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**MODELER**

NOVEMBER 1968 60c 7/-

Did Whitehead fly  
before the Wrights?

PAGE 14

**FULL-COLOR CENTERSPREAD**

**Focke-Wulf Fw 190 A-3**



PAGE 20



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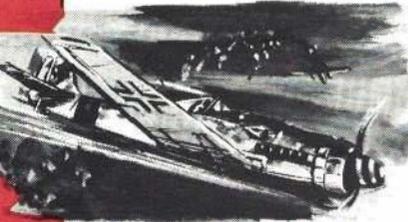
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## NEW CAMOUFLAGE COLOR GUIDE—50¢

countryside, but in the end the superb "Spitfire" fighter, the courage and skill of the British pilots, the inability of the two-engined German bomber to reach deep into the north of the island (where the bulk of the aircraft industry was now located), and the total failure of the Luftwaffe's only long range fighter the Bf 110 (as it turned out the 110's required fighter protection themselves!) and the Ju 87 Stuka's (which has been SO successful in the opening phases of the war when Germany controlled the skies). Kit consists of the most necessary colors for the German and British aircraft of the Battle of Britain, a \$5.50 value (get one bottle FREE) only \$4.95. AVAIL. Jan. 1969.



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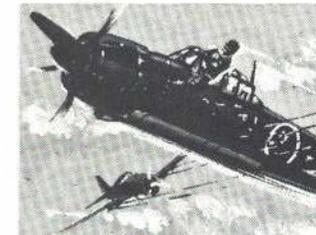
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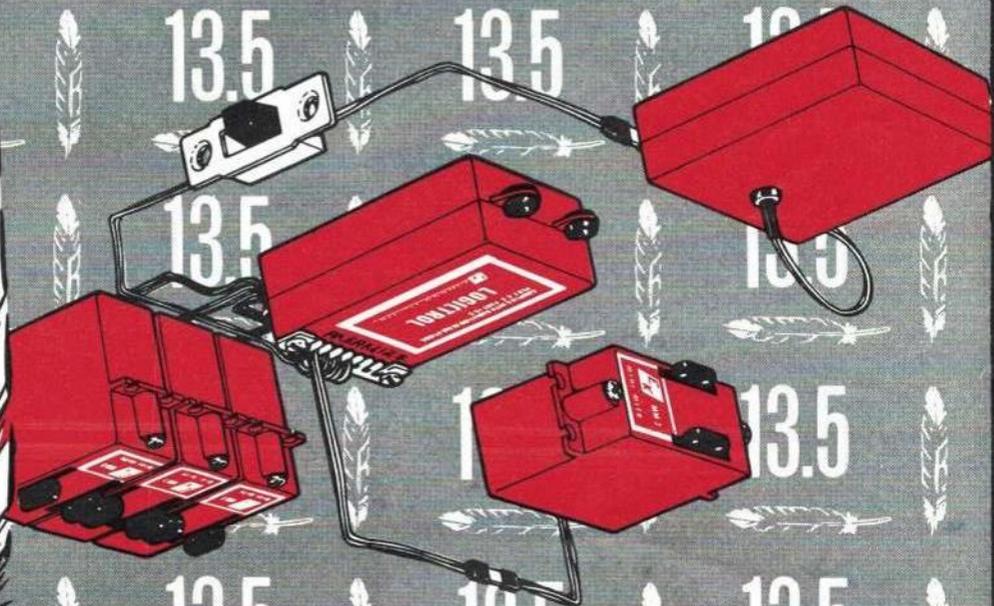
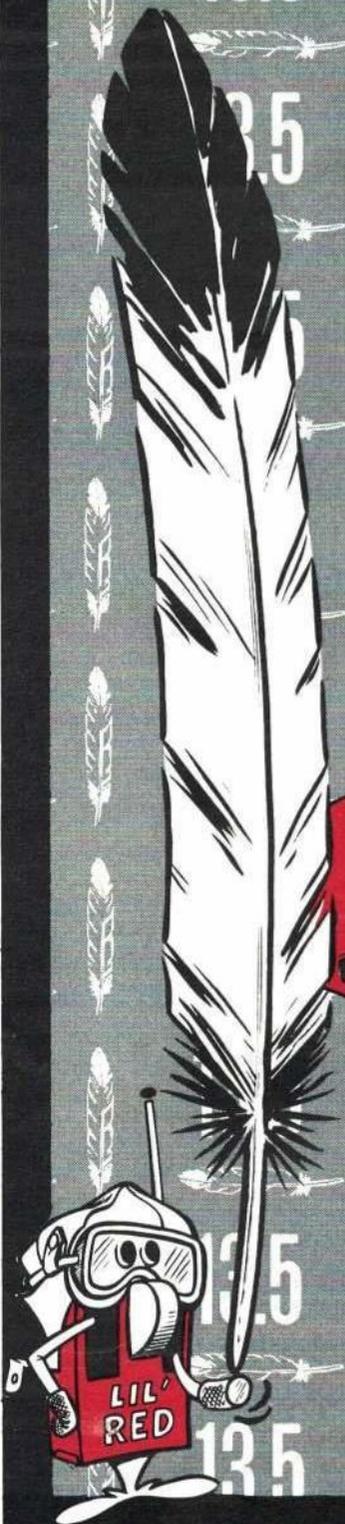
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# american aircraft MODELER

VOLUME 67, NUMBER 5

NOVEMBER 1968

COVER PHOTO: Jerry Hibbard poses with Joe Tschirgi's WW-1 German Junkers D-1 fighter. It's boxy but a great eye-catcher. Photo by Frank Pierce.

WILLIAM J. WINTER — EDITOR AND PUBLISHER

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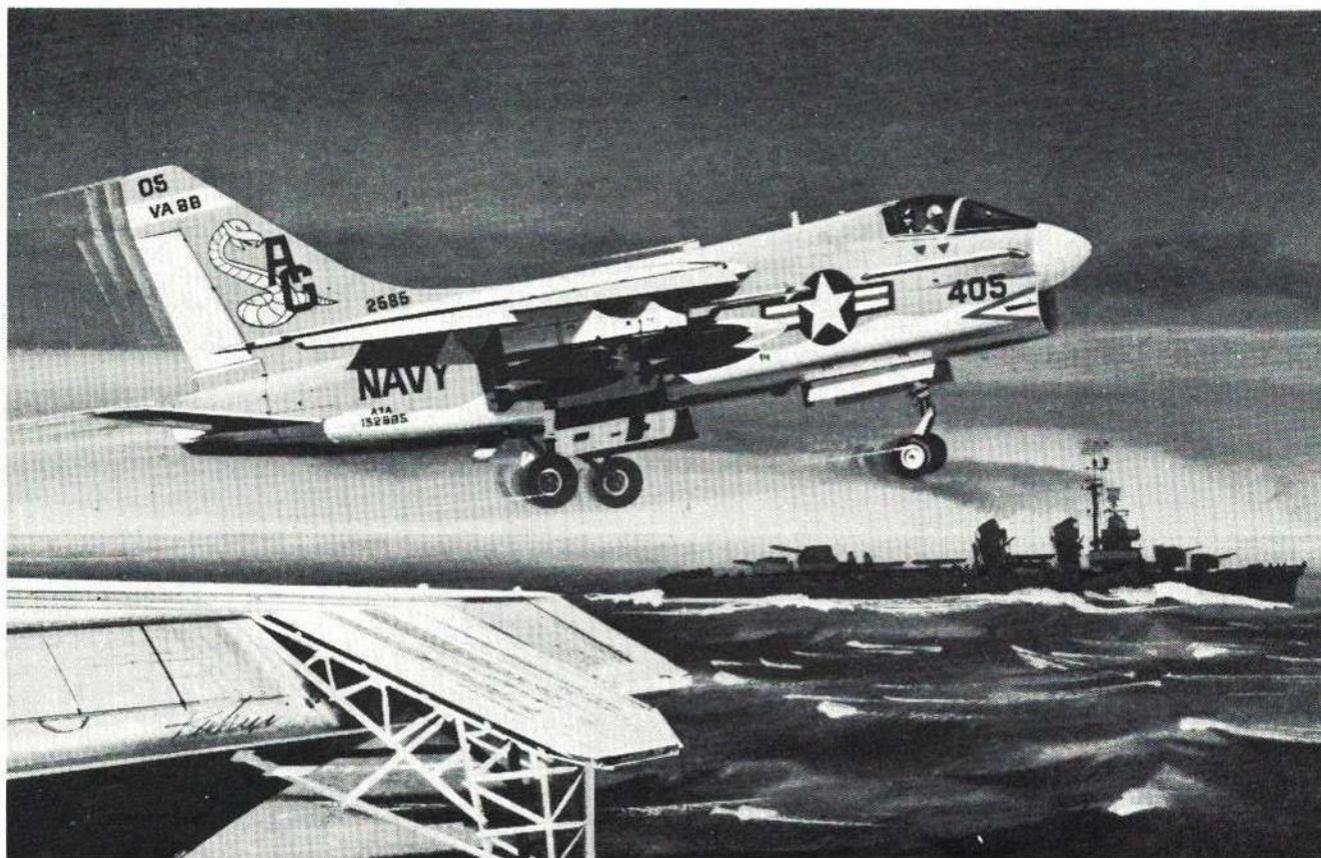
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## **STRAIGHT AND LEVEL**



### **Manufacturer, a great competitor, inventor and master showman, the late Jim Walker left us much to ponder.**

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He was many things. The best salesman model aviation ever had. A major manufacturer whose ingenuity and imagineering held others in awe. He was a prolific inventor. A fantastic showman. A legend in his own time. Blessed with an almost superhuman coordination, he did things with model airplanes that no one ever did before, or since. He was a hero to the kids. A Pied Piper for all of us — though he led us always to bright places. He was the circus come to town. The catalyst that ignited a Nationals. A magician who held us spell-bound. And, maybe, a bit of a lovable ham. He upstaged everybody. Wild and wonderful things always happened when you were with him. As a lone tree draws lightning, he attracted the darndest adventures.

Many remember him for his three-at-once control-line act and his Sabre Dance. Others for his wins of the R/C event at the Nats, both before and after the war. The U-Reely handle was his — it came out over 20 years ago! The Interceptor folding-wing catapult gliders — the Army even used them for target practice — and the Hornet ROG. The Ceiling Walker, balloon tanks. The Fireball (on floats, too!), the Firebaby. He wasn't just first with many things — he was there for a generation before others caught up. Many never did.

Genius, expert competitor, manufacturer, an inspiration for kids, inventor, he was everything. Whatever you were, he was too. But mostly he was a flamboyant showman whose knack for turning people on would be the envy of the best public relations man in any field. A modern-day Barnum, he substituted the word "hobbyist" for "sucker." A hobbyist was born every minute and Walker was out to sign 'em up.

We first met this cosmic force of a man in New York shortly before the war. He had come to demonstrate in a hall, his U-control Fireball. None of us knew what he was talking about. We came, we saw, but we were not conquered. Jim had rigged a double set of lines so he could instruct the press in flying this strange on-wires airplane. A brick on a string — and that's what all the free-fighters said at the next Nats when he demonstrated it at Chicago. He flew, and flew, and flew — all day, every day. And they watched with deadpan faces. It was this very magazine, come to think of it, which then published U-control scale model plans — and the always interested scale fans (who make the world go around, and don't kid yourself) took to the idea like pigs to mud. The model

airplane world was turned completely upside down.

By the time of the first Olathe Nats (this year is a 20th anniversary), Jim had perfected his three-at-once act for the Sunday demonstrations. We all went home remembering Walker, rather than the Blue Angels! He had three McCoy 29-powered Fireballs, sitting there with engines throbbing — like the start of a team race. Waiting on the helpers to get all mills tuned, Jim would stand expectantly in the center of the circle, a helmet on his head. In each hand he held a U-Reely. The third ship's lines ran to a pylon on his helmet. Its motor-control button was clenched in his teeth. All three had two-speed ignition; he flew tight formation without a slip. Eventually, he added a PA deal in his helmet and would explain what was going on as all three ships zipped around like angry bugs, motors zinging up and down to keep position. (It was rumored much later that he managed four ships simultaneously!)

He was in demand at sportsman shows. By now he really had an act. The star attraction was his radio-control lawnmower. This thing had gotten national publicity in popular-science type magazines — with Jim in a hammock, sipping a glass, while buddy mower ran up and down the lawn. Millions laughed. The mower, incidentally, was rendered reeless later, a practical concession after he had followed horses in a Seattle parade. (Jim was fond of telling about the guy standing on a theater marquee who laughed so hard he fell off and broke a leg.)

Before a crowded house at the Sportsman's Pier in Chicago, Jim made his grand entrance, followed by the docile mower. A control switch was hidden in his belt buckle. Off to the side of the tanbark ring stood the three orange-colored Fireballs. Bowing and gesturing, Jim strode toward center-circle. Unknowingly, he hit the control switch. The jealous mower took off on its own, sneaked up on the defenseless Fireballs and spewed forth a cloud of orange dust. It brought down the house. The crowd kept roaring, "Encore, encore."

Jim played a U-Reely handle like Al Hirt tootles a trumpet. A virtuoso. For his Sabre Dance his two-speed ignition Fireball, with a pin on its tail, would go into an abrupt climb, hover motionless, then back down slowly to burst a balloon on the ground. A quick recovery climb and the Fireball circled in level flight while Jim took the applause.

Or he would run out from a side-line crowd at the Nats — this happened in Minneapolis, if memory serves, when Jim had been banned as a distraction to the crowd who ate up his antics — a Fireball, engine running, right at his finger tips. As he went, he'd pay out lines to steal the show. If the wind was light, he'd let out 200 feet of lines. The sight of a Fireball almost free-fighting around a 400-foot circle is something no one could forget. Jim, inci-

*Continued on page 64*



# ✪ Aeronautica ✪

**THE ART CHESTER STORY.** John Caler & John Underwood. Complete account of this famous air-racing personality. Many photos. 3-views. Fascinating biography of outstanding builder/pilot **\$2.95**

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**U.S. NAVY MARKINGS, WW II, PACIFIC THEATRE.** Tom Doll. Drawings by M. Kishpaugh. Contains a profusion of photos showing many variations in aircraft and markings of the WW II era. Informative text traces the evolution of the color and identification schemes used on the carrier-based U.S.N. aircraft. Cover features full-color photos. An absolute "must" for scale modelers and air historians! **\$2.95**

**THE BATTLE OF BRITAIN.** Bruce Robertson. Another in the "Caler Illustrated" series of victorials. Is this history of the men and aircraft in the Battle of Britain. Authored by leading aviation historian Bruce Robertson, this publication features many previously unpublished photos, concise text, and other illustrations. The full-color cover is by Doug Carrick, 10 1/2" x 8 1/2" **\$2.95**

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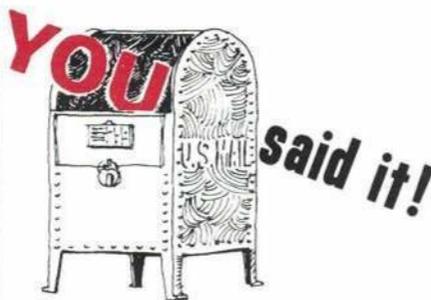
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## Design talent not dead

Well, you did it. Congratulations on a succinct and nearly poetic editorial in your August issue. Yours is the only magazine that I, by habit, turn first to the editorial, but in the August issue, a very good rubber design article by Heeb and another by Horton to top it off. You're coming on strong! Nice job.

What you say in the editorial is what is needed to be said in public print to some of our more zealous F.F. addicts, and I hope they are affected by it as I have been. To me, you have issued a challenge to re-think on non-expert terms to see if the broad design talent you mention has, in fact, actually vanished. I don't think it really has, and I for one plan to see what I can do to prove you wrong.

The newsletter phenomenon, which you mention, has been the subject of some interesting private musings on my part, as I have been an editor of such an effort for seven years and subscribe to many of the other efforts as well. It seems that the whole F.F. clique began via the newsletter route, when some time ago R/C began to take firm grip in the magazines, replacing mainly F.F. coverage. It was then that the newsletters began to become more numerous and more popular as the apparent means of filling this gap. This, in turn, created less dependence upon the magazines for F.F. coverage and the magazines obliged.

It seemed like a vicious circle, leading us to where we are now. Free-fighters speaking to an ever diminishing number of other free-fighters in their semi-private literature. We must reorient ourselves so that the magazine becomes our means of communicating with the outside world and thereby promoting the entire modeling spectrum. I think it is happening. The interest and enthusiasm is there waiting for us, and it is shown here in the Northwest most vividly, where our F.F. meet participation has continued to grow strongly year after year; whereas the ukie and R/C meet participation has stagnated or even dropped off.

Bob Stalick, NFFS, Albany, Oreg.

## Welcome aboard!

Enjoyed your August editorial immensely. I have been searching for easy designs for Model Airplane News too. Have found a few. I hope free-fighters will take your advice to heart.

Dave Linstrum, Maryland Hts., Mo.

## Some rain must fall

As a free-fighter, I must protest and reject your illogical editorial in August. How many articles have you published educating people to understand simple aerodynamics?

What have you done to promote F.F.? It is very easy to criticize, but it takes a man to create! Many people are not technically qualified to design aircraft, i.e. myself, and I would be most eager to build a good design and I am in the winners a good deal

of time. No wonder F.F. does not advance with men supposedly dedicated to model aircraft stabbing F.F. in the back. At least NFFS tries to create interest and promote FF., which is more than I can say for you.

I think your magazine stinks and I resent getting it shoved down my throat because it's part of the AMA membership. I sincerely think you do not represent the main stream of today's modelers. Get out of your wheelchair. Soon F.F. will have national publication and make your magazine look like the mickey mouse toilet paper it is.

Guy C. Markham, D.D.S. Sierra Madre, Calif.

## Sierra Madre?

Ed.

## New beginning

After reading your August editorial, I suddenly realized I was now returning to the start, free-flight. I decided a year ago to return to model airplanes and constructed a R/C Royal Coachman with GG radio gear. I fooled with it for a summer and then realized that this was a fad.

Now I am hunting through your advertisements for a decent rubber-powered, semi-contest plane. I began with a Berkeley Bird Dog and an Atwood Wasp 049, and then finished up with a Midwest Sniffer that got away.

I am glad to see a renewed interest in free-flight, and some intermediate models always were short of supply. I think this applies to R/C equipment as well. . . . it is mighty hard to make that transition from the easy kit to the advanced plan-built. It's good to see a magazine like yours, giving the problem adequate footage.

Joe Reitman, Deer Park, N. Y.

## You ain't invited!

Just received the August issue—looks good. Still say we modelers, F.F., R/C, plastic, etc. have our own little parties going and we ain't inviting anyone else. Jim Walker must be turning over in his grave—he made it look like fun. I wonder how many people he brought into the hobby?

John Andrews, Chicago, Ill.

More letters have been received on the so-called free-flight controversy—which is, what are you guys doing for us?—than on any previous discussion. The above letters are but a small sample. There is an occasional critical one, but virtually all surprisingly (?) are in agreement that ground rules have been spelled out. The subject has been repeatedly covered in editorials both here and elsewhere. Prominent free-fighters now feel that we should gain the fruits of purposeful teamwork. Ed.

## R/C boys eager to help

I was surprised to see my letter printed in your May issue, and thankful for the article "Getting Started in R/C."

Since that time, I have received letters from Ohio and North Dakota, and a phone call. In each case, these were from fellows who wanted to help me get started in R/C. This is a very fine thing and certainly speaks well of you R/C boys.

Eliot A. Kier, Avonmore, Pa.

