%" x 4%" x 6". Current drain is 50 to 60 ma. The key is of a special positive action with spring. The antenna used is a center loaded unit that is only 24" long when fully extended, and 12" collapsed. Min-X also announces a forthcoming proportional transmitter with single stick rate and width control, featuring trim on both rate and width, soon to be released. **Circle #4 on** the Render Service Card.



SHOWCASE '64

Micro-Tie Mark II — Justin, Inc. has announced their new Micro-Tie designated the Mark IL This new unit has been made a great deal more versatile by redesign of the printed circuit board. While the original, or Mark I Micro-Tie fit the back of a Bonner servo, the newer Mark II will fit a Bonner, or by cutting off the board at approximately marked spots it will fit the new Kraft Custom servo or the Annco units. In its smallest configuration (cut for the Annco), it makes an ideal unit to mount to the fuselage side or glue to the servo tray. The same high quality edge connector has been maintained and the new board is compatible with Micro-Tie systems already in use. Price remains at $7.95. The manufacturer has reported excellent reception of the Micro-Tie and we can attest to seeing many multi jobs with really sharp looking radio compartments due to the Micro-Tie treatment. The photo shows, in order, the Mark II as receiver

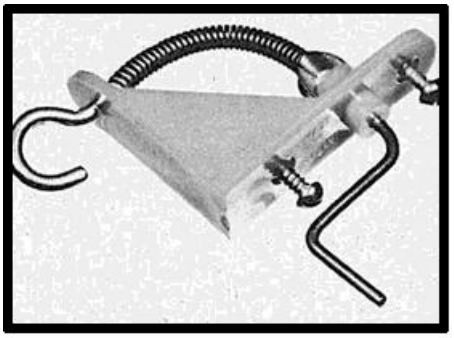


from the manufacturer; second from the top trimmed for the Kraft ,servo; and the lower unit cut for the Annco. A small sponge is now provided so that you may contact cement the pad to the back of the Micro-Tie and then cement to the servo can, tray, or fuselage side. **Circle #5 on the Service Card.**

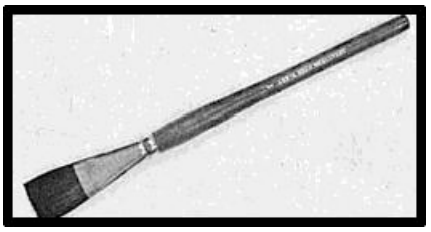
New Epoxy Glue from Pettit — The new Hobbypoxy glue from Pettit Paint company is comprised of two tubes of poly-amid and epoxy resin which, at room ,temperature, are not 100% compatible. When mixed, the temperature rises slightly and the two substances become soluble, setting in 30-45 minutes and providing a firm bond in two hours without clamping. This Is very unlike the conventional epoxy glues which set up in two hours or more and require overnight drying to provide the same bonding action. A heat lamp will speed the Hobbypoxy drying time even more. The pinkish mix is usable for approximately fifteen minutes once the two tubes are combined. Hands and equipment can he cleaned with Hobbypoxy thinner or denatured alcohol. We found the new glue to dry almost clear and provide a bond that exceeded other epoxy glues that we have tried. This material is also recommended for fillets, since there is no shrink. age, and the dried substance can be readily sanded. The glue is also fuel and waterproof, the former quality evidenced by extensive tests including immersing bonded parts in hot fuel for several days without noticeable effect. Price is **$1.00. Circle #6 on the Reader Service Card.**

G.E.M. Fuel Caddy — While G.E.M. Models is chiefly concerned with the manufacturing of fiberglass boat kits, they have released an excellent "fuel caddy" for transporting and dispensing model fuel. Fuel may be purchased by the gallon and dispensed one quart at a time in the Caddy. The fuel is dispensed directly from the unit eliminating the fuel syringe, eliminating the hazards of dirt in the fuel and overturned fuel cans. After the Fuel Caddy is filled, it may be carried in a tool box without the danger of spillage. To fill a fuel tank, simply remove the fuel line from the solid fitting on the caddy and place it over the tank inlet. Turn the caddy upside down and squeeze. When the tank is full, turn right side up and replace the fuel line on the solid fitting. We use it and we like it. **Circle #7 on the Reader Service Card.**

I.M.P. Sidewinder — No need to worry about escapement windings running out during flights with the Side-Winder built into an airplane. This unit enables the model builder to repower rubber windings before each flight without any additional equipment. Weighing only 1/6 ounce and extremely small in size, $1^1/_4$" x 1" x %", there can be as many as three units installed for rudder, elevator, and motor control power rewind. Only $1.25 each from International Model Products. Dealer and Jobber inquiries invited. **Circle #8 on the Reader Service Card.**



Shed-Resistant Brush from Lee's — Specially selected and reasonably priced, the Lee's Shed Resistant Brush answers a definite need. One inch wide, with bristles firmly implanted in the handle, this wears well for painting while not losing hairs on the job. Available at most hobby shops at $1.45 or from Lee's Hobby Supplies. **Circle #9 on the Reader Service Card.**



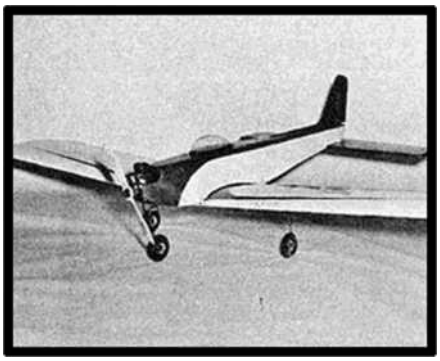
Completed Wing Sections — Meinke Model Engineering has made available a rather extensive line of products for the R/C enthusiast, including prebuilt and covered wings for the Taurus, Candy, and Viscount, along with several standard sizes of Clark Y sections. All that remains for the builder is to join the two halves. Prices range from $14.95 to $32.95, and should prove immensely popular if you dislike building wings as much as we do, and in **view** of the increasing popularity of fiber glass fuselages. Meinke also provides wheel brakes, motor retainers, and several other RC items. For a catalog sheet on the Meinke line, **Circle #10 on the Reader Service Card.**

Dzus Fasteners from APC — Samples of two Dzus were received from Aircraft Plan Company, the AJ4-55 (the size used on the Whistler by Doc Brooke), and the larger AJ4.65, as used on the Stark Shark. Eliminating the need for wing hold down rubber bands, these fasteners with matching springs sell for 75 cents per pair, postpaid. **Circle #11 on the Reader Service Card.**

Raider 10 Released — Blackwell Models Mfg. Co., Inc. has announced production of their new design, the Raider 10. Having reviewed this kit at RCM, we

found the quality of the kit to be excellent, and with an amazing amount of structural strength engineered into the design. Average construction time for the complete airframe, to the point of being ready for final sanding, covering and doping, is approximately 20 hours. Included in the kit is the servo mount deck and linkage materials, nose gear for steering, new-type shock coil main gear, and many miscellaneous items. The Raider has been thoroughly flight tested for all competition maneuvers including spins, vertical 8's inverted flight, tailslides, consecutive aileron rolls, etc. In the event that ailerons should become inoperative for any reason, the Raider may be flown on rudder with good control. Aileron response is excellent right up to the stall point of the airplane. All test models fused .45 engines, two were flown with Fox .59's. Available at local hobby dealers, or **Circle # 12 on the Reader Service Card**.

CG'e Junior Skylark — Carl Goldberg's Junior Skylark, a $4.95 kit for twin .010's single .020, or single .049, recently made its debut. We do not recommend that any beginner attempt twin engine rudder only flight without some form of compensating mechanism in the event one engine

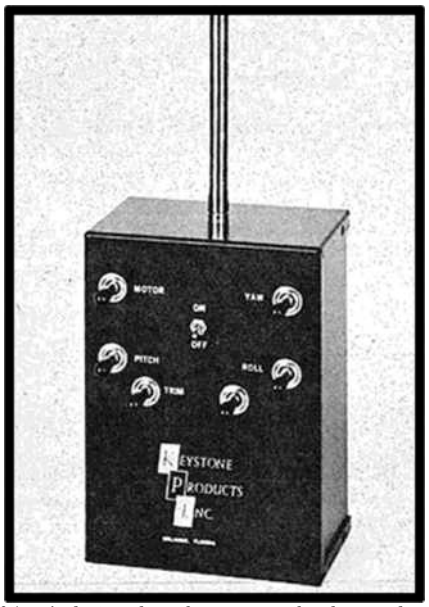


quits during flight. Our prototype was built as a single engine .049 version with Citizen-Ship RSH relayless superhet, Babcock MK II escapement employing kick-up elevator, and a Babe Bee .049 for power. Die-cutting (and there's plenty of it!) was fair to average. Construction techniques employed were excellent, and the designer and manufacturer are to be highly commended on this aspect. Strength to weight ratio is also superior for a model of this size. Balsa provided in the kit was surprisingly well- matched. Suggest you put the prop on backwards for first flights and until final trim is achieved — the engine we used provides a lot of power for this size model. **Circle #13 on the Reader Service Card.**

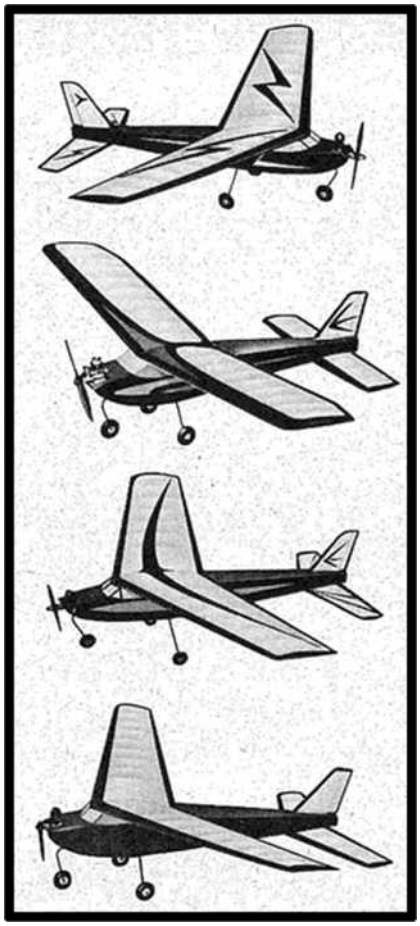
Super Cement — We have experimented with a model cement available from Westee Hobby Imports called Super Cement. This is an extremely fast drying glue with quite amazing strength. It has superior penetrating qualities, dries clear, and can be used for small fillets as well as for filling small cracks. Available in tubes for 25 cents, Super Cement is also obtainable in one- half pint cans for $1.69, and in smaller tubes retailing for 15 cents. Thinner for this cement can also be purchased from Westee in 4 ounce quantities for 45 cents. Circle #14 on the Reader Service Card.

12 Channel Reed Units — Keystone Products Inc., of Florida, announced their entry into the radio control equipment field with a twelve channel simultaneous transmitter for the low price of $79.95, and a six channel transmitter for $54.95. These units have been field tested for over a year with outstanding results, according to the manufacturer. All silicon transistors and diodes are used, 500 mw power, and an overall size of 3" x 5" x 7". Power supply is 8 "C" size batteries or nicad cells. Now in the pre-production stage at Keystone is a single channel closed loop feedback proportional system which will be priced for under $100 complete with receiver, transmitter and servo. A full house, quad proportional system is also planned for forthcoming production, and will retail for under $300. **Circle #15 on the Reader Service Card.**

The Aero Series — Although not in the "new item" category, we would like to mention the series of RC designs from Aero Models. The Dynamic, Flash, Lark, and Star are a quartet of excellent flying ships from John Zaic, and having reviewed and/ or built and flown all of them, can recommend them highly to all single channel enthusiasts. Each

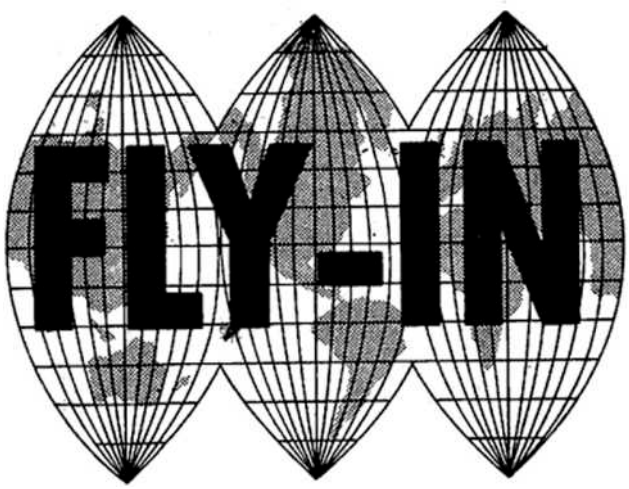


of Aero's designs have been proven by thousands of RC'ers, from beginner to expert. Each of the designs are easy to build and fly, and each



has been designed to fill a particular need in the single channel field. We suggest you send for a catalog sheet of Aero designs by **Circling #16 on the Reader Service Card.**

Skyline Steerable Nose Gear — Designed by Bill Kessler, the new steerable nose gear from Skyline Models was received and reviewed by RCM. Designed for a bulkhead mount in multi channel ships, the new unit is exceptionally rugged with excellent shock absorbing qualities. No binding is apparent. Price is $3.95 at your dealer or direct from Skyline. For fixed strut arrangements, a non-steerable coil-shock gear is also available. Both arc in keeping with what we feel arc exceptionally high standards of quality established by Skyline in all their products. Circle #17 on the Reader Service Curd.



A Veco 45 powered Taurus with Kraft 10 channel equipment was the winning combination for Jim Connacher in the recent South African Nationals. With excellent weather prevailing for the annual Praetoria, S.A. affair, flight performance was at an all-time high. Cliff Culverwell, second place winner, also used the very popular Taurus, also with Veco 45 and Kraft 10 reed equipment. Third slot was captured by John Wesscls, again with a Veco powered Tuarus, and O.D. radio gear. It is interesting to note that only one proportional system was flown, the Constellation 7, and that by its designer, Dr. Derek Ashpolc. The system, previously described in RCM, proved to be a smooth and consistent performer, with only Dr. Ashpole's lack of contest experience preventing the "7" from showing up in the winning trio. A tabulation of the first ten positions is as follows:

Contestant	Plane	Radio
Connacher, Jim	Taurus	Kraft 10
Culverwell, Cliff	Taurus	Kraft 10
Wessels, John	Taurus	O.D.
Hamilton, Gordon	Taurus	Kraft 12
Marais, Jack	Taurus	Orbit 10
Steyn, Chris	Taurus	Orbit J2
Quan, B.	Taurus	Orbit 10
Ashpole, Dr. Derek	Stormer	Constellation 7
Waldburger, D.	Taurus	Orbit 10
Welgemidcd, D.	Stormer	Kraft 10

The Second Annual Barnum Festival Air Circus is slated for Sunday, June 28 at the Bridgeport Municipal Airport in Stratford, Connecticut. Billed as "the greatest aerial extravaganza in New England," the program includes a 3-ring circus of aerial activity as well as a multitude of ground displays. The featured stars of the show are Rod Jocelyn, Lindsay Parsons, and Bob Traugcr. All three are world- renowned for their death-defying aerial acrobatics.

The Experimental Aircraft Association's Norwalk Chapter will also feature a Fly-In at the June 28 air show. Major Kenneth Horton of Stamford will head this event that features a multitude of aircraft home- builts. Supplementing the EAA display, · will be an "old timers" show, including Waco two-holers. Stearmans, Fairchilds, Aeroncas, Porterfields, Sikorksky, and Pipers, to mention but a few of the scheduled fly-ins.

As a feature of the Air Circus, the Radio Control Club of Connecticut will sponsor the second annual radio control model airplane meet, expected to draw some fifty contestants from the eastern seaboard. Arnold Miller and Herb Kohler of the RCCC are co-directors of this AMA sanctioned meet.

Experts estimate that in excess of 65,000 spectators will be in attendance for the Air Circus.

The McDonnell RC Club Spring Fly- Fest scheduled for May 30-31, and limited to members incorporates a number of unusual and interesting events. Class I is limited to single channel with a single escapement or magnetic actuator, (throttle control escapement optional and permitted). Engine ^s limited to .099 or smaller. Class II consists of anything not in Class I or III, basically the old AMA Intermediate. Class III is AMA Multi. The "Charity" event consists of a take off or launch, at least one 360° change in direction, and return to earth — preferably, but not necessarily, within sight of the judges! The "neatest airplane" category will be judged on originality, finish, and flight. A "willpower" event, designed for the female members, calls for assistance from the husband, but any period of physical contact with the flier or transmitter is deducted from total score. The latter is determined by the percentage of total flight time during which the wife is controlling the plane divided by ten. A "mystery' spot landing" event employs ten coded landing spots, each flier registering' the spot designation upon which he lands. At the end of the day, cards are drawn and a value determined for each spot. Fliers will be awarded points accordingly. In addition to these unusual contest categories, will be a STOL event, "most turns in one spin", "greatest number of loops in one wing loading", "most takeoffs & landings minute", "highest wing loading", "lowest wing loading", "most takeoffs & landings in one minute," "timed flight," "economy," "chicken (limbo)", and ETA.

And if that isn't variety, what is? Based on the contest schedule in the March issue of the 'Carrier Wave.'

The photograph of Per-Eliasson's modified Hustler Delta shows more than just a few snow flurries on the surfaces — it illustrates the use of 3M's "Scotch-Cal," a Mylar base aluminized material used throughout for covering. This adhesive-back bright chrome material is extremely thin, but so tough that two men, pulling in opposite directions, cannot tear it! The Hustler utilizes a modified fin, plus the addition of canopy and pilot and a retractable nose gear. A Mcrco .49 pulls the six pound Delta aloft. Kraft reed equipment is used in the radio compartment, controlling aileron, trimmable elevator, and motor. Per- Eliasson is a member of the twelve-year old Star-Flyers RC Club of Stockholm, Sweden. Comprised of twenty-five members, the Star Flyers favor the Swedish Must-Fire design, along with several Perigees, Taurus", and Hustler's.