## Call this service?

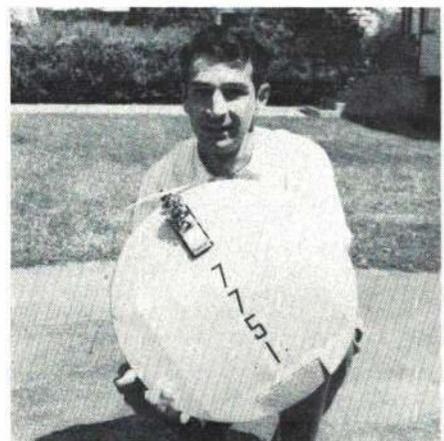
Help! As I write this letter, I am mad at the terrible service I have gotten from model airplane companies. I shall not go into names.

As the summer approached, I had nothing to do, so I sent for a R/C plane to build on the first of June. Two weeks later, I received a letter from the company — they didn't have the plane in stock (I also gave them a second and third choice). I then tried to order the plane from the company who makes the plane. I received my reply almost two weeks later. They didn't make the plane any longer. "Try your dealer," they said. So now I have lost four weeks, and tomorrow, I will make out my third money order and wait two more weeks.

Can't the companies do better? They sure don't make many friends that way.

Last summer, I ordered a U/C plane from the same company. . . . It took about seven weeks to get the plane, but not the one I originally ordered. Is this better service?

David Forlme, Evington, Va.



### Sensation with spectators

In your Model World column in the August issue, you featured photos of two unusual models, so I thought I'd send you a photo of my unusual model. The model is a 19" diameter control-line Target flying saucer designed by Larry Scarinzi. The Target is powered by a ten-year-old pressurized Fox 25 (no longer in production). The saucer sport stunts nicely at the end of 60-foot .015 lines and creates quite a sensation with the spectators.

My interest in flying saucers dates back to 1954 when I saw a flying saucer in combat at the 1954 Nationals. Although saucers were somewhat popular in the early 50's, I have not seen any at the flying fields since then.

Raymond Leone, Batavia, Ill.

### Goodyear draws 'em

With the Navy pressing the issue of their reasons for sponsoring the Nats and the AMA stressing the competition of the Jr./Sr. age group, the Tulsa Glue Dobbers this year, for the first time, scheduled an official Goodyear race at our Spring Rally. It was a great success! This is the one C/L event that should be held especially for the Jr./Sr. boys and the novice flyer exclusively.

Out of the nine entries at our contest, eight of the Goodyear racers were piloted by boys 17 or under. The one Open pilot flew only one other event at the contest — Navy Carrier! We're all missing the boat if we don't take a second look at this event. If this type of competition does not appeal to the old pros, then Rat Race is their game. Let's keep Goodyear in its rightful place!

Goodyear, being a simplified form of Rat Race, gives the necessary competitive spirit, but eliminates the loud engine noise, excessive speed and line pull, and the fierce pilot duels in the center of the circle. The Goodyear racers are colorful, semi-scale

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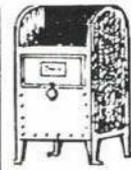
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## YOU said it!

and realistic, easy to build and fly, and relatively inexpensive.

This is the ideal event for the young and/or novice flyers. It gives them a chance to participate in the competitive field of modeling and still have fun doing it. From Goodyear racers, the modeler can progress, at his own rate, into Rat Race, Navy Carrier, Speed, or any other field of competitive modeling.

Of these eight Jr./Sr. boys flying Goodyear, two of them won trophies in Jr. Combat, two won trophies in Balloon Bust, one of them placed second in Navy Carrier, one placed second in Rat Race, and three of the top four Open Combat winners at our Spring Rally were boys 17 or under. I think this says a lot for the need to stress the Goodyear event for the Jr./Sr. novice contestant. It really draws them to the contests.

W. A. Smith, Tulsa, Okla.

### Just discovered

I am 14 years old, and have just discovered your magazine in a nearby drugstore. I have also, very recently, become interested in scale flying models. I like your plans on the centerspread. Is there any way I can obtain all the previous issues containing these pictures? (Possibly without purchasing the whole magazine.) I would purchase the whole magazine if they didn't go back too far!

I like your magazine very much (so far). How do I obtain a subscription?

Ched Bart, Oklahoma City, Okla.

The four-color centerspreads were introduced with the June 1968 issue. Back issues may be purchased for 60 cents apiece. Subscription prices are listed at the bottom of the contents page in every issue. And, Ched, hope you continue to enjoy A.A.M. for years to come. Ed.

### From Tokyo

The Annual you put out is about the best reading I have ever experienced. The article by Ron Moulton on man-powered flight was intriguing, as I have seen bits in local newspapers on the Japanese attempt. Also, Stine's article on model rocketry was really great and was topped off by the fact that one of the chaps at the Nats yesterday had an Estes starter kit and launched it twice to the thrill of all.

The Annual is, indeed, something you must be quite proud of. Congratulations.

L. W. Hoffman, Tokyo, Japan

### Don't blame wood-choppers

I am writing this letter to let you know how I feel about the way that the manufacturers and dealers in model supplies have gone over their heads in boosting the price of model kits and supplies. I am not talking about the price of radio control kits; I am mainly concerned with the price of kits in rubber and gas models.

As far as I am concerned, they are way over the heads of youngsters who would like to get into model aviation, but because of the price, cannot afford to.

The price of small rubber-band model planes is way out of line. If the wingspan was larger, I might think it was worthwhile. I can remember as far back as 1938, you could buy a rubber scale model

for 50c with a wingspan of 30". We seem to be shrinking the model for the sake of price.

Balsa wood is way out of line. This business of the balsa companies in South America being unable to meet the pay scale of the people who help cut down the trees, is a lot of noise just to keep the average modeler unaware of what is really taking place.

If the dealer keeps up this nonsense, you can stop worrying about the younger generation participating in the hobby. There won't be any need to indulge their service. Maybe we better give up balsa wood and find a substitute like we had during WW II.

I think that this is the time to wake up and take inventory, and then act. One answer may be to cut out prefabrication. Half the kits I have seen are not what I would call prefabricated. There have been many times when I have ended up cutting the wood out, because it refused to come out after pushing it.

Phillip Greenstein, Albany, N. Y.

### Needs a lift

I am constantly reading in your magazine about the "Junior problem." I agree, there is one, but I think that it is in two parts. The first part is getting the boy or girl interested in this great hobby. O.K., you got me interested, and I've built a fair lot of models, lately free flights. But, now I want to get into some competition, maybe even the Nats.

There's the second problem. I live in San Francisco. How do I get to Kansas? I've come to the conclusion that the boys who go to the Nats either have fathers who fly in competition, or they live near the site.

I think it is the boys like me who cause the Junior problem. The fare is much too great for me, and I have no contact with elders going. If you know of someone who would be willing to give a lift to a Junior who is itching to go, perhaps you would let me know. Maybe someday there would be a pool of grownups, driving to the Nationals, who would be willing to give a lift to a Junior.

Jim Hayhurst, San Francisco, Calif

Surveys all through the years indicate that the lack of transportation for Juniors is one of the biggest obstacles that holds back their progress and enjoyment. The kids don't have cars. Adults seem curiously unaware of this problem. So give a kid a lift to the flying site. Ed.

### Heard of ingenuity?

Re: June issue "You Said It, Right, Left, Left."

In these days of keen competition, you get what you pay for. This includes cars, houses, and model plans. Most of the plans, to my way of thinking, are adequate.

I have two 10-ft. shelves of unfinished models, but no two right wings or stabs. I'm lazy, not stupid.

I can't buy a poor plans complaint. Haven't these people heard of ingenuity?

R. L. Madsen, Lynwood, Calif.

### Free-flight is not dead

As National Free Flight Society treasurers, Annie and I want to thank you for running the ads for the Society. You have made it possible to contact people that we could not reach by unaided efforts.

We also pass along the gratitude of many isolated modelers that thought free-flight was dead until they found how to reach us through American Aircraft Modeler.

Bill and Ann Gieskiang, Lakewood, Colo.

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ROBERT MEUSER

PULL back until you are sure rubber and the model can stand no more. Then grit your teeth and pull back a little more. Release your model into a breathtaking, near vertical ascent, soon followed by a smooth transition into the glide pattern. What had been a skyrocketing missile, becomes miraculously transformed into a graceful soaring bird, rocking and bounc-

ing in cooperative response to the slightest turbulence. Then it is away on a booming thermal. The chase is on.

You can build one in an evening and fly it for months. A newcomer can build one good enough to give the old-timers a run for their money. They can be flown in small fields. Materials cost less than a dollar. The performance is spectacular.

The catapult glider is a particularly good model for the novice. He can quickly learn a great deal about model building and flying with little expenditure of time and can have a whale of a good time doing it. At our most recent contest, 14-year-old George Wilson placed second, beating out such experts as Bilgri, Andrade and Rambo. Use of a catapult, as contrasted with hand-launching a glider, puts everyone on an equal footing. The advantage of superior athletic ability is eliminated. This helps the youngsters and some of us not-so-athletic old-timers too.

Before WW II, catapult glider was a regular event at California State Fair contests. After the war the Oakland Cloud Dusters continued the activity, and they now hold one or two meets a year (usually in the spring before the pressure of the AMA and FAI competition builds). Twice as many members participate in the catapult contests as in any single event at other contests. And some members show up who haven't attended a meeting or another contest in years.

At the O.C.D. contests, a 25c fee buys six flights. The contestant having the highest total time for three consecutive flights in a set of six is the winner. A contestant may reenter any number of times until he runs out of quarters or models. There are no rules governing the design of the models. Mother Nature, it seems, provides all the



Winners of the '68 Oakland Cloud Dusters' catapult glider meet were: (L to R) First, Dale Parks; Second, George Wilson; Third, Earl Thompson. Four-minute "Maxes" used.

limitations that are necessary. The "Max" is four minutes. The winner takes half of the money collected—the remainder goes into the club treasury. Contests usually run from 8 a.m. until noon.

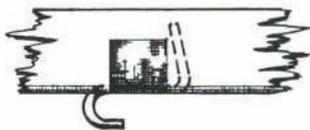
Best three-flight totals are usually around seven minutes. No one has ever maxed out. The "best three consecutive flight" ruling assures that. Only one model has been lost out-of-sight in the past four years (mine!). Contests are usually held in January or February when thermals are pretty weak.

There is no such thing as a typical catapult glider. They run the gamut from small to large wing span, low to high aspect ratio, feather light to rock heavy. Plans for two models are shown. They were selected for two reasons—they both won recent contests, and they represent extremes of design. Dale Parks' model, having only a 14" wingspan, goes very high, but it has a rather high sinking speed. Carl Rambo's 24"-span model doesn't launch nearly as high as Dale's, but it has a sensitive floating glide and will ride the lightest ground thermal. Many of the old-timers—Bilgri, Andrade, Mette, Romak—use models roughly similar in size and weight to Carl's, and they usually give a good account of themselves. At the most recent contest, however, the three top places were taken by the smaller, higher altitude-type models. Although Rambo posted the two highest times of the day, one of which was over 15 minutes—both were test flights! Far more



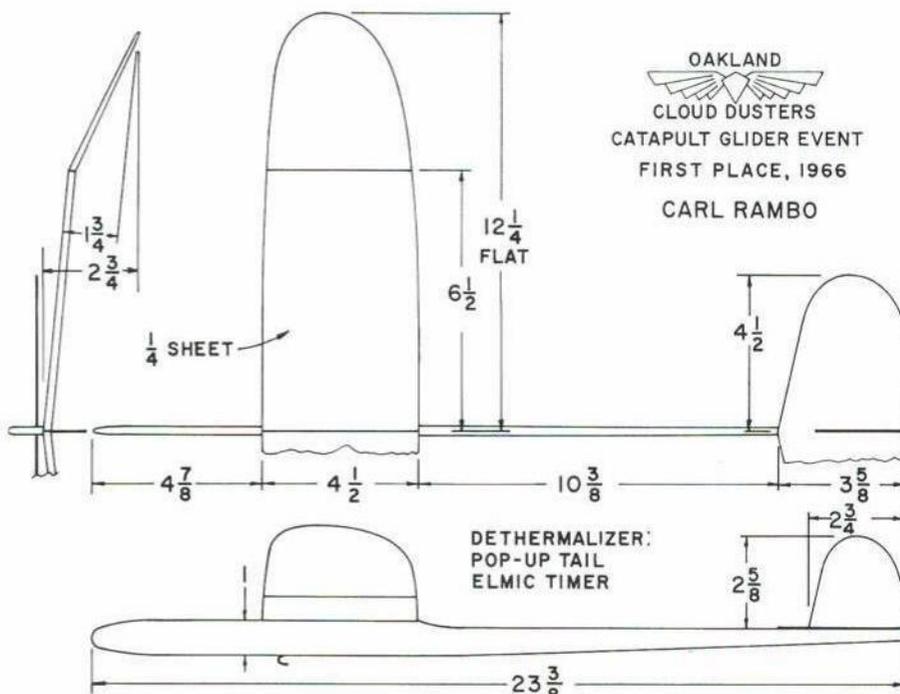
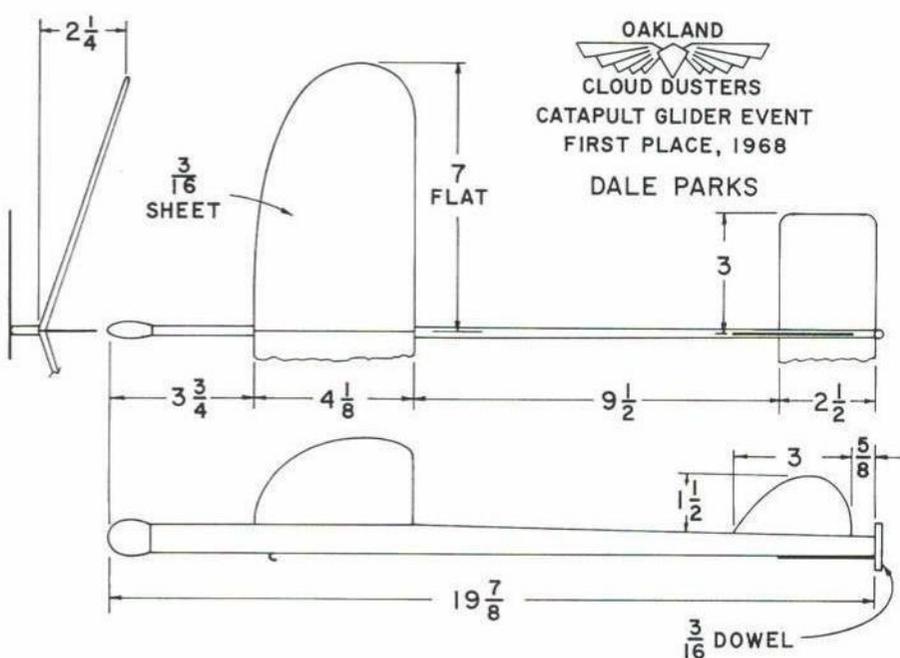
important than the design of the model is the adjustment, and here experience is the best teacher. Achieving a good transition from launching to glide is far more important than getting a high altitude launch, if the model loses half of it before getting into a good glide.

The O.C.D. catapult is a two-piece, metal tube 8' high and braced with cables anchored to tent stakes driven into the ground. A cross bar 6" from the bottom keeps the pole from sinking into soft earth. Eight strands of 1/4" rubber are fixed to the top and terminate in a wire loop to which the model is hooked. It is convenient to be able to rotate the top section of the post to untangle the rubber, inasmuch as you can't easily reach the top. A TV antenna mast and guywire hardware would work fine. On the O.C.D. catapult, the rubber emerges from the top through a smoothly



$\frac{1}{16}$  MUSIC WIRE HOOK  
EPOXY-GLUED INTO  
DRILLED HOLE  
CLOTH COVERED

Launching hook must be well-fastened to the glider's spruce fuselage. Use epoxy.



machined aluminum fitting. A less elegant device would serve as well, as it is not necessary for the rubber to be attached exactly at the top of the pole. The lift of the wing carries the model a foot above the top of the pole anyway. A high pole permits a high launching angle, but we once used a pipe only 3' high; it worked almost

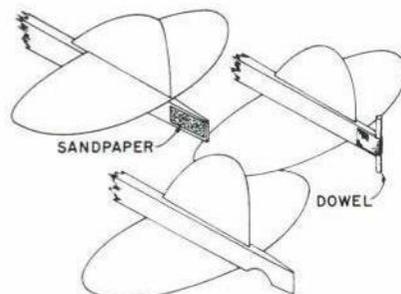
as well. You can try your own variations. While construction generally follows hand-launch glider practice, the catapult glider must be sturdier. A well-anchored launching hook is essential, and the sketch

*Continued on page 45*



2 STRIPS OF  $\frac{1}{16} \times \frac{1}{8}$  SPRUCE  
WHITE-GLUED TO LEADING  
EDGE BEFORE SHAPING  
AIRFOIL.

Spruce reinforcement of wing's leading edges keeps them from getting saw-toothed.



Don't forget the finger grips; see styles above. Two-hand launching doesn't work.

WHAT REALLY HAPPENED ON AUGUST 14, 1901?

# Did Whitehead Fly Before

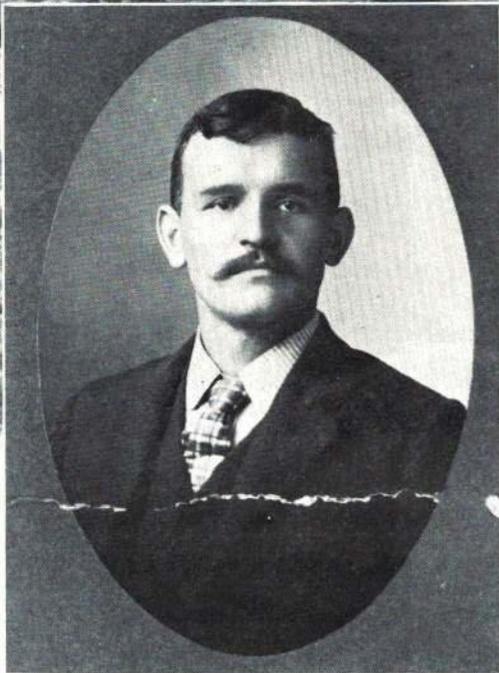
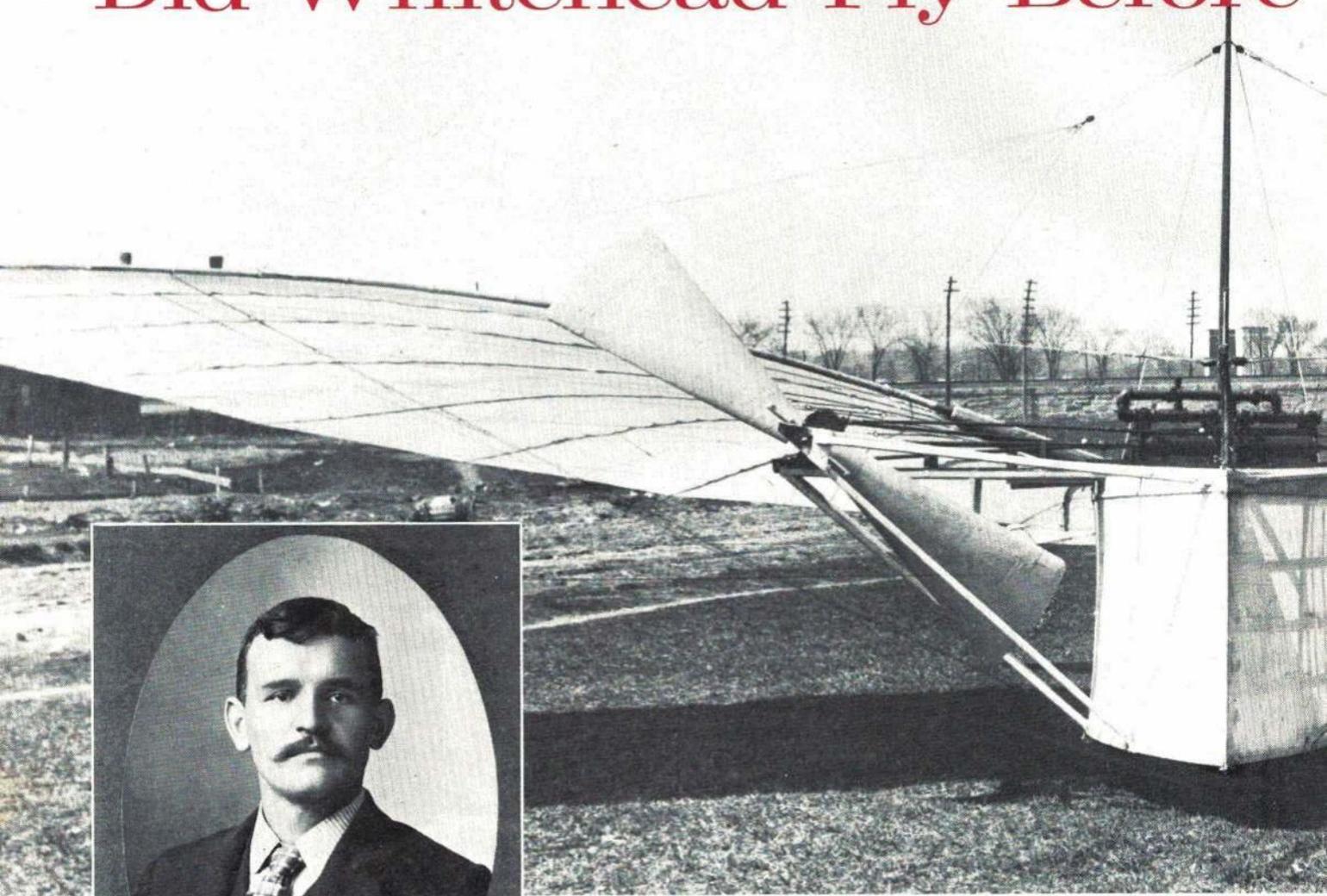
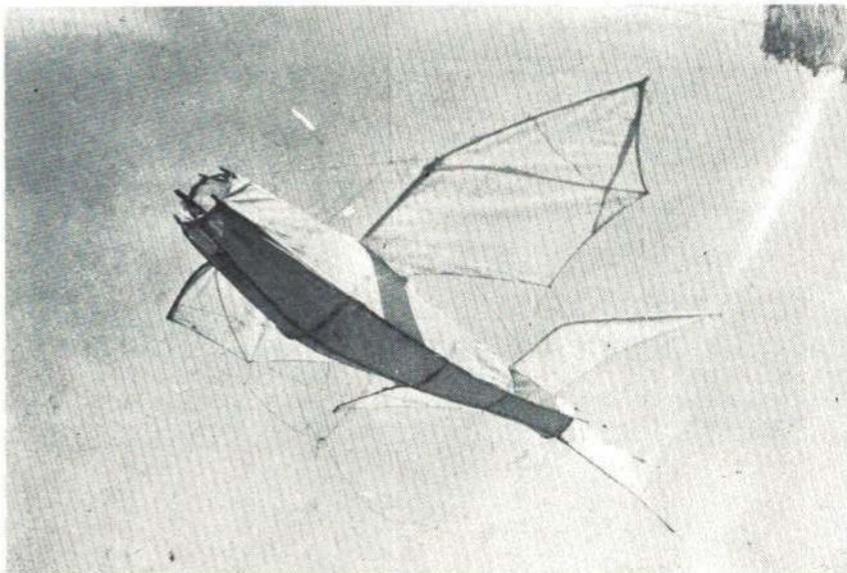


Photo: Courtesy of Gustave Whitehead Family

Gustave Alvin Whitehead (Weisskopf)  
January 1, 1874 — October 10, 1927.  
"The father of Connecticut aviation"

For years historians have labeled the Whitehead flights a myth, Whitehead a charlatan. But a growing mass of dramatic, long-buried evidence, including eye-witnesses, may yet substantiate astonishing claims.

Photo: Courtesy of Miss Stella Randolph



Whitehead's evolutionary route to #21 came by way of Octave Chanute's book, *Progress in Flying Machines*, published in 1894. He built a kite model, right, in 1897 before his monoplane, Pittsburgh experiments. The photo of this glider model was first published in the December 1902 *Aeronautical World Magazine*. The same article spoke of his experiments with VTOL, an instrument to measure the screw thrust while flying, controllable propellers, and a power-boost system for varying the angle of wings and controlling the elevator and rudder. Similar rudder has been used successfully on *Leinert* models.

# the Wrights?

This excellent dead-center photograph of the front of #21 was a most welcome convenience to Irving Burger, one of Sikorsky Helicopter's top level draftsmen. His plans were reviewed and approved by Anton Pruckner, Whitehead's associate and mechanic who helped build #21. From them, the Karlstrom three-view plan was made for this article.

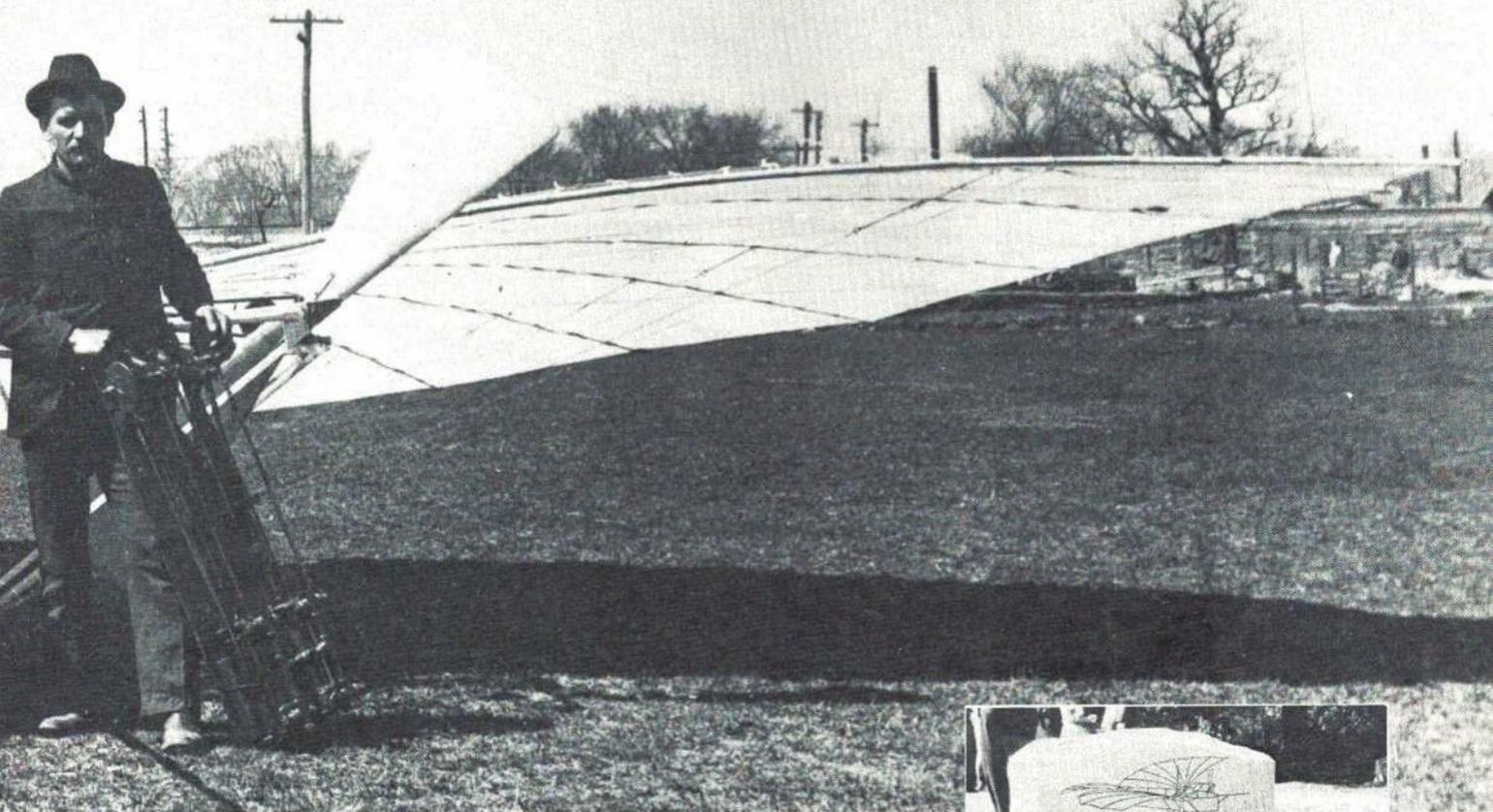


Photo: Courtesy of Miss Stella Randolph

## WILLIAM J. O'DWYER

Major, USAF, Reserve

©1966 Wm. J. O'Dwyer

IT was 90 years after Gustav Alvin Weisskopf was born in 1874 in Leutershausen, Bavaria—and 37 years after he died in Fairfield, Connecticut—when Governor John Dempsey signed an official statement that declared this immigrant pioneer as “The Father of Connecticut Aviation.” This 1964 honor has measurably helped to lift the veil of obscurity from around the life and works of an unsung genius.

Now, in 1968, the same comprehensive research probe which has broken most of the prejudice-barrier, is entering its sixth year of study. These same studies do indicate Gustave Whitehead (his Anglicized name) is destined to acquire lasting international recognition.

The inquiry which lent historians the means for Whitehead's recent and proper evaluation was the joint endeavor of the 9315th Air Force Reserve Squadron of Stratford, Connecticut (who began the project), and the Connecticut Aeronautical Historical Association (CAHA), New England's young but highly regarded center for aviation lore.

The combined research has been formally

commended by Smithsonian National Air and Space Museum's directors and staff, Air Force Historical Association; Air Force Museum; Wernher Von Braun; Igor Sikorsky; leading historians and German aeronautical societies. The Deutsches Luftfahrt-Archiv of Nuremberg has taken on the European Branch Study Group of the Gustave Whitehead Research Committee with the assistance of Fritz Jacobsen, vice-chairman in charge of research development. Herr Jacobsen is one of the more eminent scholars and historians of aeronautical history in Germany.

The most curious part of the controversy which surrounded the Whitehead legend rests in the fact that no accepted responsible historian or institution had ever undertaken a serious study of Whitehead or his claims. None of us, who have served on this sanctioned committee, can comprehend how or why historians would knowingly avoid investigating, in depth, any claim which contended the claimant had flown some two years, four months, and three days prior to the Wright's feat at Kitty Hawk. It would appear they were almost afraid their findings would verify a fact once labeled as “fraud”! How else can we explain to posterity the six decades which

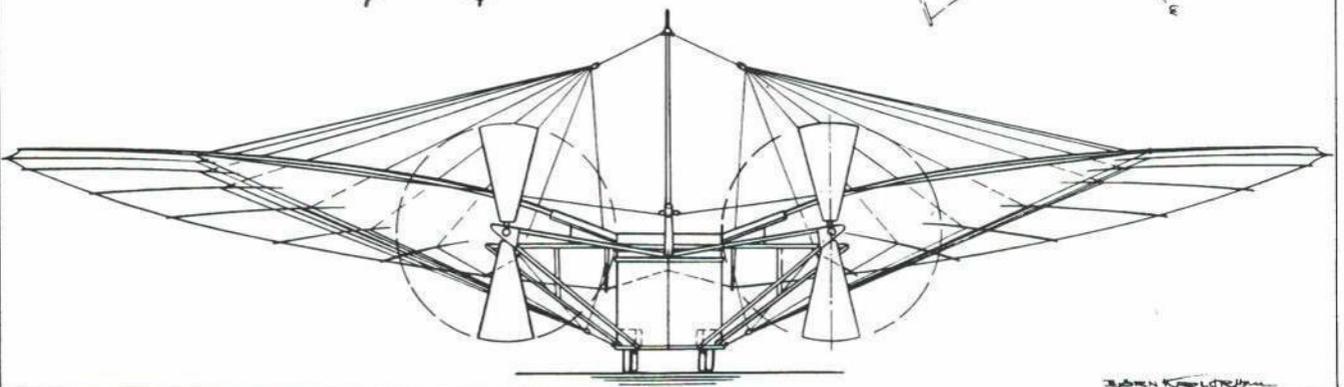
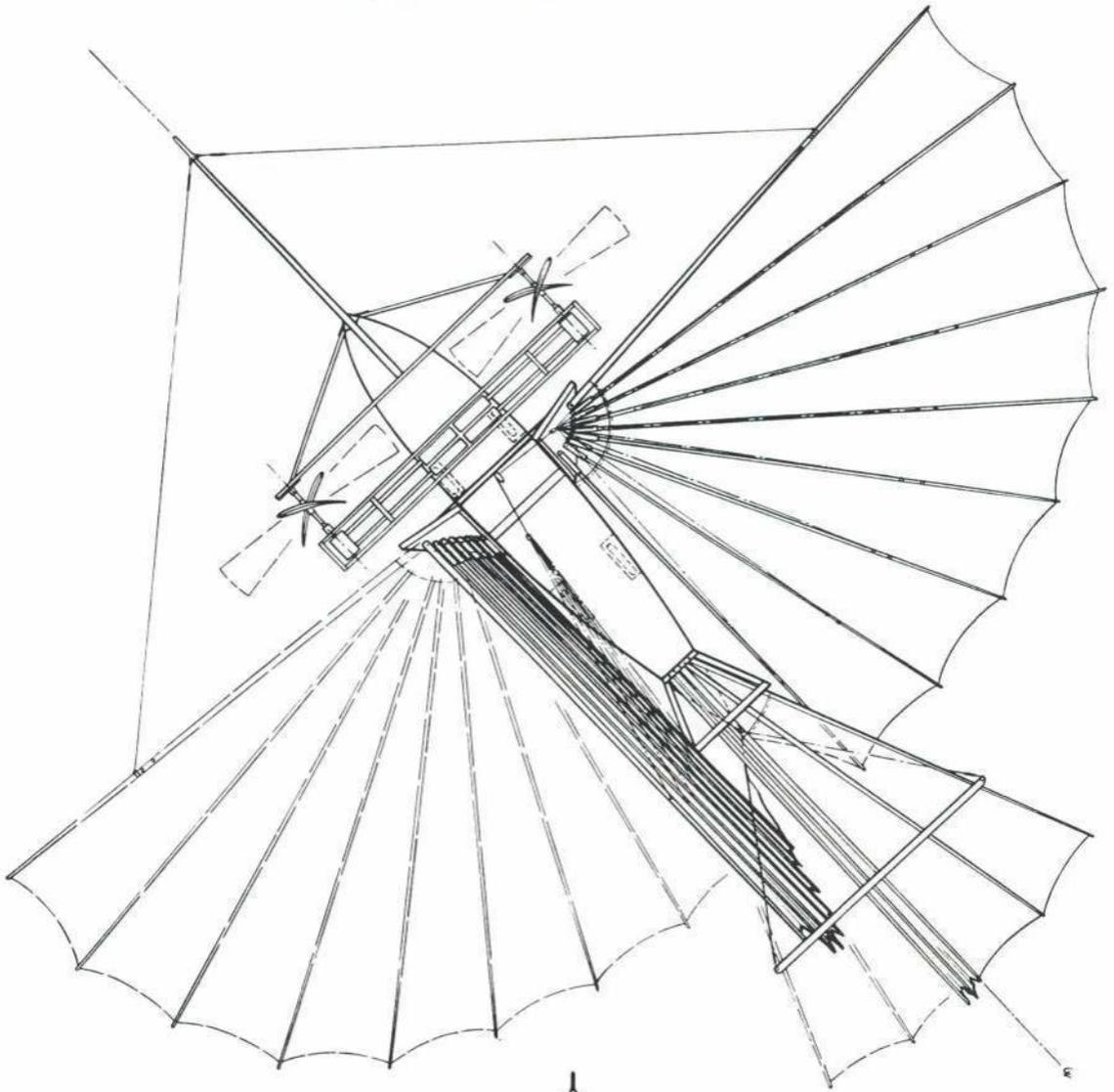
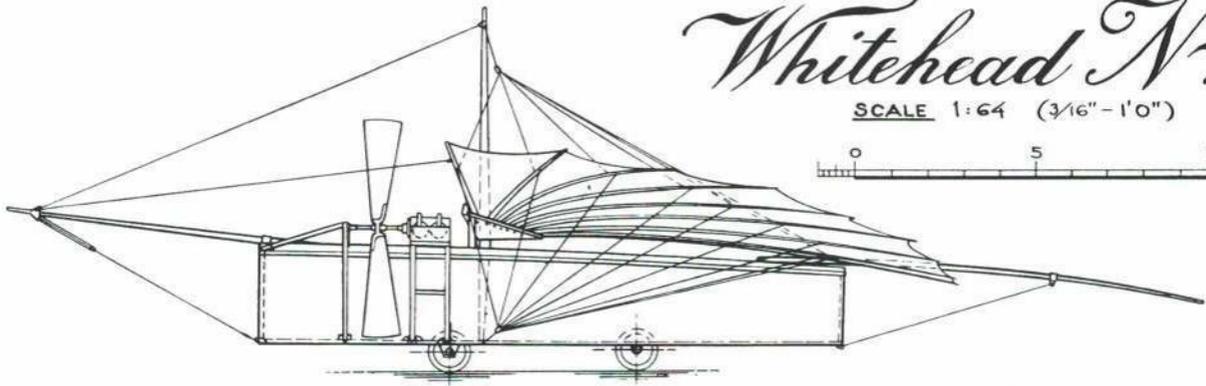
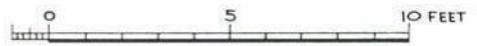


Photo: Courtesy of Major Wm. J. O'Dwyer

The first step to arouse recognition for Whitehead officially was at his grave in Bridgeport. The bronze numbered disc, #42, Row 27, was removed from beneath the sod and this suitable headstone was put in its place. It was dedicated by Governor Dempsey; Fairfield's First Selectman donated the wreath. Whitehead's daughters and surviving associates were joined by former friends and neighbors to observe the tribute. Every branch of the Armed Service was represented. It was a joint project of the 9315th AFRSQ and the CAHA.