The Annual Desert Contest of the Long Beach, California BIRD'S Club, features, in addition to the standard RC classes, an event for rubber powered Ranger 21's! A novelty event, this should prove to be somewhat less strenuous than the usual 'competition — or will it? Time and place for the annual Desert affair is Rabbit Dry Dake, between Apple Valley and Lucerne, in Southern California, May 3, 1964. Trophies will be awarded through 3rd place and merchandise awards through 6th place. Contest Director for the BIRD club is Eldon Lind.

President Dan McClaine presides over a flying session of the very active Valley Forge Signal Seekers. Club members fly multi almost exclusively, with Orion's, Taurus', and Stormcrs predominant. Thanks to excellent field organization, the Valley Forge group often use all five superhet frequencies and the 6-mcter spots simultaneously, making their flying strip somewhat like International Airport!

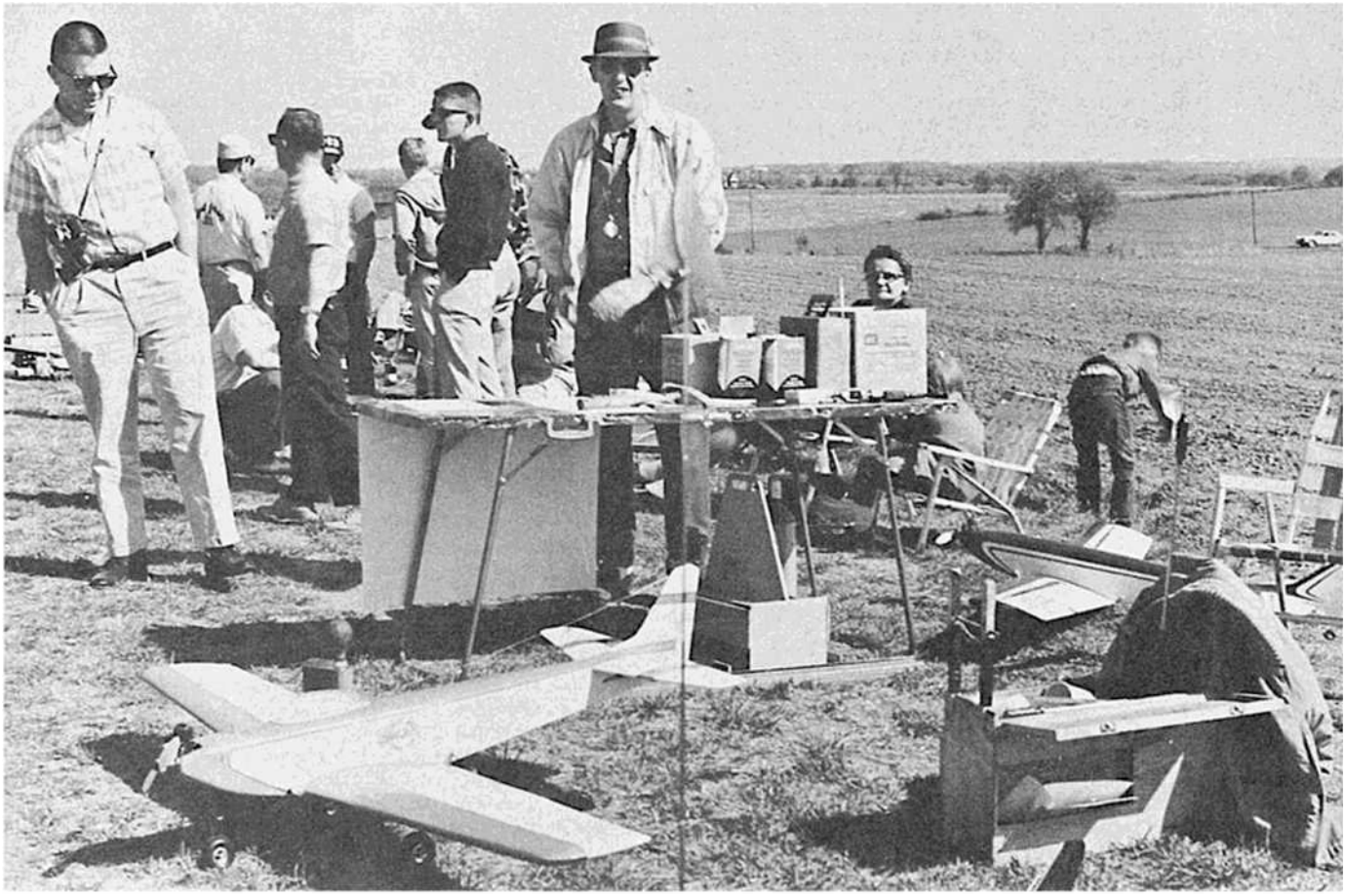
Bill "Square Hare" Northrop, now head of Northrop Advertising, Inc., is shown with his newest modification to the old favorite — the "Heard Squaremander," or, "Remotengeshteeren Doublcstinkensputtenen Flu- genmachiner." This twin-engine Continental favorite (?) is Bill's newest, and most dubious contribution, to the state of the art.

The Tri-County Wing Snappers, Inc. announce their 2nd Annual AMA sanctioned RC contest for JSO in Class I, II, III, and Scale, to be held August 16, 1964 at Deer Lake Airport on Route 61 between Hamburg and Schuylkill Haven, Pennsylvania. Contact Bob Grim, Secretary, 433 Confehr Avenue, Hamburg, Pa.

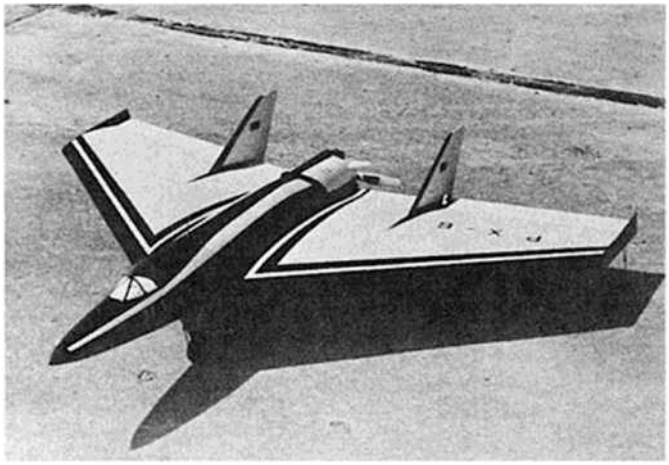
C & S Distributors have announced the purchase of manufacturing rights to the Digicon Proportional System. Don Mathes, former head of Digital Controls, has joined

Sweden's Per Axel-Eliasson with his mylar covered Hustler Delta modification.If the flying garb doesn't clue you, the white stuff is snow.

Remotengeshteeren Doublestinkensputtenen Fluegenrnachiner.



Dan McClaine Valley Forge Signal Seekers, and related components.



Interested? This South American machine performs as well as it looks. Watch RCM.

Versatility and a lot of flying – Long Island's Screamin' Demons.

the staff of Kraft Custom Radio as chief mechanical engineering, layout design, and production control. No further details on the Digicon transaction were available at press time.

The Screamin' Demons of Long Island, Inc., a free-flight club of long standing, is now devoting a major portion of their time and efforts to radio control, as evidenced by the photo of the group. Also announced were the newly elected club officers for 1964: John Byrnes, President; W. Frederick Schmidt, VP and Corresponding Secretary; George Klecak, Secretary; and James Hamelman, Treasurer.

At the present time, the Sreamin' Demons roster consists of thirty active members, with an open invitation to interested RC'ers in the Long Island area to contact the Corresponding Secretary for additional information concerning club activities and general membership. Write: W. Frederick Schmidt, 8 Prospect Avenue, Garden City, N.Y.

Two Fly-For-Fun Days, June 7 and August 23, have been scheduled by the Aero Radio Club of Flint, Michigan, according to Jack Ibbotson. Further details may be obtained by writing Jack's Model Shop, 3502 Fenton Road, Flint. Michigan.

The Susquehanna Valley RC Club, Inc. announces their 2nd Annual RC Meet, to be held at MiltOn, Pennsylvania on June 14th. Scheduling calls for all AMA RC events to be held. For contest information, contact Hale Wallace, 2 Sycamore Lane, Milton, Pennsylvania.