# Whitehead No. 21

SCALE 1:64 (3/16" - 1'0")



BORN KALSTEDT

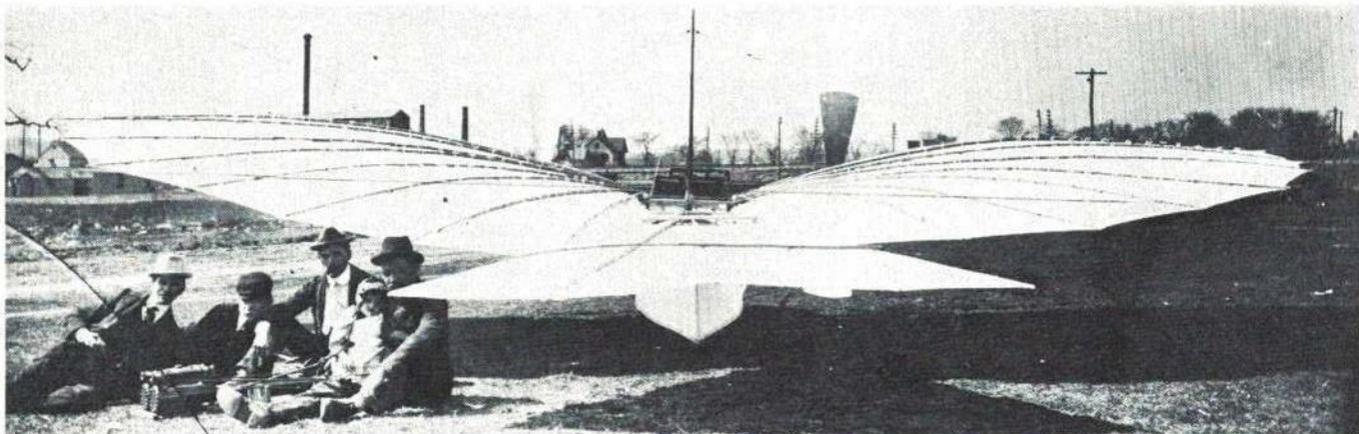


Photo: Courtesy of Miss Stella Randolph

Aerodynamicists and aeronautical engineers called in to assist the Whitehead Research Study were awed by this rear-view photo of #21—considering the year in which it was built. Beyond the beauty of the machine in its graceful symmetry, the twin-fixed,

adjustable-tractor propellers, the wheels for gear, the controllable tail, a practical fuselage, and high-wing monoplane feature—speak the true definition of Whitehead's advanced thinking and creative genius. (Whitehead peers over elevator edge.)



Photo: Courtesy of Miss Stella Randolph

Whitehead, second from the right, inspects control systems of 21's dislocated tail surface after hard landing on water in Black Rock Harbor. His mechanic, Anton Pruckner, stands at extreme right. Two claimed eye-witnesses from opposite banks described this scene prior to having seen this photo. They had never met, yet their detailed recollections matched, except from their point of observation of the flight.

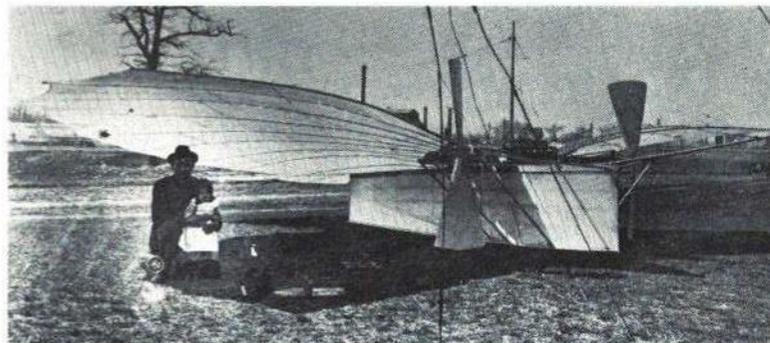


Photo: Courtesy of Miss Stella Randolph

Starting at the New York, New Haven & Hartford RR in background, Whitehead allegedly made many short hops and flights toward the direction of Black Rock Harbor. Claimed eye-witness accounts gathered by researchers speak of both single- and twin-engine versions. Wires to ribs formed a triangle truss. Pressure in either direction at the top yoke would cause a slight rotation of entire truss which could yield a form of wing warp.



Photo: Close-up view by courtesy of Julius Pruckner

This close-up might assist any modeler who wants to join in the thrills of watching a model of #21 fly through the air. The Whitehead Research Group would welcome your assistance, and your model might be one of those to become displayed in the Connecticut museum! Radio-control scale models have been flown in Germany.

passed by without the sign of one official probe?

CAHA and the 9315th banded together in the fall of 1963 to find out why so many scholars held Whitehead with criticism and scorn. Proof that prejudice exists came on the day our investigations drew severe remarks in the form of a threat, from one highly embittered English historian. It was our firm conviction we possessed a moral obligation to recorded history. It was all too obvious that present-day historians had tried to sweep Whitehead's claims and works under a carpet of doubt. Such opinions had no master files for the foundation of their reference.

The situation which triggered our own intrigue, was the result of an old family photograph album which had been kept in the attic of a fellow reservist's home. His uncle, the late Arthur K. L. Watson, was the son of a wealthy financier who made his home in the Black Rock section of Bridgeport. When Lt. Colonel Armitage's mother moved from her large estate in the summer of 1963, the albums were shipped to Greens Farms along with the remaining household items. While looking for an old photo to help restore the ancient weather vane, which was to be transplanted to the new and smaller estate, photos of a curious biplane came to light. In between the pictures were the frustrating words, "Whitehead's Effort."

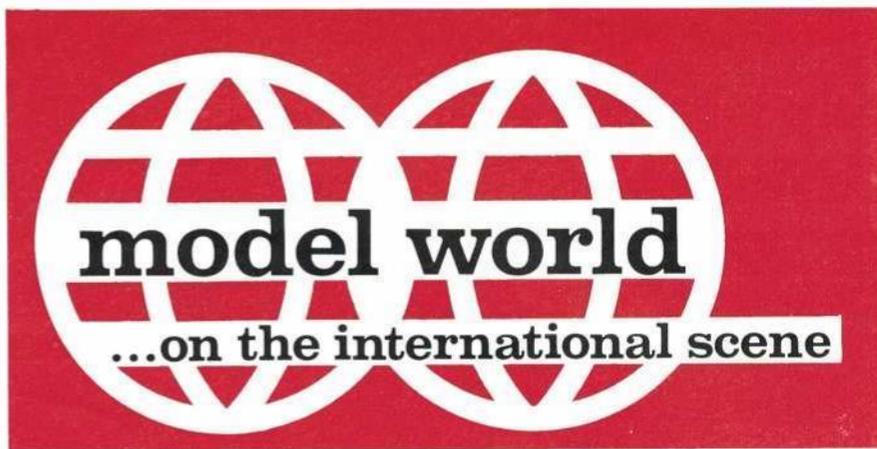
This was the only written clue Arthur

Watson left behind, aside from the many photos. (We later learned Watson had subsidized Whitehead's biplane experiments.) Curious as to the meaning behind the two words, and believing the original photos belonged in an aeronautical museum, the family and our squadron contacted CAHA in Hartford. We were dumbfounded when we learned a Connecticut pioneer, and especially a local pioneer, had once claimed a half-mile powered flight on August 14, 1901. When we asked CAHA for more details, all they could relate was: "Whitehead's claims are considered to be figments of a local newspaper editor's imagination. On August 18, 1901, he wrote a full-page feature article in the Bridgeport Sunday Herald describing the flights he'd seen. You can find a copy of this story from the Bridgeport Library newspaper morgue."

We asked what the official view of Whitehead was among scholars. They responded: "Historians have labeled the flights a myth and Whitehead a complete charlatan who was nothing more than a fanciful dreamer and visionary, a back-yard tinkerer at best!" We returned to our squadron with little more information or meaning behind the two words, "Whitehead's Effort."

Within a matter of a few weeks, and due to local publicity about our discovery of the Watson collection, we came upon a man who claimed he'd "watched Whitehead fly down Tunxis Hill in Fairfield in a glider,

Continued on page 48



## Japan's first R/C Goodyear contest produced much frenzied excitement.

THE build-up — after so much advance planning, demonstration flights, and even a rehearsal meet in March — piled tension upon mounting tension, so it was small wonder that this historic first pylon contest reached such an exciting climax by the third round that nine Goodyear racers crashed. Smoking to calm his excitement, ex-stunt champ Matsumoto was heard to say, "I hope my engine will run as fast as my heart is beating." Three planes a race were flown on three rounds, with awarded points according to place being 3, 2 and 1. The 28 contestants included all the top Japanese flyers. After a hotly contested fly-off of the top three, Oki won the Maximum Speed trophy, as well as the Winner Prize, with a time of 2:25.

Japanese rules do not require submission of plans and photos of full-size Goodyear aircraft, nor was it necessary for a design to be scale. But since the Continental C-85 is the only engine used in full-scale (3,100 cc class), it is considered necessary that the fuselage include appropriate engine cowls. The design, however, must be similar to the full-scale Goodyear, rules stating, "Design and build your model with the intention of designing, building and piloting a full-size Goodyear racer using a Continental C-85 engine." Well, east is east. . . . The minimum height and width of the fuselage, as well as the cockpit depth, and minimum wing area, agree with our own NMPRA rules. So does the handicapped start system.

The meet was organized with meticulous care and almost loving devotion. Officials included a president of the contest, a director of judges, two flag men, three lap counters, three first-pylon judges, two second- and third-pylon judges and two programmers. Mr. Enkei Otani, president of the contest, is the Superintendent Priest of Buddhism in Japan and a relative of the Emperor. He's an old-time modeler and still flies R/C. A mighty energetic old man, he served as a flag man and managed somehow to fly his "Li'l Knarf" as a contestant. In his message at the closing ceremony he stated, ". . . especially our appreciation to Mr. Gerald Nelson, the originator of this race and to Mr. Ed Shipe who has been supporting us by sending information from the U.S."

The photos and information were provided by Ritsuri Honda.

順位	氏名	1R	2R	3R	合計	順位	タイム
1	清水勝己	3	3	1	7	5	
2	岡田克己	2	3	2	7	5	
3	松本保夫	0	0	0	0		
4	中村建二	3	3	3	9	3	
5	澤田博一	3	0	3	6		
6	丹野晴二						
7	宮島楠二						
8	大野伸三						
9	中村建文	1	2	0	3		
10	箱和生介	3	3	3	9	2	
11	丸井健雄	1	0	0	1		
12	磯野健雄						
13	山口勇						
14	松井勉	3	0	0	3		
15	野原弘	3	0	3	6		
16	沖澤二一	3	3	3	9	1	
17	玉置洋一	0	0	2	2		
18	藤原高文	3	0	0	3		
19	片桐長文	1	1	0	2		
20	片山香	2	3	2	7	5	
21	藤江正博	0	0	0	0		
22	三河野天	2	3	3	8	4	
23	菅原康文	2	2	0	4		
24	榎本三						
25	杉浦凡	0	2	3	5		
26	岡本明	0	0	2	2		
27	吉野徹二	0	3	0	3		
28	北田貞治						
29	雁岡三久	2	2	3	7	5	
30	山本喜己	0	0	0	0		
31	三谷充	2	0	2	4		
32	松山昌三						
33	北野健	1	3	0	4		
34	瀬戸行雄						
35	尾関清						
36	秋山忠之	0	0	0	0		
37	鈴木一雄						
38	田中朝	3	0		3		
39	村上嘉						
40	植田彰	2	0	3	5		
41	金子貞治						

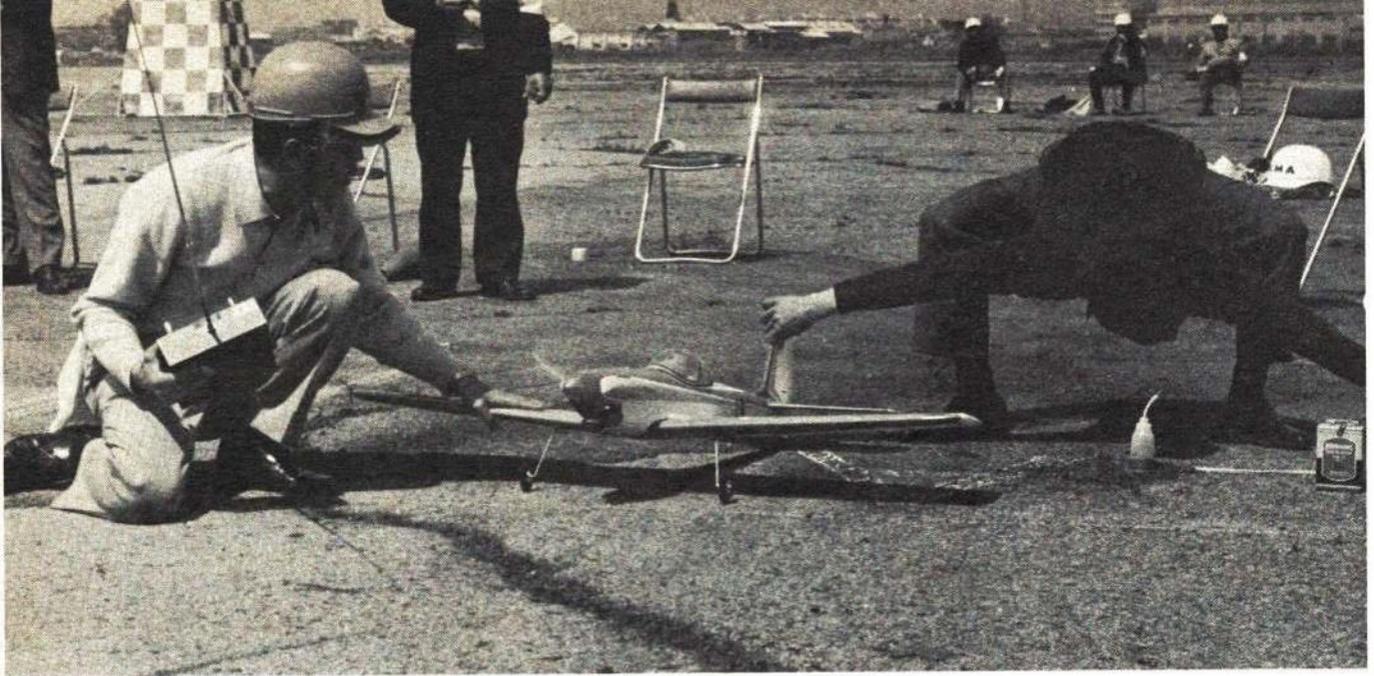
1ラウンド			2ラウンド			3ラウンド			左表の説明
A	B	C	A	B	C	A	B	C	
1	22	5	21	17	20	24	23	21	例 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 (1) 各ラウンドの成績は、各ラウンドの順位に、そのラウンドの得点(3,2,1)を乗じて算出する。 (2) 各ラウンドの成績が同じ場合は、そのラウンドのタイムが早い順に順位を決定する。 (3) 各ラウンドの成績が同じ場合、かつタイムも同じ場合は、そのラウンドのタイムが早い順に順位を決定する。 (4) 各ラウンドの成績が同じ場合、かつタイムも同じ場合は、そのラウンドのタイムが早い順に順位を決定する。 (5) 各ラウンドの成績が同じ場合、かつタイムも同じ場合は、そのラウンドのタイムが早い順に順位を決定する。 (6) 各ラウンドの成績が同じ場合、かつタイムも同じ場合は、そのラウンドのタイムが早い順に順位を決定する。 (7) 各ラウンドの成績が同じ場合、かつタイムも同じ場合は、そのラウンドのタイムが早い順に順位を決定する。 (8) 各ラウンドの成績が同じ場合、かつタイムも同じ場合は、そのラウンドのタイムが早い順に順位を決定する。 (9) 各ラウンドの成績が同じ場合、かつタイムも同じ場合は、そのラウンドのタイムが早い順に順位を決定する。 (10) 各ラウンドの成績が同じ場合、かつタイムも同じ場合は、そのラウンドのタイムが早い順に順位を決定する。 (11) 各ラウンドの成績が同じ場合、かつタイムも同じ場合は、そのラウンドのタイムが早い順に順位を決定する。 (12) 各ラウンドの成績が同じ場合、かつタイムも同じ場合は、そのラウンドのタイムが早い順に順位を決定する。 (13) 各ラウンドの成績が同じ場合、かつタイムも同じ場合は、そのラウンドのタイムが早い順に順位を決定する。 (14) 各ラウンドの成績が同じ場合、かつタイムも同じ場合は、そのラウンドのタイムが早い順に順位を決定する。
2	15	2	22	21	18	22	5	26	
3	21	10	20	20	23	23	27	X	
4	18	26	26	33	25	24	22	10	
5	14	19	25	4	34	25	18	11	
6	38	26	26	2	34	24	29	14	
7	27	20	26	15	X	27	14	27	
8	4	20	26	29	11	27	19	22	
9	31	33	27	14	19	3	27	17	
10	28	X	24	9	38	14	33	5	
11	29							10	
12								16	

All photos Ritsuri Honda from Nelson

Top: In any language, the familiar score board makes its appearance. Twenty-eight of Japan's top radio-control flyers lent an atmosphere of unusual excitement to a beautifully run meet on a perfect day. Above: Auxiliary board reflects the organization of the contest, three planes racing simultaneously in each of three rounds. There was a three-man flyoff as well. Winning time was 2:25.

Right: These three photographs show the ingenious portable pylon design. Knocked down, the three pylons may be carried in a small automobile. Interlocking sections of steel pipe and checker-painted tent canvas, allow quick assembly. The progression of three pictures suggests how readily the pylons go together — and come apart after the meet has terminated. Actually, the pylons were sponsored by three of Japan's biggest manufacturers, all world famous for their products. These are: OS (especially famous for their line of engines), OK (pilot kits) and MK (Kato Brothers). Before the Japanese attempted this highly successful Goodyear contest, a careful study was made, including actual demonstration flights and a rehearsal meeting.





The winner, Yugi Oki, had the fastest time of 2:25. He flew this lovely design called the Royal Racer. OS Max H40P engines

cleaned up. Twenty-six of 28 contestants used them, and, of course, the three winners. Japanese products in favor.



Impressive double-line of starters may have included the most outstanding collection of Goodyear ships ever seen at a single meet. Ship in left foreground is doubly interesting for its employment of a tricycle landing gear. Rules U. S. influenced.



Left to right: Kazuo Shimo, second place with an original design; Yugi Oki, first place; and Kenji Nakamura, third place — he flew the ever popular Midget Mustang. Rising excitement in the third round produced nine crashes — none due to interference!





Prominent radiator and exhausts augment the angular lines of this old-timer.

## A WWI AIRCRAFT RETURNS

Remarkably advanced for its time—this 1918 fighter has the configuration and proportions for a fine R/C scale model.

JOSEPH M. TSCHIRGI



Our own Ed Sweeney flips the prop while Jerry Hibbard hangs onto the tail.



With the top hatch removed, a neat arrangement of engine, tank, etc. becomes evident.

# The Junkers D-1

MOST scale modelers spend as much time leafing through old volumes of aviation publications searching for the "perfect" model as they do building. The perfect R/C scale subject must: 1) be a good aerodynamic configuration in its proportions, 2) have simple, yet interesting lines (a minimum of struts and other difficult-to-reproduce features), 3) have a rugged landing gear that still looks like the real thing, and 4) be so obscure that all your flying buddies ask, "What is it?" The last item is most important!

The Junkers D-1 comes as close to filling all these requirements as any WW I aircraft. Built during the summer of 1918, the D-1 culminated three years of single-seat fighter development by the Junkers plant in Dessau. All the prototypes (J1-J9) in this period were remarkably advanced aircraft: all-metal, cantilever monoplane configuration. Originally (J1-J2), they were covered with sheet steel and earned the title "Tin Donkey." They were quite heavy and apparently difficult to fly. The latter "J" series, and the D-1 were covered with corrugated aluminum, extremely rugged, and powered with Mercedes or BMW engines, and had competitive performance.

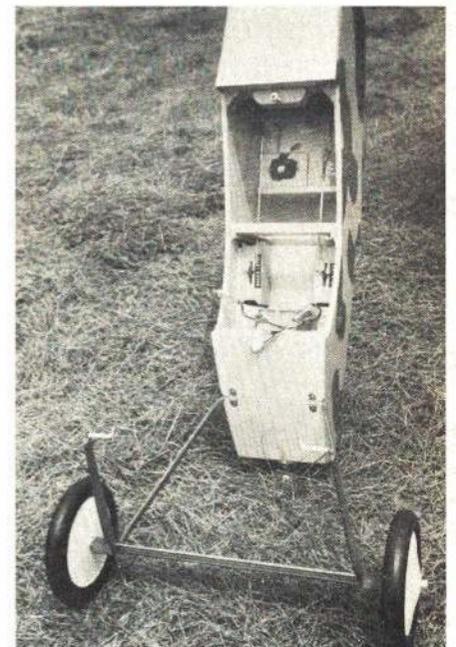
Structurally, they were not similar to modern skin-stressed design, since, for example, the wing was a complex steel tubing framework which, in modern automotive terminology, resembled a space frame. Here the corrugated skin only covered the wing ribs and carried no spanwise load. But, it was an exceptionally clean machine for the period. It is an ideal modeling subject, since it combines simple, but appealing lines, with interesting scale features—such as the car-type radiator which allows a fully enclosed engine.

About 50 of the type were built. A few got into action before the end of WW I, hence some latitude is available where finish is concerned. Photographs indicate that both the "sand and spinach" camouflage used on our model, and plain aluminum finished types, existed. Windshield, markings, cowling and gun installation de-

tails also varied between individual aircraft. (I recommend that you get a Profile No. 187.) This publication will furnish the AMA required proof-of-scale documentation. Incidentally, both a short and long fuselage version of the D-1 existed. Our model is the "long," since short nose- and tail-moment arms are not happy combinations.

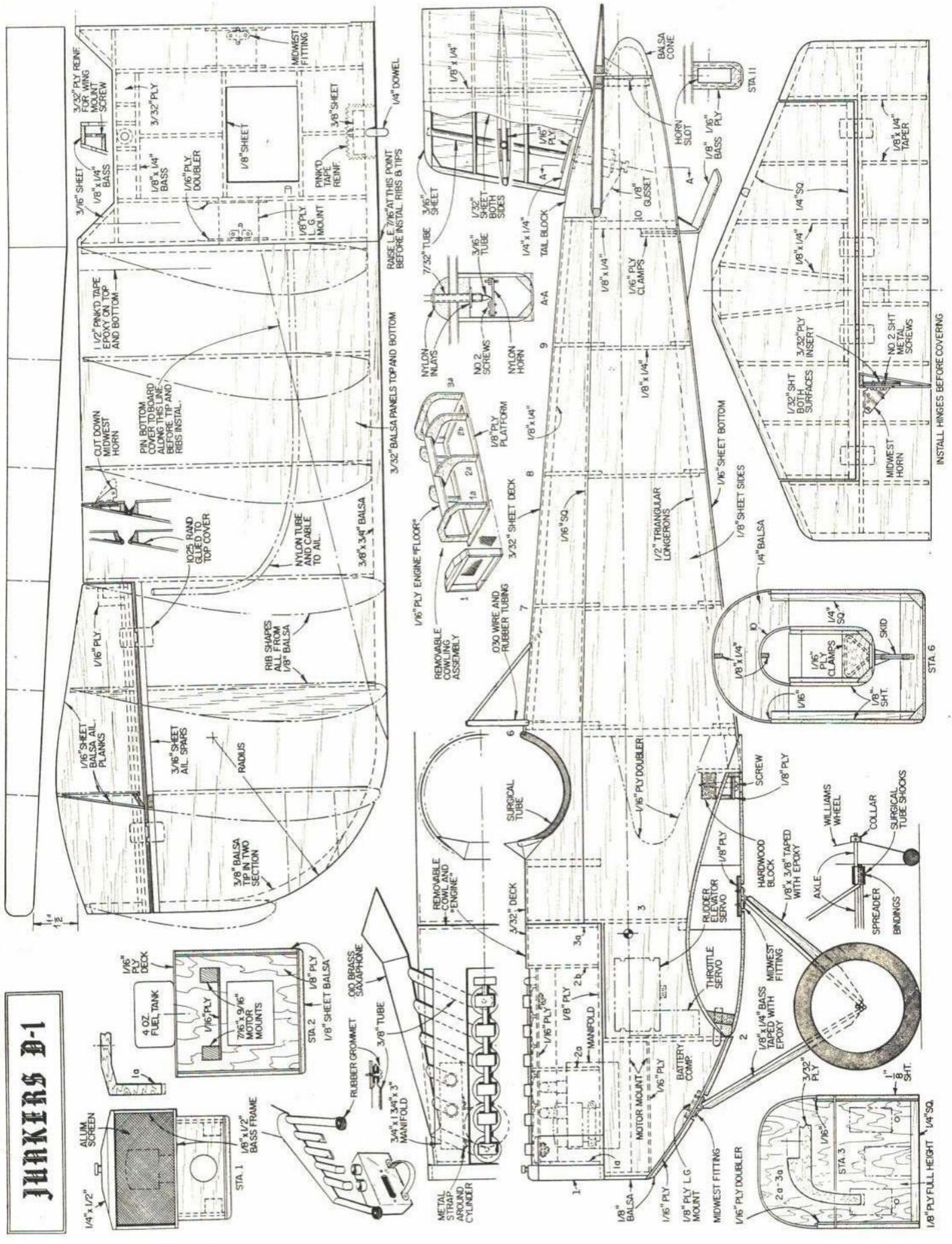
In designing a WW I model, I have one approach to determining scale—Williams Brothers' wheels which come in discrete sizes, so you must match the scale to the

*Continued on page 59*



This view, showing installation and landing gear details, reflects painstaking planning.

# JUNKERS D-1



FULL SIZE PLANS AVAILABLE - SEE PAGE 60

# Continental K.B.-1



PAUL R. MATT

A well-engineered pusher, the K.B.-1 had tail booms of steel tubing, monocoque nacelle and engine interchangeability.

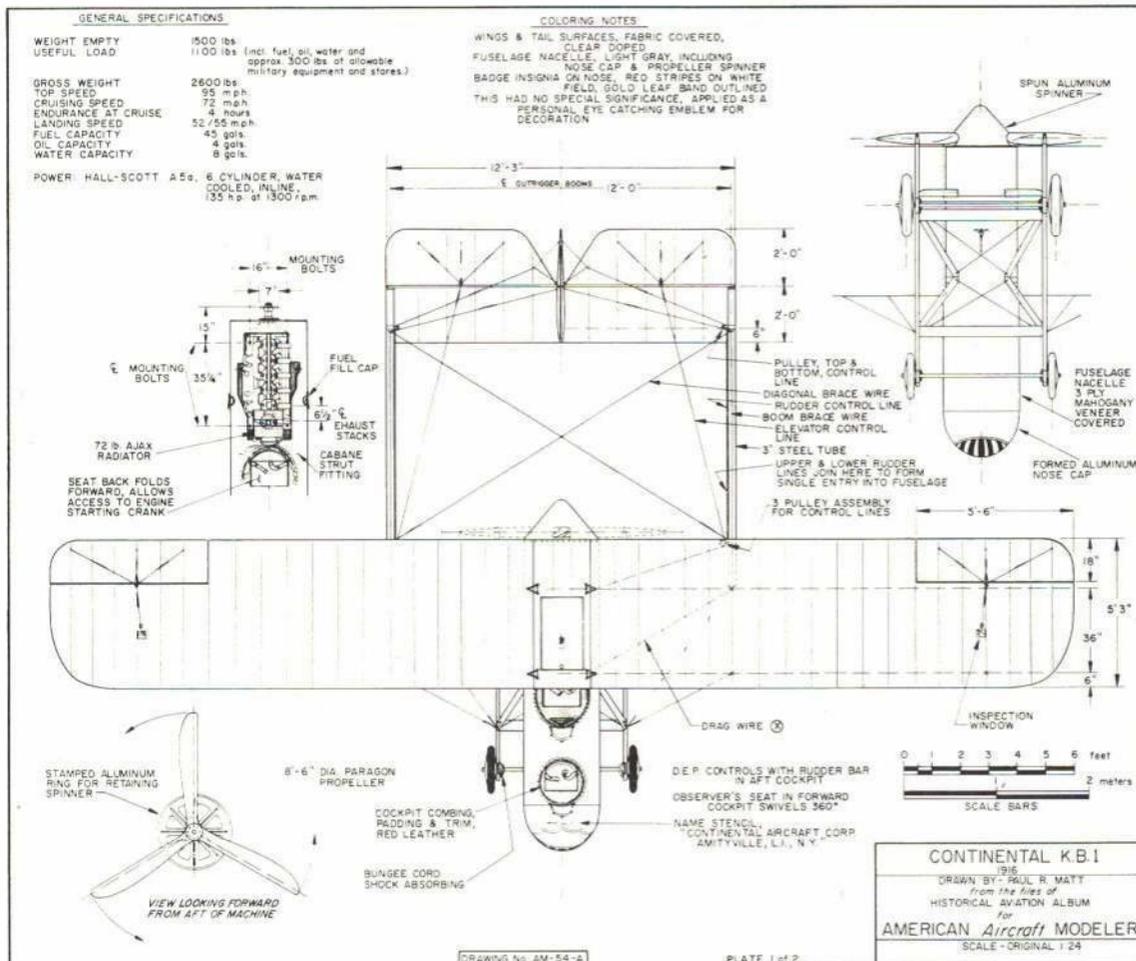
A rather unusual and somewhat unique aircraft appeared in the spring of 1916. This one-and-only pusher was known as the Continental K.B.-1. Little is known about this machine and, except for brief notes in leading aeronautical journals of the time, it has passed into history virtually unnoticed. There was a rash of pusher-type aircraft in the United States during 1915/16. By the end of the year, however, the trend, sparked by the findings of the war in Europe, was definitely away from this type

as being impractical. In the overall picture, only the flying boat survived the ensuing tractor era.

The K.B.-1 was designed by Vincent J. Burnelli and built by the newly established Continental Aircraft Corp., of Amityville, Long Island, N. Y. This was Burnelli's second machine to be completed and actually flown. The first plane, also a two-place pusher, was developed in 1915 with a fellow pioneer in aviation, John Carisi. It was known simply as the Burnelli-Carisi

biplane and flown at Hempstead Plains, N. Y. for quite some time but was not too successful.

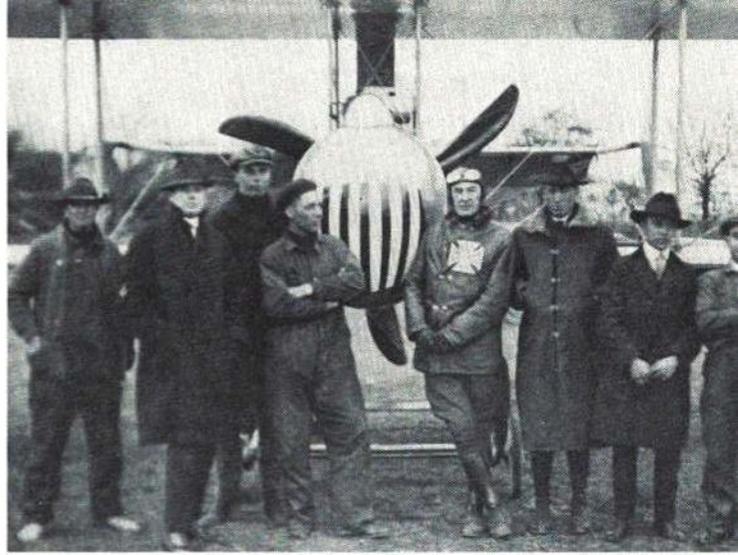
The Continental plant was located near the L.W.F. Company on Long Island and many of the construction techniques developed there were adopted by Burnelli in the K.B.-1. This was the first airplane built by Continental. A great deal of engineering ability went into it. A couple of magazines labeled it as one of the most original and successful types to be developed in the country. The twin boom outriggers of near cantilever construction caught the eye of other engineers. The wing cellules and tail planes were of conventional design and construction, wood framework, steel cable braced and fabric covered. Of the greatest



Four-wheel landing gear permitted hands-off takeoffs. Special low angle-of-attack, high-speed airfoil gave excellent speed range.

Plane was intended for the civil market, and personalized nose cone painting and fancy leather upholstery in the cockpit were offered.

Below: For 1916 the Continental had many novel features: safety fuel system, monocoque fuselage, good visibility and crank-started engine.



interest, however, was the pure and simple nacelle design. The interior was of heavy veneer framework, circular in cross section, except for a slight flat on either side, and covered with two-ply mahogany. All monocoque construction was looked upon with a certain amount of envy in the years preceding WW I.

The K.B.-1 was designed to accept several different engines and various propellers. Burnelli had calculated the size, weight, power and thrust of the most popular inline engines and propellers of the time, and made certain the airframe and design specifications would accept most of them. Of further interest was the interchangeability of the engine. The Hall-Scott A-5a was mounted on two heavy panels which, after

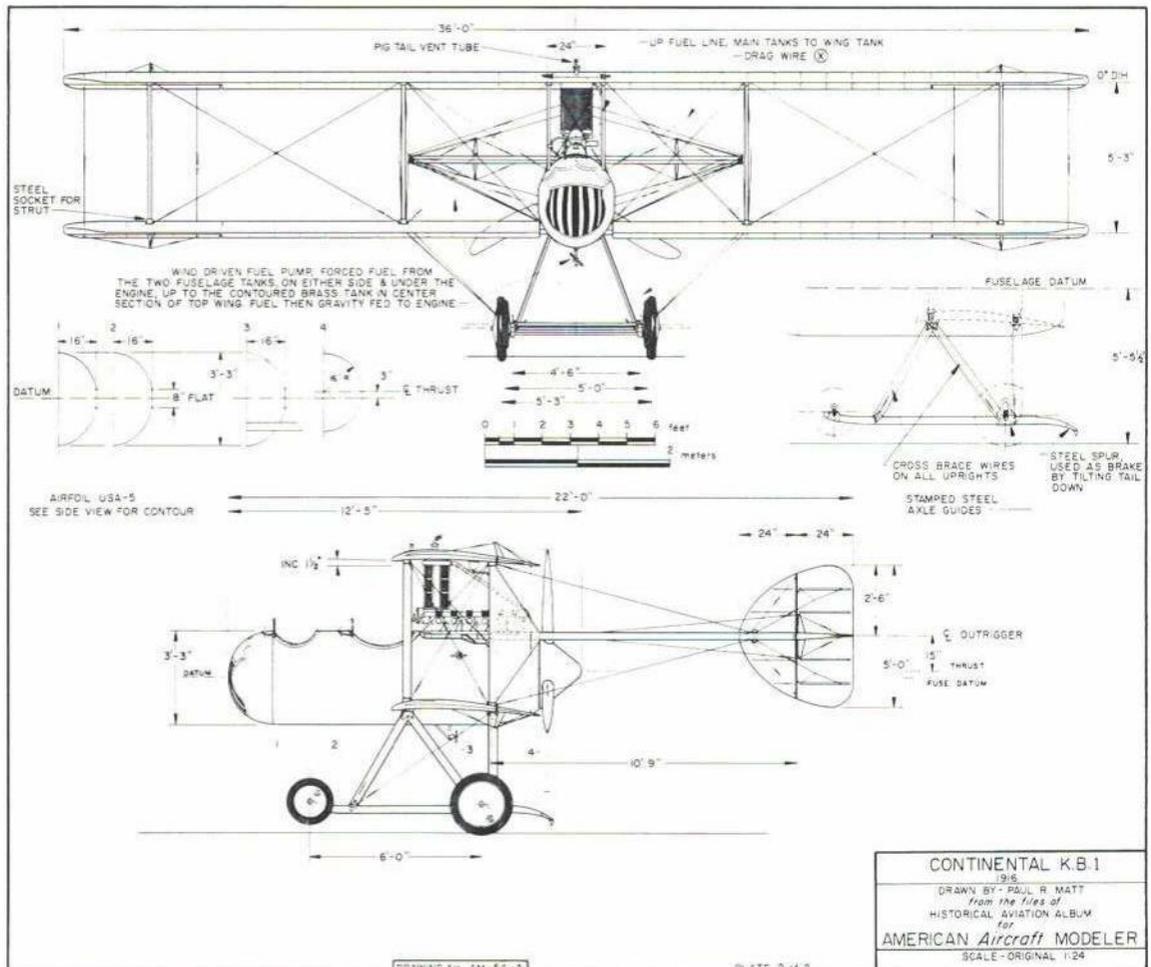
loosening several locks, could be slid aft and out of the fuselage nacelle for inspection, service, repair, or to replace the assembly with another engine. The propeller and spinner naturally were removed first in most cases but for minor engine adjustments or service, these could be left intact.

Knowing the dangers and difficulties of pulling the propeller through by hand to start the engine on a pusher, the pilot seat folded forward exposing the starter crank on the engine's main crankshaft. To start the engine the pilot would fold his seat, twist and swear, and sweat, turning the crank. He kept at it until the dang thing turned over and gave a few promising pops. The propeller blast would immediately cause the plane to tilt back and down on

its brakes—the spurs on the skids. The plane would thus be prevented from dashing madly forward before the pilot could get himself psychologically adjusted in the cockpit.

Burnelli did not try to put all the fuel in the upper wing tank or outside tank nor rely upon a tank located high in the fuselage to feed the engine. A wind-driven fuel pump beneath the fuselage pumped the fuel from two 22.5 gallon tanks fitted on either side of the engine and conforming to the fuselage interior contour. The fuel was pumped up to the service or reserve tank of four-gallon capacity in the upper wing center section. From here the gasoline was filtered and gravity fed to the

*Continued on page 40*





# MRC Futaba F-69 System

Responsive, positive control of rudder and engine with perfected sequencing, distinguish this product.

THE MRC Futaba F-69 is a compact, ready-to-go sequencing control system ideally suited to rudder and throttle control small-to-medium-size models. The transmitter, a relay-type super-heterodyne receiver, two servos, and all wiring, plugs, switch and battery holders are provided. All that is required for operation is installation of eight pencils in the transmitter and four pencils plus a 9-V battery for the airborne unit.

Almost every R/C modeler of a few years vintage is familiar with sequencing systems in the form of escapements keyed by a "click" switch at the transmitter. The key to successful operation was good manual timing, and the ability to obtain consistent escapement action. The sequencing operation of this system is basically the same, but has quite nicely overcome problems of sequencing to provide responsive and positive control of rudder and throttle. The control positions obtainable are right-rudder, left-rudder, and high-, medium-, and low-throttle. Controls may be obtained one at a time as with any sequencing system, i.e., right or left, or throttle position change.

The theory of operation, described in terms of the preceding control movements is as follows:

1) A control pulse closes the receiver relay to apply power to the rudder servo. The servo rotates until a switch plate in the servo reaches the first of three open spots, at which it stops. Overrun is prevented by electrical braking powered by one of the three servo pencils. As long as the pulse is held, right rudder will be maintained. The first pulse will be maintained as long as a right turn is desired. Upon releasing the pulse, the rudder servo will rotate to the "home" or neutral position.

2) To obtain left-rudder, one pulse is sent for the brief time it takes for the servo to reach the first position, then the pulse is released only long enough for the servo

to pass the first position. A second pulse is sent instantly to stop servo rotation at the second switch position, or left rudder. Again, neutral is obtained by releasing the second pulse.

3) Throttle is obtained by a technique known as "quick blip." When an extremely short pulse or "blip" is transmitted, the receiver relay closes only momentarily to start the rudder servo. However, the relay then returns to the normal open position while the rudder servo has not yet moved enough to open the breaking contact. The relay and the braking (or a parallel contact) form a series switch, now closed for an instant to start the throttle servo. The throttle servo also has a three-position switch plate and sits in one of the three switch-open positions until rotation closes the internal contacts. The servo continues to rotate until the next position is reached.