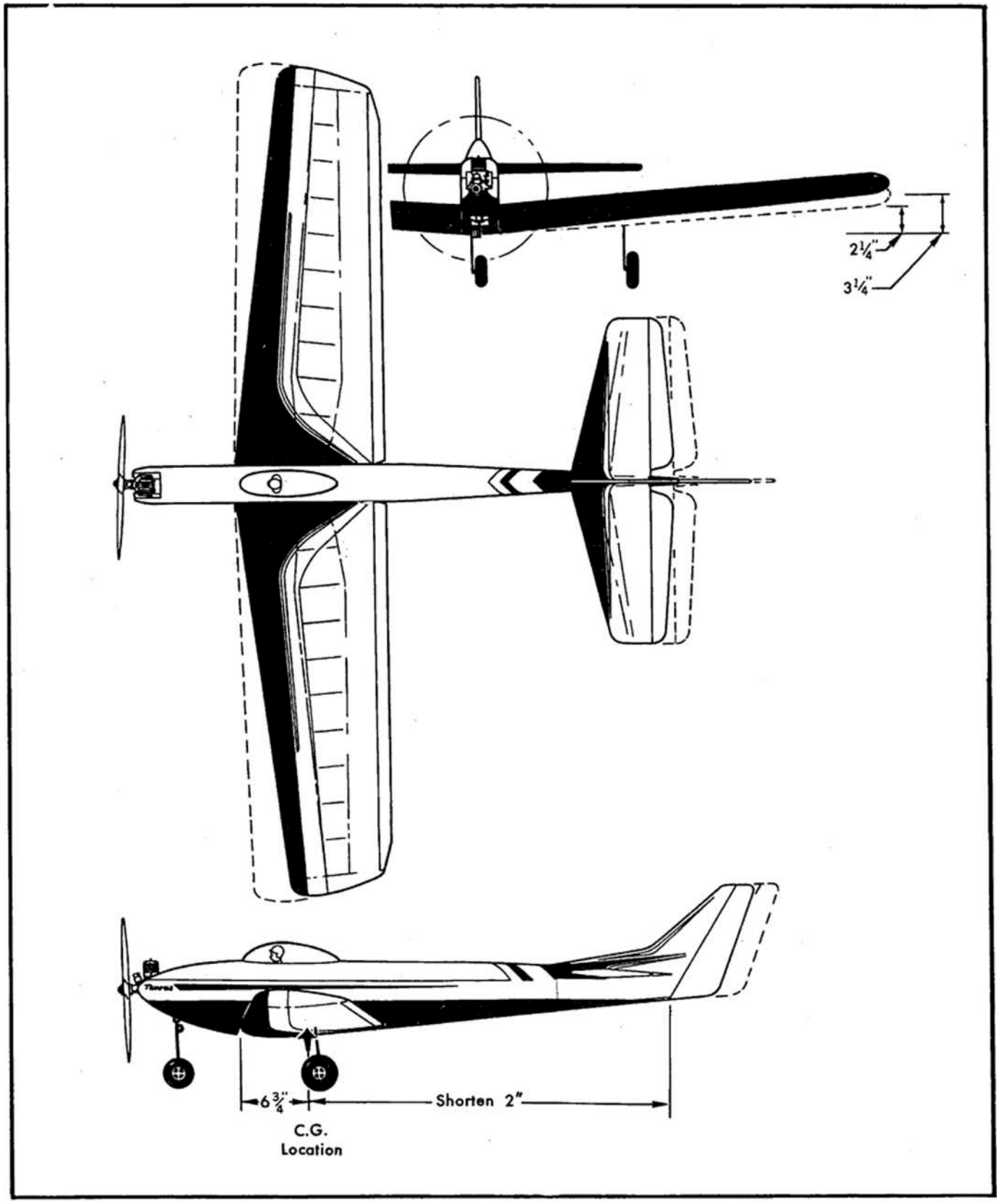
An interesting sidelight from the annals of the Pioneer RC Club historian, concerns one of their members (to remain anonymous!) who was getting in some stick time at Lockheed's parking lot a few years ago. Bringing his Astro Hog in rather high on a landing approach, he tangled with the high tension lines at one end of the lot. As a result, the ship hung up on the wires with one of the lines wedged between the aileron and the wing. The ship dangled there precariously, very undignified, but otherwise undamaged. Undaunted, the resourceful Pioneer member, called the electric company who responded with one of their trucks. The company representative, however, discovered that the ship was hung on one of the upper lines, and that those particular lines belonged to the City Commission. A panic call was next placed to that service organization who responded with one of their own crews. After careful evaluation, it was decided that the most expedient way to retrieve the plane was to shake the wires. Distressed club members, however, would have no part of that, what with $300 $400 dangling on the hook!

It was then decided that it might be best to consult the local fire department and perhaps employ their services. Shortly after, the Fire Chief arrived on the scene along with a couple of police cruising cars. The Chief also suggested shaking the wires, and the harassed flier finally agreed. He stationed himself directly under the plane, hoping to catch it if it became dislodged from the wires. All efforts proved fruitless, however, and at the end of ten minutes, our hero was still planeless — and nervous!

It was then suggested that the Fire Dept, aerial truck be used. The Fire Chief, however, was not in agreement, claiming that such maneuvering would be too costly. Resourcefully, (and perhaps tactfully) the Pioneer member reminded the Chief that the latter would not hesitate to employ the aerial rig if a cat were caught in the tree, impressing the Chief that the Astro Hog was worth more than Aunt Maggie's cat! Faced with such an overwhelming argument, the Chief finally relented.

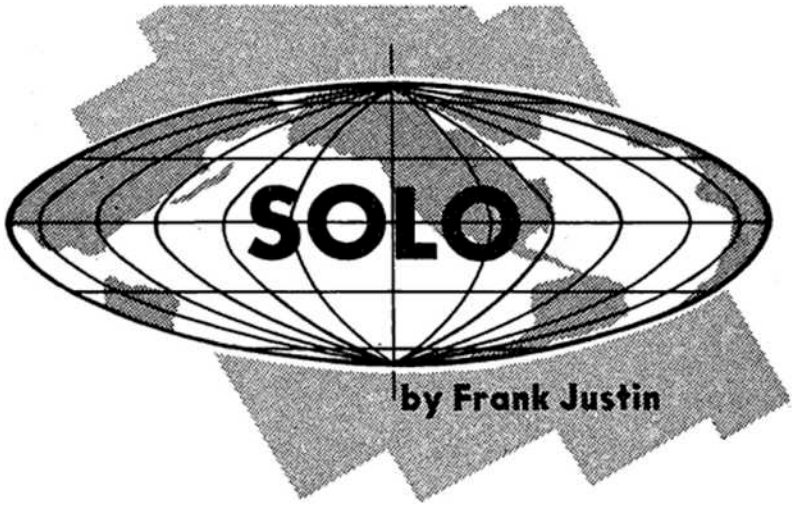
And so we have the curious spectacle of an area blocked off by the Police cruisers, with a Fire Department aerial truck in the middle, ladders extended, retrieving an Astro Hog from a high tension wire, while electric company workmen, club members, and a group of spectators looked on.

And thus according to The Modulator, the case was settled — without ever reaching the Supreme Court!



MODIFYING THE 'TAURUS' FOR PROPORTIONAL CONTROL

Top Flite's ever-popular Taurus is proving to be an exceptional competitor for use with full-house proportional control systems. The following modifications, illustrated above, should be made to the standard Top Flite design: shorten the tail moment two inches, straighten the trailing edge of the wing (giving a swept- back effect), increase the dihedral one inch at each tip, and relocate the CG to a point six and three quarter inches from the leading edge of the wing.



A few weeks ago we built a fiberglass Talon using a Taurus wing—at the present time we are just finishing up a fiberglass Zeus using a Taurus wing. It occurred to us that some of you who might be interested in working with the newer fiberglass units would appreciate a step-by-step follow- through on the Zeus. This is not intended to be a construction bible for fiberglass, but rather, my own personal experiences in working with this material.

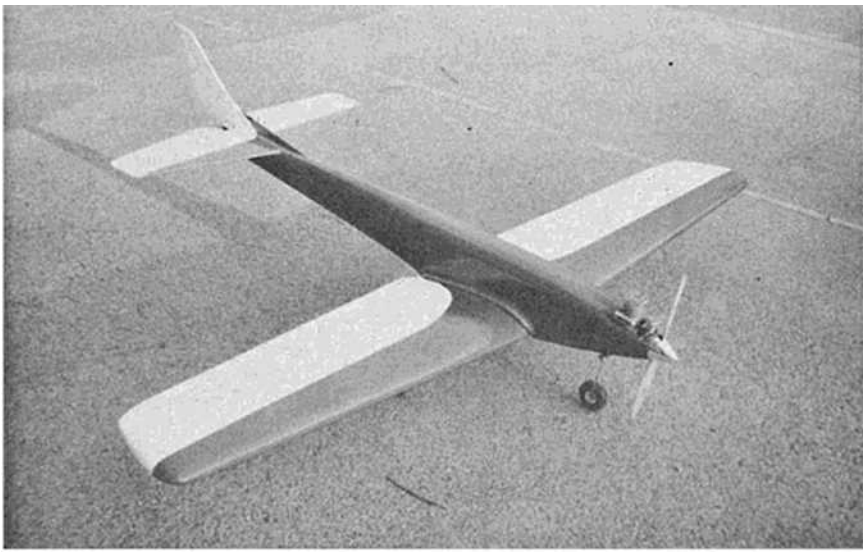
The Zeus is a laminated glass fuselage with the same moments and general shape as the Taurus fuselage. It docs, however, sport a more tapered nose that terminates in a 2" spinner. The motor mounts arc glassed-in and have the same down and side thrust as the Taurus. Bulkheads and servo tray rails are in place, the forward bulkhead is drilled for a gas cap, and holes arc provided for a Top Flite nose gear bracket. The fuselage flares at the wing socket providing a large bearing area for the wing. The same is true of the horizontal stabilizer platform. The Taurus stab will fit perfectly on this platform, and, although a solid stab could be built, you would need to maintain the diamond pattern in order to fit the stab plaform.

After looking over the Hartman kit at our local dealers', we went home and put together an equipment list, producing the following from our goodie box:

Radio: Kraft 10 reed unit
Servos: Bonner Transmites
Motor: ST .56 Battery: Mcdco pack
Main and nose gear: Top Flite kits
Brakes and wheels: Du Bro
Wing: Top Flite Taurus wing kit
Stab and rudder: fabricate from stock
Tank: 8 ounce Lindwood

The Zeus fuselage sells for $26, and considering a Taurus wing kit for 12, and another S7 in small parts needed to equal that which is provided in a standard Taurus kit, you end up paying a $15 premium for a glass fuselage. This may or may not be

This month*s test project anxious to get airborne.



A.M.A. BRIEFS

Teams of A.M.A. officials and Navy officers, plus a representative of the H.I.A.A., met at the Dallas Naval Air Station, Texas, to coordinate planning for the 33rd Annual National Model Airplane Championships, to be held July 20 through July 26, 1964 at the Dallas NAS. As it has since 1948, and for the 16th consecutive year, the U.S. Navy will again host the Nationals. The extent of Navy support for this annual event was indicated by the fact that the USN was represented from Washington, D.C.; Willow Grove NAS, Pennsylvania; Glenview NAS, Illinois; Los Ala- mitos NAS, California; Pensacola NAS, Florida; and the Dallas NAS, Texas. The Academy team was represented by Maynard Hill, President; John Worth, Executive Director; Frank Ehling, Technical Director; Earl Witt, Maurice Teter, Keith Storey, and- Pete Sotich Nationals Executive Committee members; John Clemens, Academy Nationals Public Relations Staff Director; and Bruce Paton and John Patton, official observers. Art Laneau, H.I.A.A. representative and Vice Chairman of the Association's Model Aeronautics Division represented the individual industry sponsors who are underwriting the cost of providing over 400 awards at the 1964 Nationals. Key officials in the 1964 planning are Commander William Robinson, USN, AMA Nationals Project Officer at the Dallas NAS; and Bob Lutker, of Forth Worth, Texas, 1964 Nationals Contest Director.

A one year contract has been signed with the law office of Jeremiah Courtney, in the amount of $1800. According to an AMA news release, under the annual retainer, Mr. Courtney will provide that following services: (1) Follow all FCC actions affecting the radio interests of the AMA membership (2) Report to the AMA-FCC Committee Chairman any FCC actions affecting the present or future radio systems usage of the membership (3) Take all necessary steps to protect life interest 'of the AMA with regard to the existing radio control frequencies (4) Progress to the fullest extent possible the allocation of the new frequencies by the AMA in its October 1963 FCC Petition (RM-496) and Comment (FCC Docket No. 15131, AM-331 (5) Formulate and progress a long-range program for the obtainment of an exclusive frequency assignment for RC model planes

(6) Prepare, on the first of each month, a report of regulatory or other developments in the radio area of interest to the AMA membership in form useful for publication

(7) Prepare such opinions and reports as may be requested from time to time by the AMA-FCC Committee Chairman, the AMA Executive Director, or the Committee Liaison Member.

The Federal Communications Commission has given general manufacturing industries thirty low power channels, 20 kc wide, in the 72-76 me band cut declined to expand the scope of its proposal to consider the requests of other parties, including the AMA, to use these new split channels with one watt input power. According to Jeremiah Courtney, legal counsel for the AMA-FCC Committee, six parties including

(Continued on Page 38)

worth it to the average builder, but I do know that it is a valuable time saver. We picked up our fuselage and took it home for some critical examination. The general level of workmanship is very good, with features such as well thought-out laminations at points of stress, and good grade wood used for the bulkheads and rails. The one dissapointment was the surface bubbles that must be broken out, filled, and finished. The manufacturer states that, due to the lay-up process employed, bubbles of various sizes will appear at the surface. These were most prevalent in the tight radius of the wing and stab socket. It* was not difficult to fill and sand these spots on the fuselage, but I might point out that the Talon we obtained from Glass-Craft had a perfect, and pre-finished, surface. This, however, was a $40 fuselage.

The motor compartment of the Zeus is glassed in, with the' cut-out left for the modeler to fabricate according to his engine preference. I, personally, like this idea, as it gives you a chance to make a good fit in cowling your mill. If, by the way, you are going to attempt this type of work with fiberglass, an almost indispensable tool is a small hand grinder of the Dremel type, with a selection of rotary saws, files, and sanding drums. Every once in a while, Sears has a sale on a ball-bearing, industrial type that is a fine tool. I picked one up a, few weeks ago, for $29.95, complete with case and an assortment of bits plus %"and Wcollets. Wc used the rotary saw on the motor compartment, slowly enlarging with the drum sander until there was adequate clearance for the Super Tigre. At the same time, we roughed up the stab platform in order to make a suitable surface for the epoxy -bond between the stab and platform.

We next committed major surgery on the trailing edge portion of the wing platform. This is to allow the aileron control horn to operate without any modification. You might, however, use bell cranks and run the control horns outboard of the fuselage. If the pushrods come out the bottom of the wing, there is an advantage to this in that if the fuselage slews around in a crash, you don't have a wipe-out with control horns through the fuselage sides. I prefer the ailerons, ala Taurus, as all the linkage is in plain view for adjustment or repair. The plans accompanying the Taurus wing kit carry all the linkage in detail.

Our next step was to cut a 1/16" plywood servo tray. The Transmitter were subsequently mounted to allow the use of a Du Bro trim bar. The resultant steering and rudder arrangement is set up much like the Taurus, as can be seen in the photograph. Be certain to keep the steering differential within the limits of the nylon hardware provided in the Top Flite nose gear kit. These parts can be trimmed and the steering throw increased, but remember that the chances of ground looping are greatly increased as you increase the amount of steering.

-Admittedly, it's pretty difficult to route your push rod tubes for steering and motor control without getting in a few bends in order to clear the tank and battery pack. I have had good luck using flexible wire in these locations — but be sure to keep the unsupported length as short as possible. Any control, such as motor control, that moves through a small arc, works very well with the flex wire. Inasmuch as the flexible cable is a close fit to the tube, don't use any lubrication, as it will only pick up dust and particles and gum up the whole works.

I like a good, tight motor mounting. The Super Tigre was set in. place, then marked and drilled for 4-40 Du Bro blind nuts. These are a little tough to set in the tight compartment, but if you will take a 4-40, about 1/4" longer than the thickness of the rail, and add a couple of washers under the head for a thrust bearing, you can drop the bolt through a hole, engage the threads of the blind nut and jack in place. Remove the bolt, set the engine in position, and you're ready to tie down. I have been using an Allen head bolt with a nylon lock laid along the threads. These are available from some of the larger fastener jobbers under the trade mark NyLok. I have never had one back out.

The horizontal and vertical stabilizers were next on the list, I had a Taurus stab left over from a mid-air collision (boy, was that spectacular — a Taurus will eat a Rudder Bug right down to the servos!), and after cleaning up the mating surface and drilling a few small holes to insure a good bond, cemented the stab to its platform with some of the two-part Wilhold epoxy cement. The vertical stab was cut out of hard Y\ stock in two pieces and glued with the grain at an angle to each other to minimize warping. This, too, was cemented in place with the epoxy. Remember that there is no access to the elevator horn and the pushrod must be in place when you glue. You won't be seeing this elevator horn for a long time, so a single piece of 1/16" wire (no joints) with a 90° bend to engage the elevator horn (plus a keeper that is secured in place with soft wire wrap or tubing) is a must. Any necessary elevator adjustments can be made up front on the DuBro trim hardware.