4) In the event of an in-flight emergency wherein the battery voltage drops too low for the automatically timed pulses to synchronize with servo positioning, a manual override switch is provided to permit the throttle button to be used for manual pulsing. No difficulty would be experienced in effecting an emergency descent.

The primary feature of this particular sequencing system is that it is designed to perform the above sequence automatically with total consistency. This is achieved by means of an encoder in the transmitter, which issues either one pulse, two carefully timed pulses, or a "blip" in response to a stick (right/left) and the throttle button respectively. The use of motorized actuators permits the consistency of actuator motion required for electronic encoding of the transmitted pulses as well as providing sufficient control power for fairly large models.

The transmitter is quite small (6 x 4 x 1.5") and comfortably held. A meter indicates transmitted output. A right-hand stick is provided for left/right and a button

is located at the left thumb for throttle control and manual operation.

The receiver is 2½ x 1½ x 1". A unique feature of the receiver is the use of a loaded antenna which should yield better sensitivity and resistance to directional nulls. A phenolic mounting plate is provided which holds the rudder servo, the receiver plug, the plug for the throttle servo (which are mounted remotely) and all wiring terminals. The plugs are coded to prevent inadvertent reversal. A high quality toggle switch is provided.

The total airborne unit weighs 12 oz. and can be fitted into a space 6" x 2½" sq., with batteries in a separate compartment.

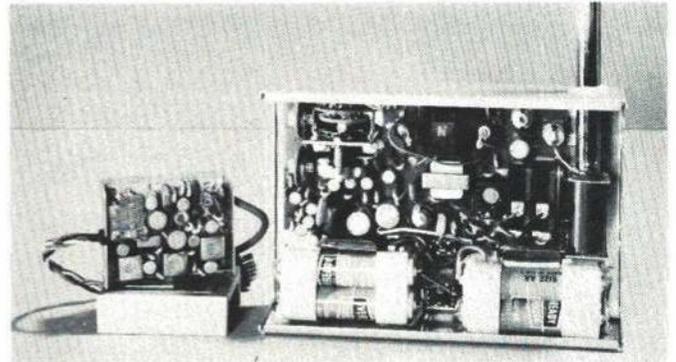
Overall appearance and quality of the unit reviewed was excellent. Good wiring practices were observed and one unusual practice observed was the use of spaghetti to shield every component lead (probably visible in the lead photos). The installation instructions are clearly understandable and are printed on the box in which the unit is contained. A styrofoam, form-fitting case protects the system during shipping.

Commentary is that the quality is excellent, performance is quite good and positive. A relay receiver suffices quite nicely here and there are absolutely no electrical components required for switching beyond the relay. The instructions provided could be expanded to tell the operator how to reset the pulse timing for either higher or lower servo-battery voltages.

The equipment was installed in an airplane for flight test. While no particular adjustments were necessary to the equipment, there are a few installation notes which will be useful to the user. The convenient thumb-nuts on the airborne servo battery pack have a tendency to unscrew under vibration. This can be prevented by screwing them down tight, then using a 2-56 nut to lock each thumb-nut.

Pay careful attention to freedom of the

*Continued on page 68*



Compact transmitter has fully automatic encoding with control stick operation. High quality switches are used throughout. The receiver has a noise-proof antenna and uses relay output.

Left — modern sequential single-channel system features fast servo operation, a powerful transmitter, a selective superhet receiver, all using inexpensive dry batteries. All wired and ready to use.



Launched javelin-style, Pussy-Cat gets into its climb groove. FAI specifications, short-engine run with weight limit, demand high-energy launch.



Clean, low-drag models are efficient; streamlining is the key. From one end of the slim and sleek fuselage to the semi-cowled engine, this design has it. Large wing area plus the anti-vortex wing and stab tips aid in glide.

# FAI Pussy-Cat

A hot, contest-bred design that successfully hurdles the critical climb/glide transition gap without auto-devices.

## EARL A. THOMPSON

PLANNING to qualify for the FAI central flyoff in 1970? You better get busy now! Much ground must be covered before you can expect to successfully compete with the sharp, fleet-footed bunch you will be flying against. I would suggest starting the qualification season with three of the hottest engines, spare parts for same, two well-designed, thoroughly tested models, and a lot of fortitude. As in most competitive endeavors, the degree of success is directly proportional to the input. It all depends on you!

I can offer a proven aircraft design which may appeal to your liking and needs. It is a direct outgrowth of the progressive thinking applied to high-thrust designs as presented by Carl Goldberg and Jess Krieser in 1962. After completely digesting their designs under contest conditions with a fair degree of success, I found other requirements (in addition to a scorching climb) that had to be met. A ship to ride the "dew thermals" was needed to get the early maxes when conditions were marginal. Also, good stability was required in order to hang in those "man-eaters" and ride the late afternoon gusts.

Two more contest seasons and six models

later, I found myself qualified for the Bong central flyoff. An improved design for the ordeal ahead was required, and four new models were built and test flown. Pussy-Cat proved to be as docile as her name implies, but when the chips are down she can show her claws too. At Bong, I placed fifth. The models I flew were more than capable of placing first, but a poor choice on what I believed to be thermal air put me out of it. I flew a model adjusted for calm air during the first two days, netting nine maxes out of a possible ten. The third day, I shifted over to the model adjusted for wind, getting four more maxes and one very respectable, but not quite max, flight.

The West Coast FAI flyoff was another story. I flew a Pussy-Cat with a very hot ST G-20 turning 22,000 rpm. My DT timer ran wild during the first round, bringing the model down from 300 feet and about 40 seconds early. After that, all maxes were not even good enough to qualify for the 1968 central flyoff.

Featured in this design is a high-thrust layout with  $2\frac{1}{2}$  to 3 degrees of up-thrust for a high-speed, minimum-drag, verticle climb. This places the wing at a slight negative angle to the relative air flow, thus pulling the wing through the air at its lowest lift and drag condition. The combination of thrust-line and long tail-moment arm make this one of the fastest climbing models around today. A high-speed power pattern of  $\frac{1}{4}$  to  $\frac{1}{2}$  turn to the left in ten seconds is used to a real advantage with a very good transition into a left-circle glide pattern. No "mickey mouse" auto stab or rudder setup is needed to obtain good recovery; high speed is the only requirement. A small 24% stabilizer area is used to place the maximum area in the wing. The wing airfoil is a G-610 B thinned

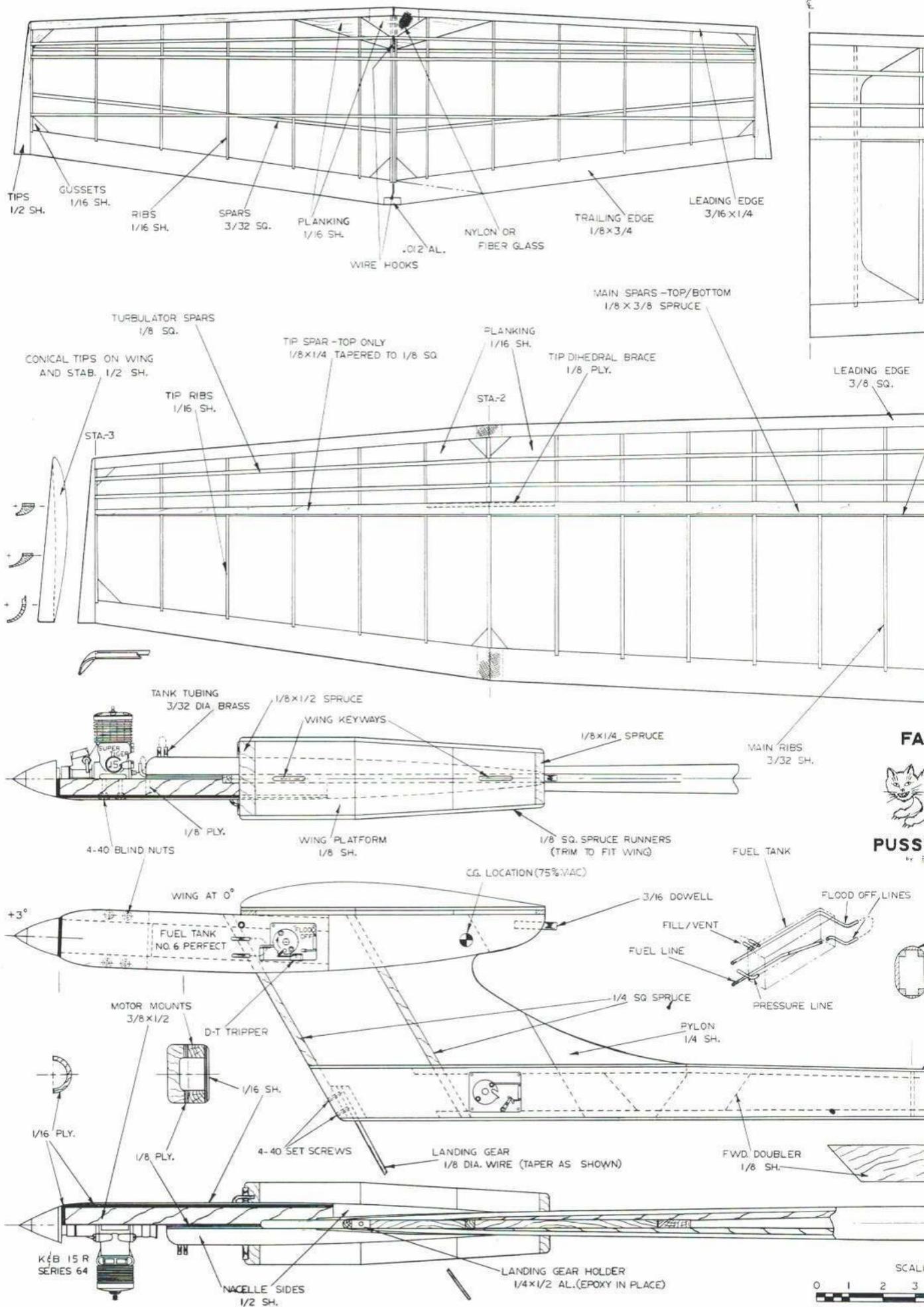
to 8.5% for fast climb. Wing and stab tips are my own adaption of anti-vortex or conical tips. Aside from looking good, they also add to glide performance. The engine is beam-mounted on its side in a semi-cowled nacelle to aid streamlining and minimize vibration. An elliptical cross section fuselage helps the overall streamlining too.

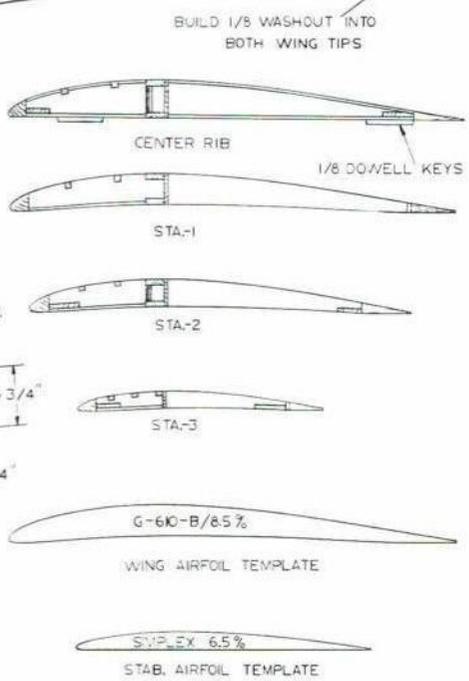
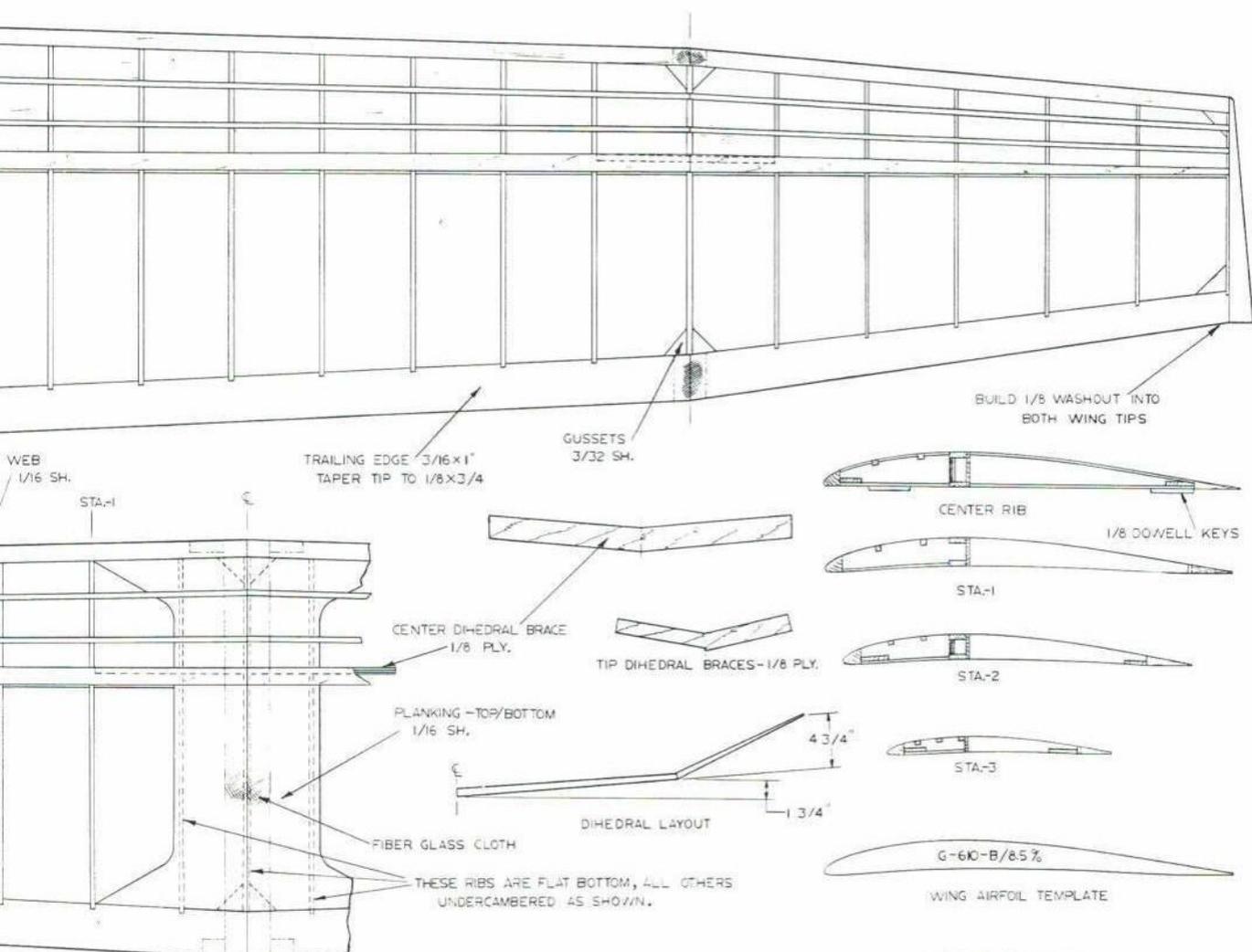
A word on rudder placement seems to be in order, owing to the recent statements that it is only a fad to locate the rudder behind the stabilizer. Originally, the rudder was on top of the fuselage and in front of the stab. Its area had to be rather large to

*Continued on page 69*

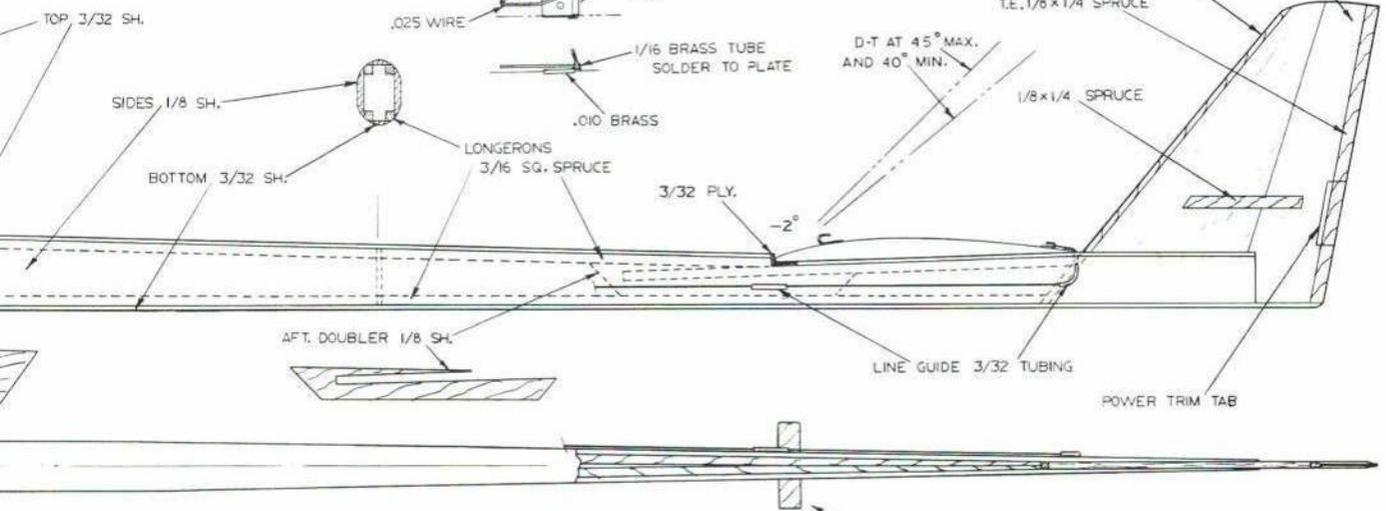
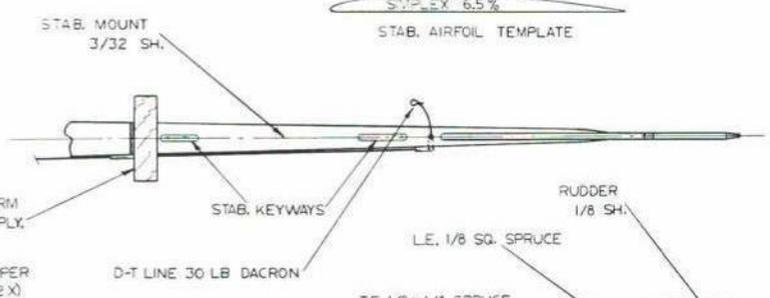


Fast climb is precisely controlled by the rear-mounted fin. Author feels that design importance of the fin is underrated.