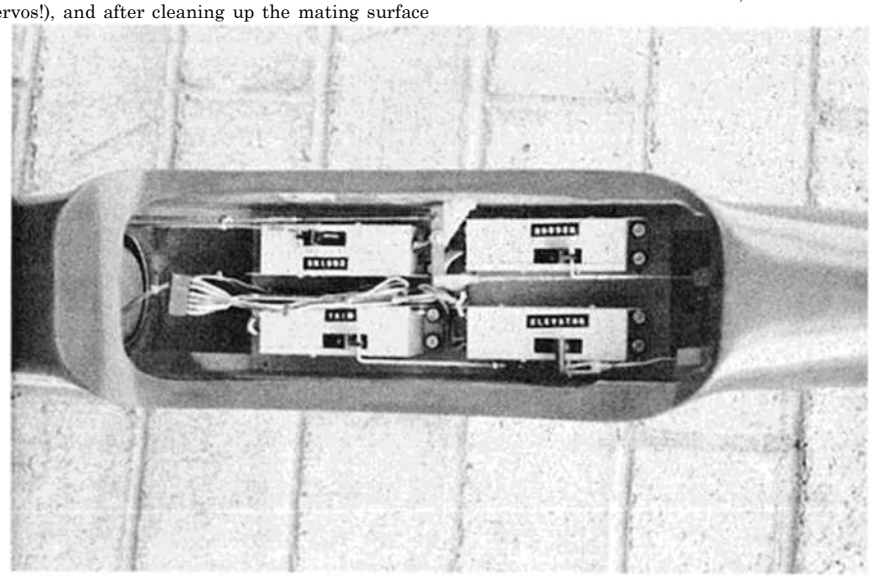
For a receiver mount, I like to take a piece of 1/16" plywood that I can screw to the forward firewall, gluing two strips of foam rubber to it, followed by gluing the receiver cover to the foam strips. In this fashion, the receiver can be removed from the cover for easy inspection. To keep the receiver in the cover during normal operation, use a couple of strips of masking tape down the sides. The only advantages that can be claimed for this type of mount over the conventional foam lined box is that it is very soft mount and vibration is held to an absolute minimum.

Wiring is a matter of personal preference, with any one of the new circuit board aids being used to keep the number of solder connections to a minimum.

The wing (in fact, two of them) was built in one piece on the large Magna-Jig. Building this wing is a pleasure. and doing it in one piece is a joy. I believe the average builder could complete the frame in an evening.

When mounting the servos, take care to see that the aileron control horns are parallel to each other when the ailerons are in neutral, and that the 120° bell crank is, in turn, parallel to the control horns. Operating with the bell crank cocked at an angle will give you problems in roll rate.

Painting and finishing is not my game. Read one of ROM's art ices by experts in this field. I went down to the bank, took a second on my house, and bought a half dozen of the large spray cans of Aero Gloss. This is, perhaps, the cowards way out, but I have received some nice comments. Like, "How come you never paint your ships?", or "Did you wash out your whisk broom when you finished that job?"



Bonner servo installation within the fiberglass fuselage..

The Official Publication of the International Model Power Boat Association General Office: 2405 19th Avenue Broadview, 111. 60155

JOIN NOW FOR 1964 AT NEW REDUCED RATES;
ONLY 50* PER YEAR!

New Administration · Monthly Mailing · Current Contest Calendars-· Technical Assistance · Contest Rules Book · World Record Recognition · World-Wide Directory Service · Up-To-The-Minute News · Fellowship · Latest Contest Results · Contest Procedure Help · Individual Mailing ·

Don't forget! 5th Annual IMPBA Invitational Regatta to he held at Forest Park, in St. Louis, Missouri, July 4-5. All IMPBA members will receive complete instructions and directions by direct mail.

Directory: The directory' service is in full swing now and is growing daily as more clubs and individuals are joining the IMPBA, Why not contract IMPBA members on your vacation this summer, or forthcoming business trip? Send a stamped, self-addressed envelope together with a short note telling where you intend to be on your trip, and if traveling by car, the general direction in which you intend to travel, so we may give you contacts along the way in the event there arc no IMPBA modelers in the town you intend to visit.

Nominations are in order for officers of the IMPBA for terms of 3 years or less as indicated below. Some of these offices expired last year and there were no elections held in 1963. Office of **President** to expire 12/31/66, **Vice President** R/C Division expires 12/31/67, **Director** in Charge of Technical Correspondence expires 12/31/67, **Director** in Charge of Printing and Forms expires 12/31/66. The new organization requires Directors to he responsible for certain duties and also authorizes the Director to appoint individuals as required for the accomplishment of these duties. The directors will he responsible for accomplishing their assigned functions. Be willing to help if you are called upon for assistance by one of the officers. Remember--we want no more, than 4 hours a month from any one individual. A job description will he sent to all nominees with a letter which advises the individual of his nomination, permitting him to accept or reject the nomination according to his own desire to serve.

Citizen-Ship Radio Corporation has extended their Awards in '64 program to include IMPBA members participating in Sanctioned Regattas. For particulars, sec the Citizen-Ship advertisement in this magazines. Hats off to Citizen-Ship for recognizing the IMPBA as the official Model Boat Organization in the world!

Rules Books — Special Offer: All old members who need rule books (new members receive theirs in the membership package) may obtain one by sending their name, address **and IMPBA number** and 25 cents to cover cost of mailing to: Rules Book, IMPBA, 2405 South 19 Avenue, Broadview, Illinois. Cost without IMPBA number is $4.50 per copy.

If you **think** model boating is "greasy kid stuff" and a hunch of bathtub toys, take a look at the existing speed records. This is what you have to beat to win a World Record Certificate for yourself:

Existing World Records—
March 31, 1964

As recognized by the
I.M.P.B.A. **Tether**
Class A Steam—Mike. Succardo 58.44 mph
Class A Gas—Henry Parolil 88.15 mph Max. Disp. 3.05 C.I.
Class B Gas—Ed Kaifus 101.46 mph Max. Disp. 1.83 C.I.
Class C Gas—Joe Horvath 104.52 mph Max. Disp. .915 C.I.
('lass D-M Gas—Joe Horvath 102.73 mph Max. Disp. .61 C.I.
Class D-S Gas—Fred Suhr 93.26 mph Max. Disp. .61 C.I.
Class 1C Cas—Joe Sampisa 71.82 mph Max. Disp. .458 C.I.
Class F Gas—Frank Thornton 81.81 mph Max. Disp. .305 C.I.
Cla<s G Gas—Frank Thornton 70.37 mph Max. Disp. .20 C.I.
Class H Gas—Bo Petri; 49.45 mph t Sweden i Max. Disp. .050 C.I.

Tether Proto
Class A—None Class B—None
Class C—Charles Baxman 42.65 mph Class D-M—Wesley Paridee 70.31 mph Class D-S—Wesley Paridee 70.38 mph Class E—Tom DeMeskey 53.25 mph Class F—Charles Baxman 64.74 mph Class G—Ted Light 50.56 mph Class H—Bill Marshall 20.73 mph **Tether Outbourd** Class A—None Class B—None
Class C—None
Class D—Wesley Paridee 22.44 mph
Class E—Raymond Scott 16.70 mph
Tether Outboard Proto
Class A—None
Class B—None
Class C—None
Class D—hades Baxman 18.97 mph
Class E—Raymond Scott 19.70 mph
Tether Airscrew
Class A—None
Class B—None
Class C—None
Class D-M—William LeFeber 88.26 mph Class D-S Clifford MacBride 88.23 mph Class E—Pete Yanczer 67.66 mph Class F—Chadd Rector 85.71 mph Class G—None
Class H—Chadd Rector 52.32 mph
Radio Control — 1/4 mile Oval Proto (Type 1)
Class A .000 .100—None Class B .101-.2—Charles Radosta time 1:30.1
Class C .201-.3—Larry Atkinson time 1:07.5
Class D .301-.458—Gary Preusse time 1:01.3
Class E .459-.670—Cary Preusse time 0:49.8
Class F .671-3.05—Earl Mundt time 1:04.5
Class H (steam)—None Class J elec, to 10#—Jerry Pryzbylski time 4:44.0
Class K elec. 10#-20#—Roy Miller time 2:16.9
Class L elec. 20#-30#—Joe Conner time 1:11.1
Class M elec. 30#-50#—Joseph Sitar time 1:49.4
Class Q Unlim. pwr.—None **Hydro (type 2)**
Class A—None
Class B—Ron Zacher 1:01.4
Class C—Mert Mischnick 0:54.8
Class D—Frank Toth 1:07.8
Class E—Earl Mundt 0:42.5 (21.17 mph)
Class F—Harold McGowan 0:49.6
Class—H-J-K-L-M-Q-None
Unlimited Hull (type 3)
Class A-B—None
Class C—Earl Mundt 0:57.9
Class D—Earl Mundt 0:50.8
Class E—Gary Preusse 0:47.1
Class F—Earl Mundt 1:04.5
Class H—None
Class J—Frank Toth 2:09.0
Class K—Earl Mundt 1:12.2
Class L—Gary Preusse 1:07.3
Class M—Earl Mundt 4:36.3
Class Q—None

A.M.A

(Continued from Page 35)

Straight 1/16 Mile

Proto (type 1)
Class A-B—None
Class C—Richard Swatek 0:15.4
Class D—None
Class'E—Gary Preusse 0:10.8
Class F—Earl Mundt 0:11.0
Class H-J-K-L-M-Q—None

Hydro (type 2)
Class A—None
Class B—Victor Baney 0:11.2
Class C—Roy Northrup .0:10.4
Class D—Frank Toth 0:15.5
Class E—Earl Mundt 0:06.35 (35.15 mph)
Class F—Rev. F. Zimmerman 0:08.3
Class H-J-K-L-M-Q—None

Unlimited (type 3)
Class A-B—None
Class C—Gary Preusse 0:10.8
Class D—Earl Mundt 0:12.0
Class E—Gary Preusse 0:09.3
Class F—Earl Mundt 0:10.0
Class H-J-K-L-M-Q—None

the AMA, the Halliburton Company, Associated Public Safety Communications Officers, Inc., Central Committee on Communications Facilities of the American Petroleum Institute, National Committee for Utilities Radio, and Holfman Electronics, have also asked for low powered radio operating rights. The FCC, however, held that the scope of its proceeding in Docket 15131 was "confined to the Manufacturers Radio Service." The FCC did, however, make special reference to AMA requests which were filed under a separate, simultaneous petition asking for five additional frequencies for the control of model aircraft. The special FCC reference to the AMA petition suggests that the AMA's low power operating request may well receive the next consideration of the Commission.