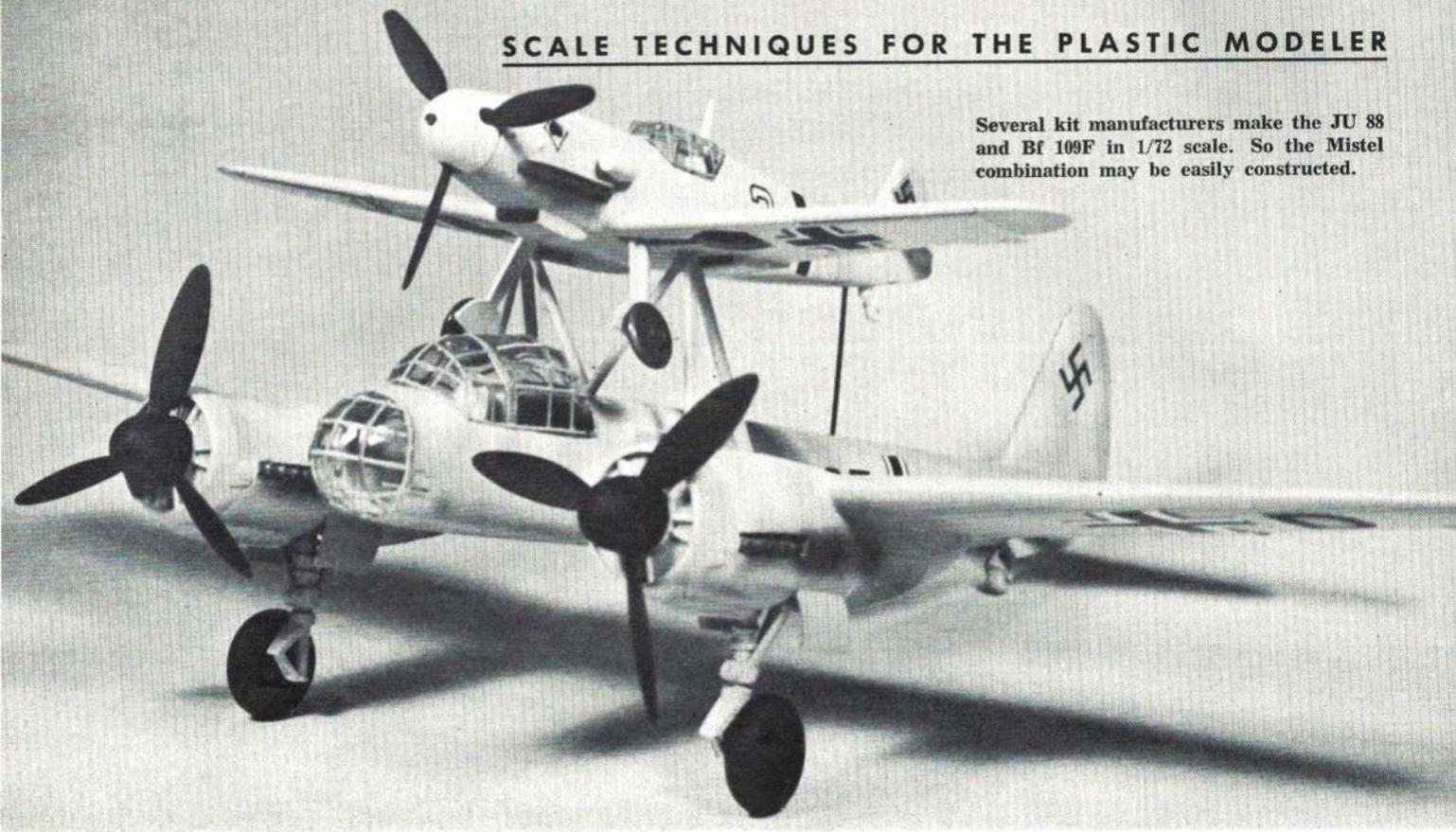
PROJECTED AREAS: WING 474 (IN<sup>2</sup>)  
 STAB. 112  
 TOTAL 586  
 FAI REQD. WT.: 26.6 OZ / 755 GMS.  
 COMPONENT WT.: WING 7.6 OZ / 215 GMS.  
 STAB. 1.2 OZ / 35 GMS.  
 FUSE. 17.8 OZ / 510 GMS.  
 PROPELLOR: 7.5 x 3.5 SUPER RECORD  
 FLIGHT PATTERN: LEFT / LEFT



USE STAB. TILT FOR GLIDE CIRCLE CONTROL. SHIM WITH 1/32 PLY, FINE TRIM WITH 3/16 WIDE TAPE STRIPS.



Several kit manufacturers make the JU 88 and Bf 109F in 1/72 scale. So the Mistel combination may be easily constructed.



## Code Name: 'Beethoven'

Germany's 'Father-and-Son' approach to the flying bomb of WW II.

### JOHN N. TOWNSLEY

A strange looking two-in-one aircraft called the Mistel made its appearance with the German Luftwaffe Bomber Group 200 in July, 1943. Although the aircraft was new to the German pilots, the idea for the composite aircraft was probably borrowed from the Japanese Kamikaze operation in the Pacific.

Initially, the combination used a Bf 109F fighter as the upper component — the "control" aircraft — and a JU 88A-4 as the lower component. This combination later was referred to by the code name of Beethoven, although still unofficially called the "Father and Son," after a popular German cartoon strip.

The JU 88A-4 carried a 7,700-lb. load of explosives to be dropped on key warships and well-fortified land targets. All controls were to be operated by the pilot of the Bf 109F component which used fuel from the tanks of the JU 88 aircraft until the two parted company at target.

The engines of both aircraft were running during the flight to the target, with the Bf 109F gaining greater range from the ample fuel supply of the JU 88 (a 370-gallon fuel supply, plus an additional 268 gallons carried on the forward part of the JU 88 for the Bf 109 to use on the outward journey). For the return, the latter had a total of 154 gallons of fuel in its own tanks. The two aircraft were separated shortly before reaching the target, normally at heights

ranging from 3,000 to 10,000 feet. After setting the controls for the lower component, the pilotless JU 88 dived onto the target at a speed of about 370 mph.

The first employment of the unit of 12 Mistel combinations sent to St. Dizier to combat the Allied invasion forces resulted in very marked success: six Allied ships were sunk with nine Mistels, at a loss of only one Bf 109F control fighter. The initial success prompted a rush order for 100 Mistels to be produced at Leipzig-Mockau, the combination to be comprised of FW 190A-5's and JU 88 G-1's. The conversions produced at Leipzig-Mockau were not as elaborate as the first Mistels. Very few of these aircraft carried the original type of Mistel hollow-charge warhead, although great plans were envisioned for their use. The British Fleet, then in Scapa Flow, was to be attacked by the Leipzig-Mockau Mistels. These aircraft were to be flown from Danish airfields but poor weather conditions prevented the operation. By the time the weather improved, a full moon presented a deterrent as it would have made the slow, lumbering Mistels easy targets for the faster, more maneuverable interceptors.

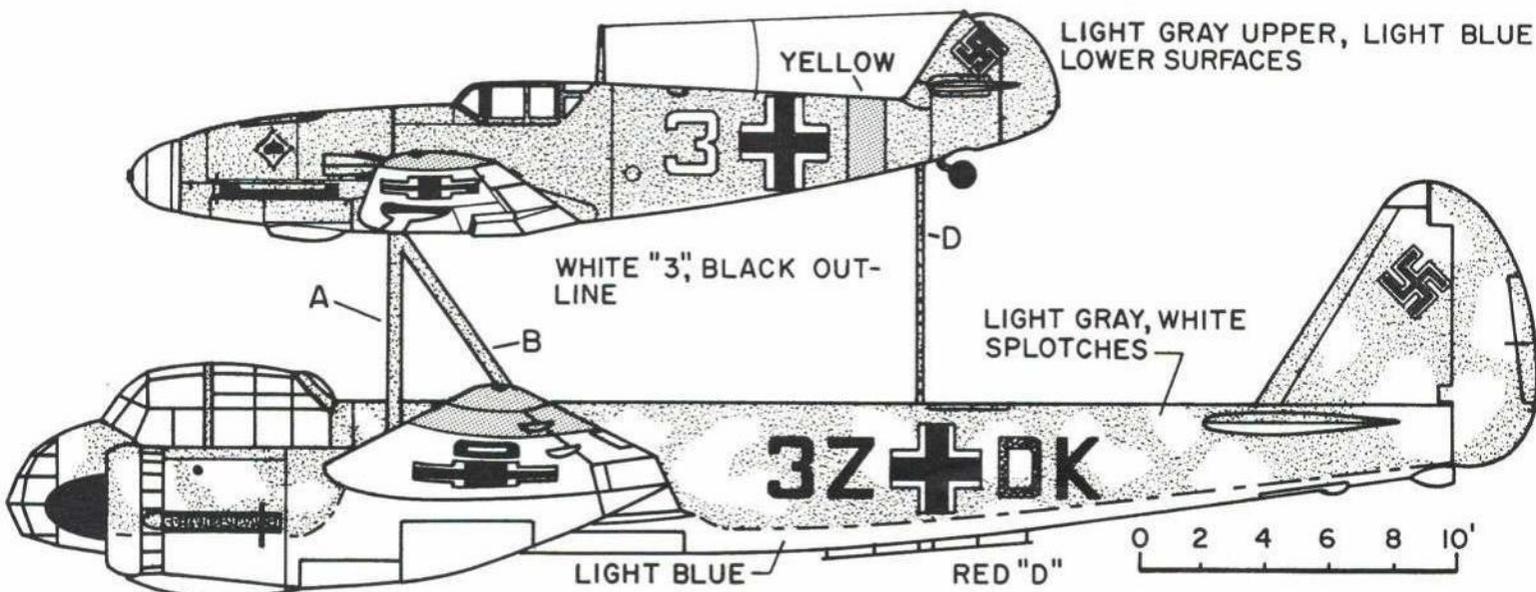
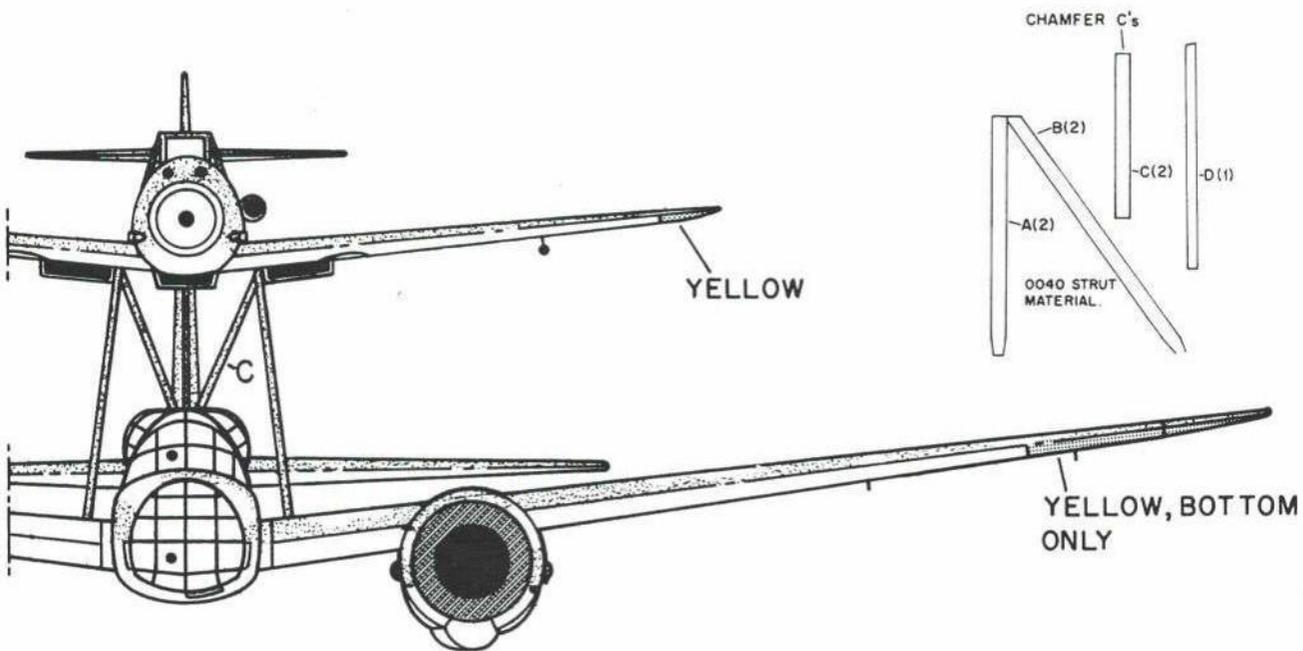
Again in January, 1945, the inclement weather necessitated a further delay in launching the attack and, at that point, the Mistels were then required to return to bolster the deteriorating war situation on the Russian front. Here, one of the eight Gruppen of KG 200 was to attack the Russian factories behind the Ural Mountains. This was not possible either, as delivery of

the aircraft was delayed and, consequently, the training of crews also. Before the unit could be made operational, the Russians captured East Prussia where the Gruppe had intended to base their aircraft. For the remainder of the combat, Mistel combinations were used as they became available, the last operation being against the bridges over the Vistula and Oder Rivers.

**Specifications for the Bf 109F:** Upper component or Control aircraft: wingspan: 32' 1.5"; length: 29' 8"; weight, empty: 4,430 pounds; weight loaded, maximum: 6,054 pounds; powerplant: one 1,300-hp Daimler-Benz DB-601 liquid-cooled, inverted V, 12 cylinders; armament: one 15-mm MG 151 nose-mounted cannon, 200 rounds — two 7.9-mm MG 17 machine guns, 500 r.p.g.; performance: maximum speed 373 mph at 19,700 ft. Service ceiling: 37,000 ft.; range: 440 mi.

**Specifications for the JU 88A-4.** Wingspan: 65' 10½"; length: 47' 1½"; powerplant: 2 Junkers-Jumo 211J, 1,410 hp.; gross weight: 36,900 lbs. (crew consisted of one man, the pilot of the Bf 109); cruising speed 280 mph, maximum speed: 300 mph; range: 418 to 440 miles; endurance: 1.6 hours. Range of top component on its return flight was 495 mi.

To make the Mistel combination, a number of manufacturers provide 1/72 scale kits which can be used, as follows: JU 88: Airfix, Revell, Frog, and Lindberg. Bf 109F (and "G"): Airfix "G," which can be converted to "F" series (the Airfix kit was used for the model featured in article). Hawk manufactures a good Bf 109G kit, and Lindberg a 109F — Lindberg's may be hard to find, but



This drawing is in 1/72 scale: take measurements, templates, etc. directly from it. Colors are those used on the Eastern front.

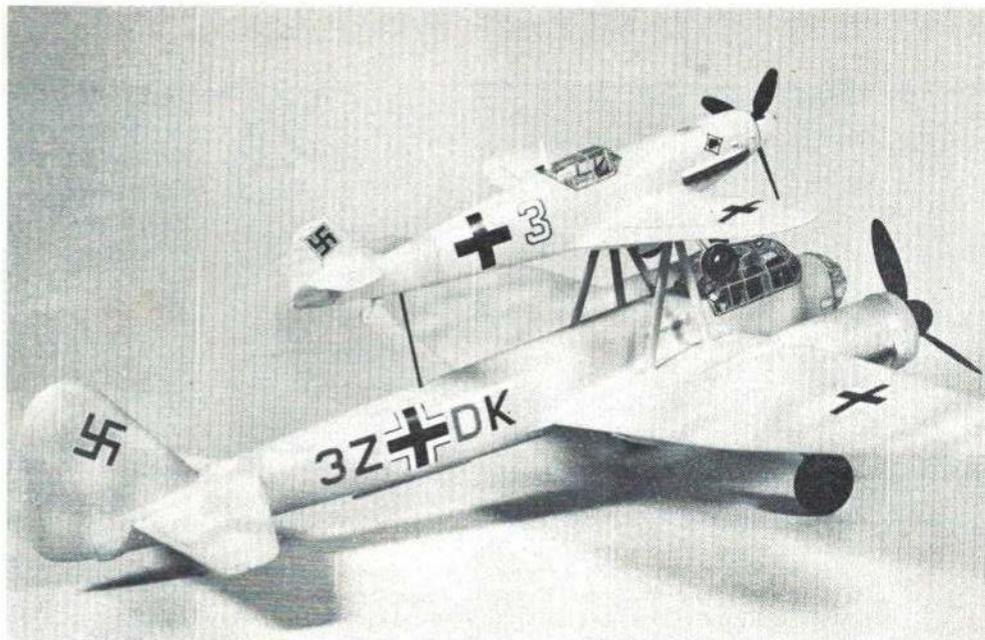
is worth the effort, although it is in 3/16 scale (as is their JU 88), rather than the 1/72 scale used by other manufacturers for these kits.

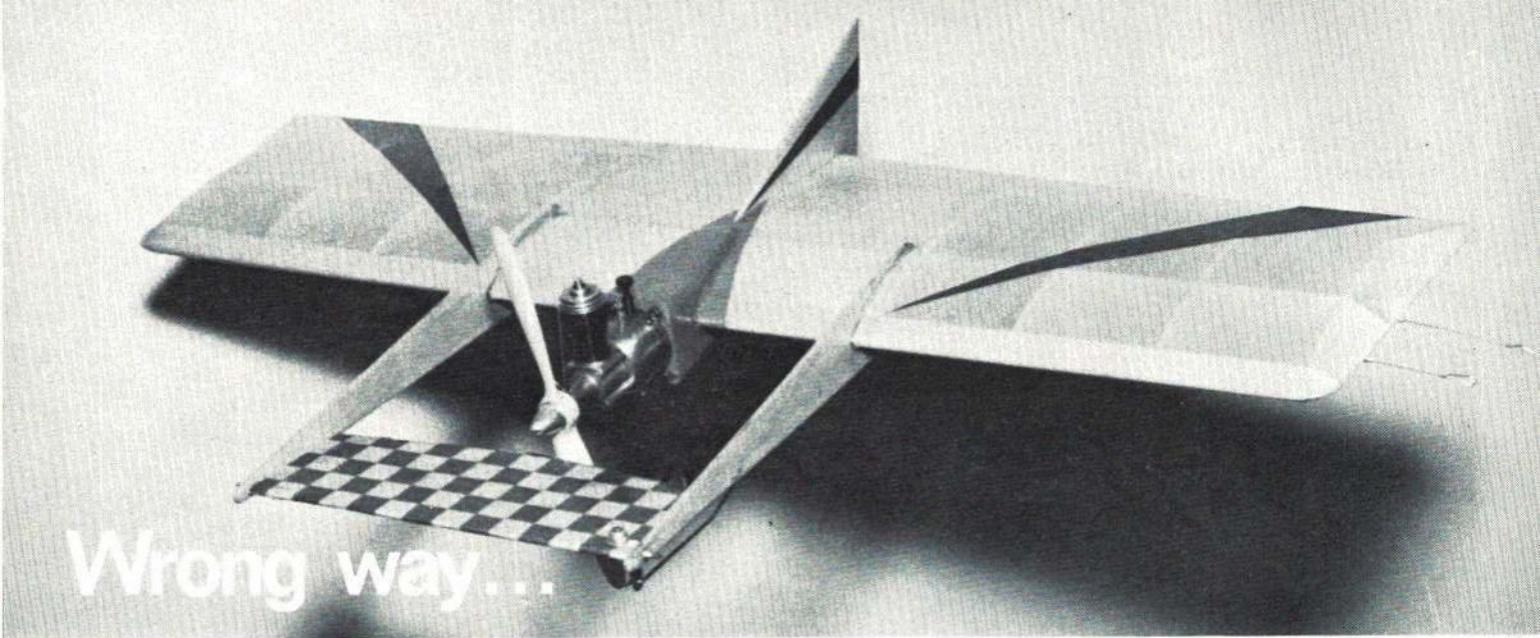
The conversion work is not extensive. Here is how it was done. To build the Revell JU 88 (used in article), proceed as follows: Using a jeweler's saw with fine blade, saw the gondola free from part No. 35 in kit. Replace with balsa plug, carved to shape and sanded, using sanding sealer until part is as smooth as plastic. The next change was on the Airfix Bf 109G: file the bulges from fuselage cowling and the bulge from each wing. These changes make a Bf 109F model from the "G" kit.

Follow standard procedures for assembly given in kits for the Bf 109 and JU 88. You may use any paint scheme you wish on the lower component as all planes converted to the Mistel combination were war-weary aircraft which were no longer usable for op-

*Continued on page 66*

Clearly seen are the attachment points on the JU 88 aircraft. This lower component may have any color scheme, as only war-weary planes were used for the Mistel.