Howard G. McEntee joined the AMA- FCC Committee as of March 4th, bringing the membership to its full complement of six. McEntee will be responsible for an industry-wide survey* concerning the desires of RC equipment manufacturers relative to technical aspects of the proposed frequencies. He will also be responsible for formulating and coordinating requirements prior to submission to the FCC.

The Weak Signals Radio Control Conference, through the contributions of the majority of the manufacturers attending, held a series of raffles which raised in excess of S680, the entire amount donated to the AMA-FCC Fund. The total contributions in the Fund totaled $5,284 as of 16 March.

A formal proposal for changes in the RC rules has been submitted to the AMA Contest Board by Harold deBolt, and. based on an article by deBolt in the April 1964 issue of Model Airplane News. The object of the proposed change would be to reduce the time required for each flight, Increase the uniformity of the flights, and provide a means by which the judging could be more easily accomplished, and make it possible to judge the entire flight instead of just the scheduled maneuvers, dc Bolt suggests that two flight schedules should be utilized instead of one. as currently employed. One schedule would be arranged to suit Class I and If, while the second schedule would be for Class III only. According to the terms of the proposal, scoring would be as follows: (1, each maneuver of the flight shall be scored both for perfection and smooth- nes of execution, (2), each maneuver shall be scored from 1 to 10 points with 10 being absolute perfection and 1 recognizable, (3) it would be considered that no maneuver could be judged perfect if it were not placed in a similar manner to what is required for Class III competition. The proposed Flight Pattern for Class I and II is as follows: (1) Seimi-proto taxi, (2) Take off. (3) 180° turn, (4) Level flight, (5) 180° turn, (6) Overhead 8, (7) Wing over, (8) Touch and Go. (9) 3 Horizontal rolls,
(10 > 3 Inside Loops, (11) 3 Outside Loops, (12) Cuban 8. (13) 4 Point Roll, (14» Rolling 8, (15) Tail slide, (16) Tail spin, (17) Traffic Pattern, (18) Precision and spot landing, (19) Proto return. It is proposed that Class I contestants would not have to perform every' maneuver, however the sequence should be maintained. Class II would be expected to attempt the entire schedule in sequence. Class III scoring would be the same as for Class I and II with the following proposed Fly-By Pattern: (1) Proto Taxi, (2) Take Off, Pylon turn. Level Flight, 180° turn, (3) Scrambled 8, Wing Over, (4) Four point roll, 180° turn, (5) Touch and Go, 180° turn, (6) 3 Horizontal rolls, Pylon turn, (7) 3 Inside loops Immelman turn, (8) 3 Outside loops, Split S, (9) Cuban 8, Immelman turn, (10) Half roll into inverted flight. (11) Level inverted flight, half inside loop from inverted flight, (12) Rolling 8, Split S, (13) Vertical 8, Climbing 360° turn, (14) Tail Spin, Pylon turn, (15) Tail slide, 180° turn, (16) Traffic Pattern, (17) Precision and spot landing, (18) Proto return. The schedule would be flown in sequence with any deviation from this aborting the flight at that point.

REGATTA

Three WAM Records Broken At Delano Speed Trials

The Blue Dolphin's Spring R/C Boat Contest, held April 4th at Delano, California, saw three existing WAM records broken in Class A, B, and D. Although confined to only one of the two contest days, due to an advancing storm that pushed ten to twelve inch swells with thirty inch troughs, Griff Parker, Commodore of the San Diego Argonauts, drove home an 18 m.p.h. win in Class A (.051 to .200), shattering the existing 14.80 mph mark by 3.20. Griff's 'Apple Honey,' a 27" Century Sea Maid by Sterling Models, used an OS .19 mill for power, Min-X 6-channel superhet radio, and two trimmable Duramites on throttle and rudder.

In the Class B category (.201 to .300), Ray Price of the San Francisco Model Yacht Club surpassed the existing WAM record of 22.06 mph by racking up a *new* mark of 25.72 mph. Ray's machine was an original three-point hydro, 40 inches in length, using a .29 mill for power.

Dick Pretel, also of the San Francisco Model Yacht Club, piloted his original 40" three-point hydro to a winning 34.89 mph, setting a new WAM record over the existing 3L16 mph for Class D (.501 to .650). An Orbit 4 driving two Duramites in the radio compartment — McCoy .60 power.

In Class F (1.001 to 2.000), Bob McAllister, Commodore of the Westem Council of Model Boating, and member of the SFMYC, set a mark of 28.30 mph with a 48" original runabout. Engine was 1.20 displacement. There was no existing WAM record in this category.

West Coast Contest Calendar

May 2-3 Sacramento, Calif. GOLD CUP RACES. Multiple Boat racing fallowing Unlimited Hydro rules. Two class of Lap speed events.

May 30.31 Los Angeles, Calif. PIRATES ANNUAL MEMORIAL DAY BOAT RACES. Multiple Boat Racing. Lap Speed. Precision Events.

June 28 San Diego, Calif. (Santee) SAN DIEGO ARGONAUTS 2nd 3/4 MILE ELIMINATIONS. Multiple Boat Racing Eliminations over .15 Mile Closed Course. Five Laps.

July 4 Sacramento Calif. PRECISION STEERING CONTEST.

Sept. 5.6 San Francisco, Calif. SAN FRANCISCO MODEL YACHT CLUB ANNUAL LABOR DAY CONTEST.

October 24-25 Delano, California ANNUAL WEST COAST R/C MODEL BOAT CHAMPIONSHIPS. Closed Course races. Lap Speed. Precision and Obstacle events.

Long Distance Run

During the past winter, Earl Mundt and Gary A. Preusse had discussed the possibilities of a long distance boat run. Deciding to follow through on their theories, they chose the Minute Breakers home pond in Lombard, Illinois for trial tests on the standard one-eight mile IMPBA oval. By making their trial runs on a closed course, they could test their ideas and theories without the usual planning and paraphenalia needed for such a goal — a point to point run. The boat chosen for the first test was a Cobra with a Tass gasoline engine. The craft was all fibre-glass, 51" long, 16" wide, and weighed 14 pounds with a 4-channel radio and the Tass mill. Both the boat and the engine had many hours of running time the previous season, and was considered to be the best choice for the run. The only modification made was the replace. ment of the original fuel tank with two one-quart tanks made from G.E.M. fuel caddies.

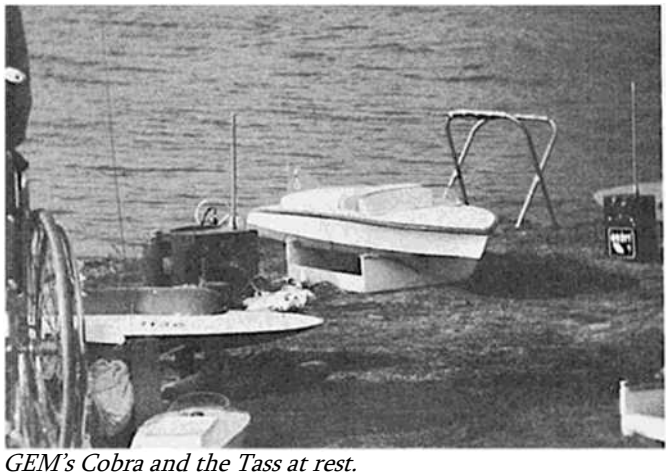
Sunday, March 22, the date set for the trials at Lombard Lagoon, proved to be a cold 38°, but sunny with traces of cumulus clouds. To add an official air to the run, Mert Mischnick, IMPBA President was invited to be present, and to pilot the boat if necessary.

The Tass engine was started at approximately 12.26 P.M., and after Earl adjusted the needle valve, the boat was released. Earl handled the controls for the start of the run.

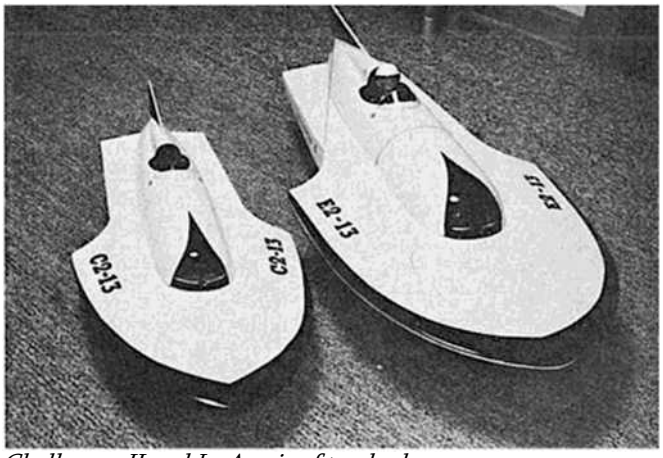
The first mile was completed in 4 minutes and 45 seconds. During the 15th lap, a marker buoy was cut and the marker was circled to make it up. Nine minutes and forty-five seconds was required to reach the 16th lap.

During the 23rd lap, the motor sagged momentarily, but caught and

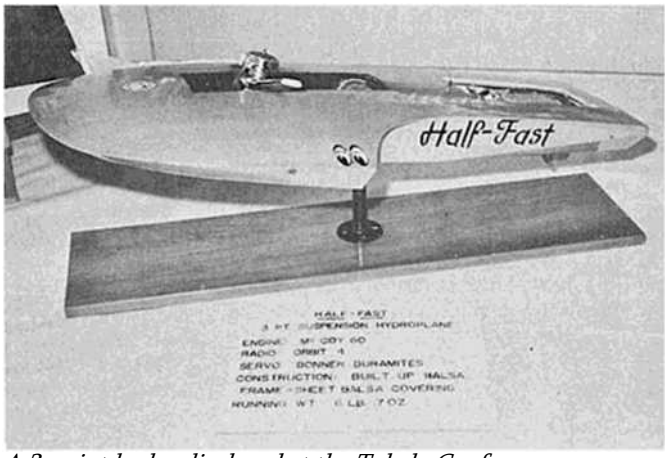
The Cobra– 88 laps.



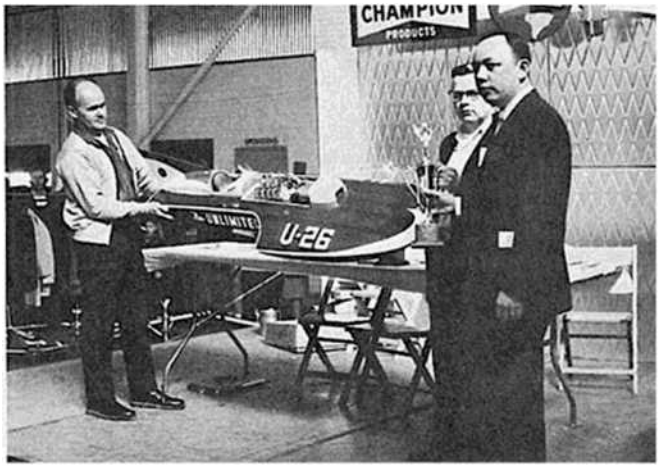
GEM's Cobra and the Tass at rest.



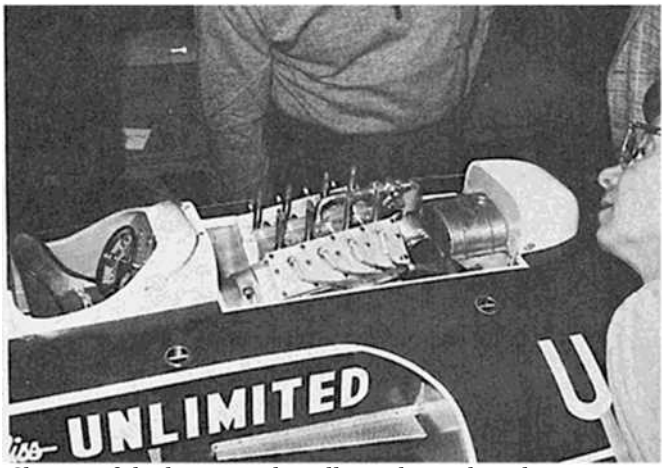
Challenger II and Jr. A pair of top hydros.



A 3-point hydro displayed at the Toledo Conference.



Miss Unlimited at Toledo. Not for small ponds.



Closeup of the home-made mill– workmanship plus.

REGATTA

continued to run. Both Mundt and Preusse assumed that the needle valve was set too lean and made mental notes that on future runs it would he wise to have the needle valve adjustable by radio control.

On the 36th lap a marker buoy was again cut, and as before, circled to pick it up. The Tass mill sagged again, momentarily, hut caught on and kept running. This time, Earl decided to throttle the engine hack slightly — not enough to slow the boat noticeably — but enough to riehen the mixture. Following this, and with twenty four minutes elapsed time, forty laps (or five miles) had been completed, and it was decided to make a driver change. Accompanied, of course, by a comment from Mert that Earl was getting old!

As Gary Preusse took over as driver, a cross wind sprung up to make the course even more difficult. In spite of the fact that he was wearing gloves, Gary's hands were numb from holding the control box in weather just slightly above freezing. With a new driver, it took 33.5 minutes to reach the 56th lap. The wind changed again, this time to blow down the length of the course, making the run much easier. The Tass engine was working to perfection, the slight reduction in throttle having assured a steady performance from the mill. Preusse cut a marker buoy on the 70th lap and circled around to pick it up again. Laps 75 and 76 were timed as 1 minute and 11 seconds. It should he remembered that this boat would normally run two laps in one minute flat —i the loss of speed here caused by the extra fuel and the slightly throttled engine.

The 80th lap was completed in 48 min utes elapsed time, and if you note the time for 40 laps, it was perfectly consistent. On lap 82, Mert Mischnick relieved Preusse as driver, and within two laps has the misfortune to find out that the self-neutralizing or left rudder, had stopped functioning. This caused Mert to cut a buoy, and needless to say, stirred up a bit of excitement before it was realized that after every left turn, right rudder had to he held to return the neutral servo position.

Half way through the 88th lap, and approximately 55 minutes since the start of the run, the Cobra locked in a left-hand turn. The throttle control was still functioning· so the boat could be throttled to an idling position. Retrieving the craft, the engine was cut. Examination proved that a rubber plug that fit over a grease fitting on the stuffing box had worked its way loose and allowed water to drip into the inside of the boat. The water had then progressed toward the stern and shorted the rudder servo.

Although the tests had come to their conclusion, it was interesting to note that the Tass mill had consumed slightly more than a single pint of the half gallon fuel available. The radio batteries and gear itself were in excellent operating condition. Engine, hull, and drive train showed no noticeable signs of wear, even though 88 laps, or 11 course miles had been covered —equivalent to 17 or 18 miles on a straightaway run.

We think that long distance boat running is practical, and can ofTer a good measure of enjoyment for the participants. Quite a few modelers feel that glow plug engines arc not suited for a long run because of their high fuel consumption, but Earl and Gary contend that the glow engines are faster and therefore comparable mile for mile. This, we understand is their next experiment — and success or failure — we'll let you know.

ON THE SHELF

Model Aeronautics Made Painless, by R. J. Hoffman (Timely Publications, Box 31, Halesite, N.Y.) 104 pp., illustrated, $1.50.

Experienced modelers have been asking for it — new modelers really have a need for it. This is why Timely Publications has reprinted R. J. Hoffman's, 'Model Aeronautics Made Painless.'

This manual is one of the most complete compilations on model aeronautics, touching upon every phase of model airplane building, designing, and flying. A lifetime's devotion and interest to the hobby by Mr. Hoffman was crammed into this one book, representing all his notes, analysis and conclusions, which he arrived at through years of study, building, testing and development.

The Messerschmidi 109, A Famous German Fighter, by Heinz J. Nowarra (Aero Publishers, Los Angeles, California) $9.75.

'The Messerschmitt 109, A Famous German Fighter,' an excellent reference work by Heinz J. Nowarra, renowned German historian and researcher, is one of the finest, most complete, aeronautical publications that we have ever seen or reviewed. Several hundred rare and unusual photographs, many never published before, complement a detailed comprehensive text. This is not only a complete biography of Willy Messerschmitt, but is a detailed history of the Me 109 manufacturing facilities and the complete story, of the development of these aircraft. Several "in-flight" aqd "ground" shots of each of the many Mfs- serschmitt aircraft are included. All of the various squadron markings and individual pilot insignia arS shown in full color for scale reproduction.

Greece City Xanthi by Night

Old City Xanthi Street

Old City Xanthi House

Xanthi Central Square

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