Wrong way...

# Corrigan

JAMES A. WILSON

EVERY modeler has a desire to build something unique once in awhile, and Corrigan is our attempt to be different.

After quite a few years of tinkering around with U-control stunt, there was a feeling of being in a deep rut. In a search for new aircraft, we examined several plan forms, and found that the canard, or tail-first, was the only one that remained unexplored, at least by us.

Since the Wright's Flyer was a canard, we can't say that we invented it! And, as a matter of fact, a couple of canard stunts have been seen in the past. So the tail-first, or "wrong way" concept isn't new — just different. It's worth building one just to see how wild they look in the air.

Half a stunt can be a lot of fun. Cost,

size and building time are minimum. So's the noise! Corrigan will fly as good as, or better than, any 1/2-A stunt design we've seen. It will do any of the maneuvers in the book, yet it gives that "flying on rails" feeling normally found only in larger models.

**Construction:** We strongly recommend epoxy glue. It is very fuelproof, super strong and, most important, it doesn't fatigue and crack from engine vibration. Use it only where specified on the plans.

Begin by cutting out all parts. Use soft or medium balsa unless otherwise noted. Drill all holes at this time, too — such as in the engine firewall, booms, and the elevator horn.

Epoxy the axle wires into the elevator and set it aside to dry. Slip all ribs into their respective slots on the wing spar, but don't glue them in yet. Add the leading

and trailing edges by pinning them to the ribs.

Check alignment. Make sure the ribs are square with the spar and then sight along the leading and trailing edges and remove all twists. Glue all joints and allow to dry. Now epoxy the bellcrank mount in place and glue on the tips, stationary flap, and lead-out guides.

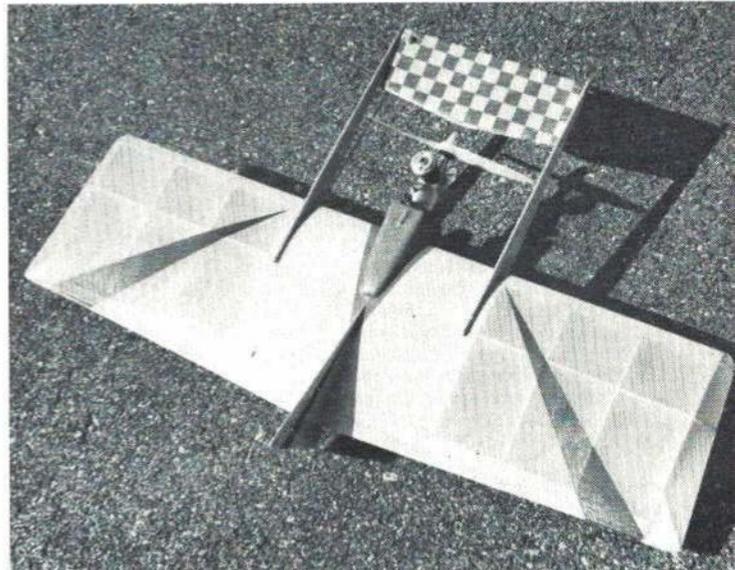
Add the control system next. Bend the bellcrank end of the pushrod and slip the rod through the hole in the wing leading edge. Connect the leadouts to the bellcrank as shown on the plans. This method will prevent hang-up in the control system. Run the leadouts through the ribs and guides. Attach bellcrank to pushrod and install bellcrank bolt washers and nut. With the bellcrank in the neutral position, bend the outer ends of the leadouts so they are even.

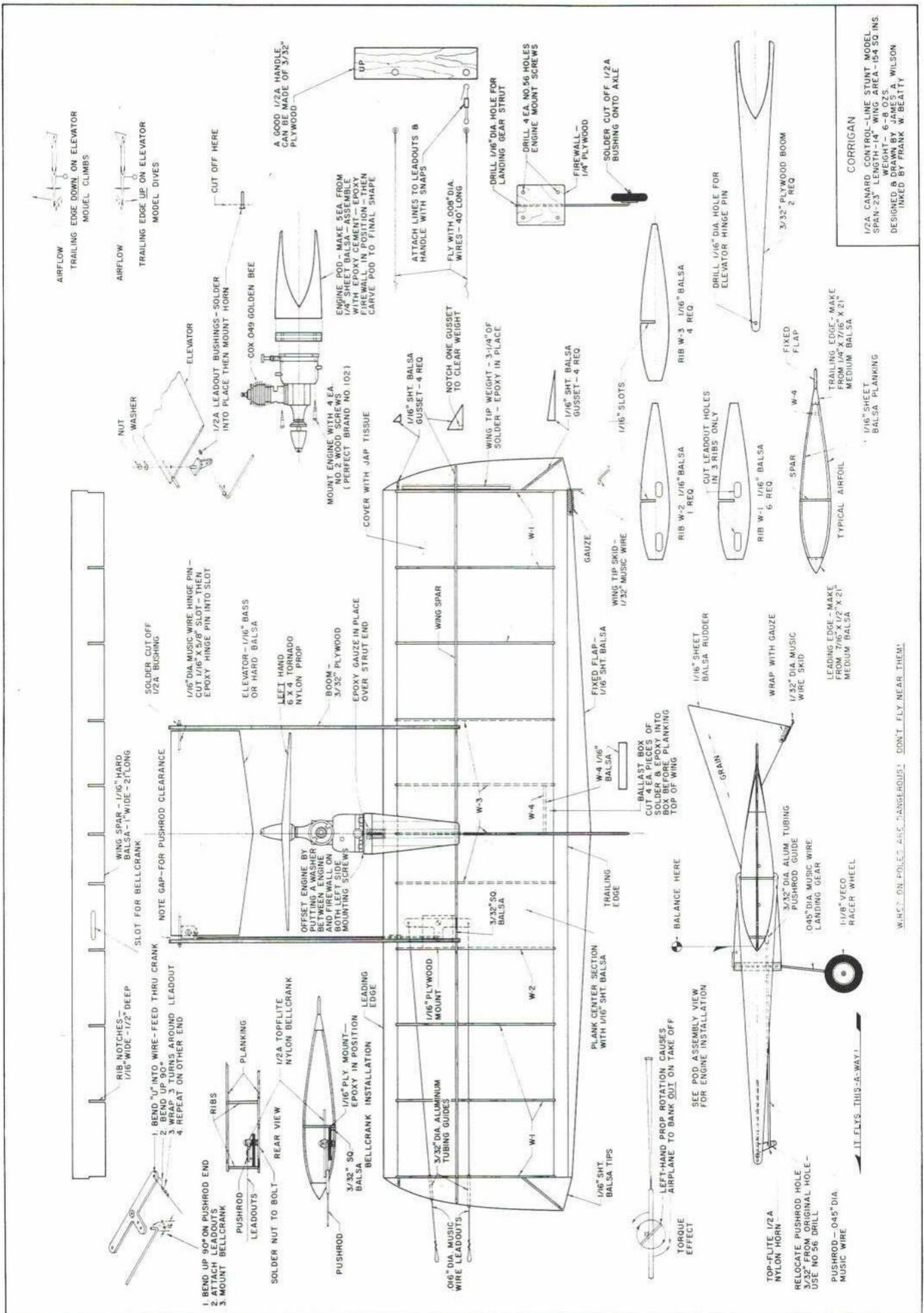
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It may go north to get south, but this cute 049 canard flies like the big stunt jobs.



Elevator movements are opposite normal action, since trailing edge up is down action and vice versa. Even the engine runs backwards! Running clockwise with a reverse-pitch Tornado prop helps keep the lines tight during takeoffs. Engine starting is a bit tricky.

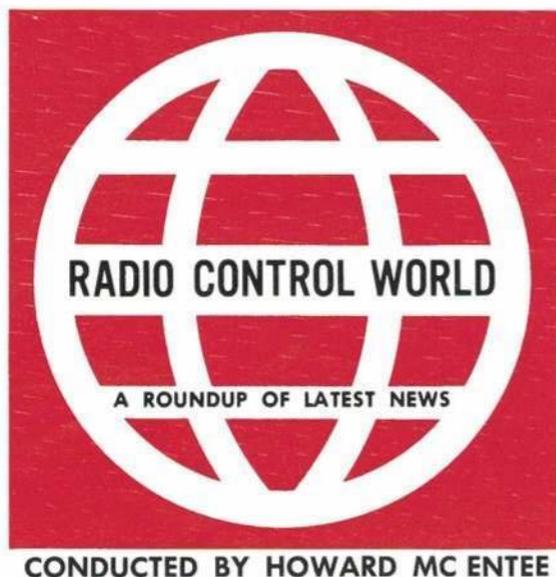




CORRIGAN  
 1/2" CANARD CONTROL-LINE STUNT MODEL  
 SPAN-23" LENGTH-14" WING AREA-154 SQ IN.  
 WEIGHT-6.25 GMS  
 DESIGNED & DRAWN BY JAMES A. WILSON  
 INKED BY FRANK W. BEATTY

WIRE ON POLES ARE DANGEROUS! DON'T FLY NEAR THEM!

IT FLIES THIS-A-WAY!



#### GRASSROOTS

**Czech powered-glider:** This is written in mid-July—you may be reading it in cold weather—but glider shots (sent to us by Claude McCullough, Route 5, Ottumwa, Iowa) came from one of Mac's correspondents, Vladimir Stefan, (Vrchlabi, Czechoslovakia), include a powered-glider sitting on the snow. It is believed that the engine driving this "Fakir 5" is an 08 diesel. The sleek plane appears to have rudder and elevator. It appears that the engine pod struts are held by the plug-in arrangement, which also holds the two wing halves, so should be quickly removable.

**Unusual water types:** Bill Coons (Hudson, N.Y.) sends pix taken at NERCM Spring Hydro trials, where he spotted some interesting and unusual types.

Trafford Hicks holds his twin-Merco 35 flying-boat, with Orbit gear; unfortunately this craft would not ROW. Closeup shows an effective water rudder, linked directly to air-rudder pushrod. Water-rudder support is hinged fore and aft, and a rubber band (just below bottom edge of fuselage) allows rudder to move rearward if it strikes any hard object or if plane runs aground. Still in the water theme, we see Bill Zaisen about to release his RAF Rescue Tender, with daughter, Linda at the transmitter controls. Craft is driven by McCoy 35, launches Estes rockets while underway!

#### An editorial

*"Where do we draw the amateur-pro line? Do we really want to tackle 'professionalism' head on?"*

WE are again hearing an outcry in the R/C field about "professionalism." Mostly this concerns contest activity and, of course, the professionals are very active in such flying—and in general, very successful. Problems have arisen in some areas due to specific incidents at meets; in other areas, sponsoring clubs feel they are simply catering to too limited a group of R/Cers (the alleged pros). One prominent mid-west club has dropped sponsorship of its very popular yearly contest. An old-line Eastern club that has done likewise, is branching out to see how it can widen its contest appeal for all R/C flyers, not just a limited group of hotshots. Others are following suit.

The "professionalism problem" is not new—we've had it with us for countless years. It's even hard to define—just what is a "R/C professional"? There is probably no doubt in the case of those competent flyers who are active in modeling or R/C full time (oddly enough, the vast majority of hotshot pros in the R/C field are in the equipment manufacture field—few are to be found among those who make and sell engines, plane kits, accessories and so on).

What about the part-time "R/C consultant"? He may have a full-time job—perhaps in an entirely different field—but he helps out someone in the model R/C industry, for pay. How about the average model builder who has had one or more articles of any sort accepted and paid for by the hobby mags? Or the fellows who send a few pix of drawings to said mags, and receive a small payment for same? And if we come right down to that—what about the flyers who get cash awards for winning contest events (or receive valuable merchandise which in some cases is sold to fellow modelers for cash)? So where are you going to draw the line? If you eliminate *all* the above groups from ordinary competition, you'll lose the very backbone of such competition.

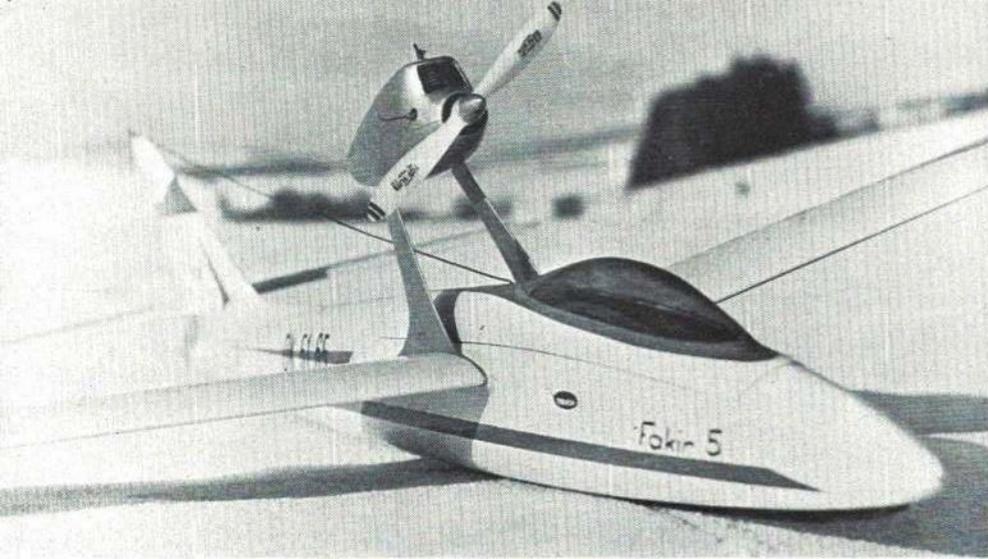
When it comes right down to that, are the R/C pros all that bad? It's pretty well agreed that competition leads to rapid development and positive "shakedown" of equipment in any field. We would literally be back in the dark ages of R/C development—not only in equipment, but in plane designs, engines, accessories—if it were not for the competition pressure that has brought about the remarkably fine gear we have today. As just one f'rinstance: What would have forced the continuous improvement of R/C engine idling (with matching

development of fuels, glow plugs, and the basic design of the engines themselves) if the competition flyers had not demanded—and received—engines that would permit reliable touch-and-goes, proto takeoffs, or taxis-back-to-hangar?

The R/C pros are pretty well known for their help to other flyers out in the field who have trouble with their equipment (and in some cases, too, help in debugging competing makes of equipment). Naturally it's to their advantage to do this, but such help is valuable aid to all categories of flyers, and not only to their fellow contest flyers.

We have a prime example of professionalism in the auto field, where many top drivers are sponsored in one way or another by the car manufacturers. It's true in many other sporting fields. Some have pretty strict amateur-professional splits in their competition, but even here the lines are breaking—witness the revolution now sweeping tennis competition. Do we want such a strict split, which would mean meet sponsors must either ban one group or the other, or else try to dig up enough prizes for *both* groups—and try to find enough time in one or two days for all the added events?

To our view, this matter of R/C professionalism boils down to two main points: Where do we draw the amateur-pro line? And having drawn the line (with foolproof rules to make it stick—something few if any other sporting groups have been able to devise), what can we do about it? These paragraphs aren't intended to suggest any sure cures, but mainly to bring the matter out into the open, whereupon some of our hobbyists may come up with some good solutions. As we've noted above, not all pros who fly in R/C competition are hotshot flyers by any means. One of the surest proofs of this is the Annual Cincinnati Invitational Meet, which we believe was originated by World Engines Inc. It is presently being sponsored by the Queen City RCC and conducted solely for members of the industry. Some of the wierdest flying you'll ever see has been exhibited at these meets, but the participants have a real ball. The names of two of the events give the clue (AMA "Splat-tern," Open "Pile-On!"). Here is a group of true "professionals" in action—and the average club flyer could beat many of 'em in open competition! But all kidding aside—do we seriously *want* to tackle the matter of "R/C professionalism" head-on? Past arguments were pained and fruitless.



Sleek powered glider seen in Czechoslovakia has clever, removable engine unit via the plug-in wing attachment system. It's a scale, high-performance sailplane.

**Communications needed:** Apparently there are lots of R/C flyers in Canada, but not much contact between various clubs and groups, even those rather near each other. A brand-new organization, The Montreal R/C Club, has recently put out a bumper issue of its F.B.I. Newsletter (not the secret service—stands for "flying, building, information"), loaded with info on latest equipment, reports of magazine articles, info on doings of other Canadian R/C clubs. It's apparent this group hopes to further R/C for the entire country, not just its own members. Recent note from Head Director Jean Rivard (4403 Champagne, Pierrefonds, Quebec), tells us the MRCC has 32 members. They have a gorgeous field in the middle of treeless, houseless country. A fortunate group!

**Youngsters, Part 2:** There's a shot of Steve Root, son of Oakland R/Cer Dale, proudly holding his 323 sq. in. original with McCoy 09 engine and Bonner 4RS. It weighs 2½ lbs., was modified from an Astro-Mite. Steve is an avid flyer and builder, but can't find many modelers of his own age. We noted in this space, August '68 issue, that Dale intended to try a R/C glider with a fuselage made from molded balsa wood shells, along same lines as the power-plane fuselages he has flown for some years. He sent pix of a sleek 100" glider that has proven to be a fine performer. It has an 850 sq. in. one-piece wing with flat-bottom Root airfoil, weighs 3¼ lbs. less the engine

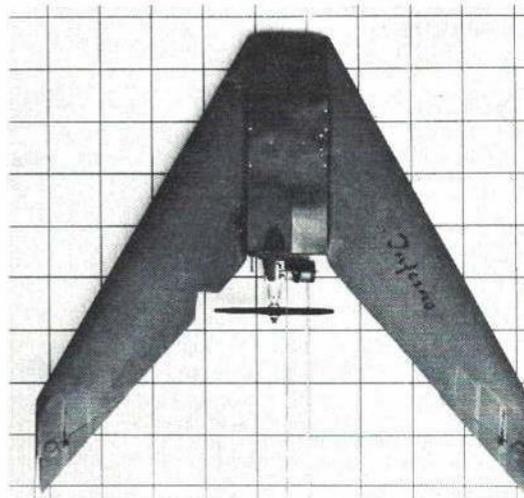
pod which is held on by the wing rubbers. The pod carries a Cox 09 Medallion, and weighs 8 oz.; it has tanks for six-minute engine runs.

Glider makes nice ROG's, using a two-wheel dolly that is left behind as it leaves the ground. A 48"-long fuselage is formed of two shells of 1/8" sheet balsa, with six internal formers, and is beefed-up in forward area, of course. The glider is covered with silk, has eight coats of clear butyrate dyed yellow. We will have info in a later issue on making the formed-balsa fuselages—a system useful for practically any type of plane, R/C or otherwise.

**Conference date shifted:** Trying to get the word out as early as possible, we learn from the Seattle RAMS that their R/C Conference has been shifted to Feb. 22-23, but is still at Tye Motel (Olympia, Wash.). This has become one of the biggest affairs of the year in that area, but date was changed to reduce conflict with several other winter R/C affairs. George Hickson (11809 18th S.W., Seattle, Wash. 98146), who sent above info, notes that the RAMS were disappointed in the Scale entry at the annual Sands Point N.A.S. Meet, though other events turned out well. Only two Scale entries showed up for the two-day affair. Amazing, since there is always a fine Scale turnout at the winter conference. The local R/Cers were looking forward to a WW I meet at Eugene, Oreg. in mid-July, hope it will be as successful as the affair at Rhine-



This cool pilot has just flown a model faster than anyone else. Holds FAI record of 198.8 mph. One pass was at over 203 mph! ST 60 powered, Simpro 2 + 1 guided.

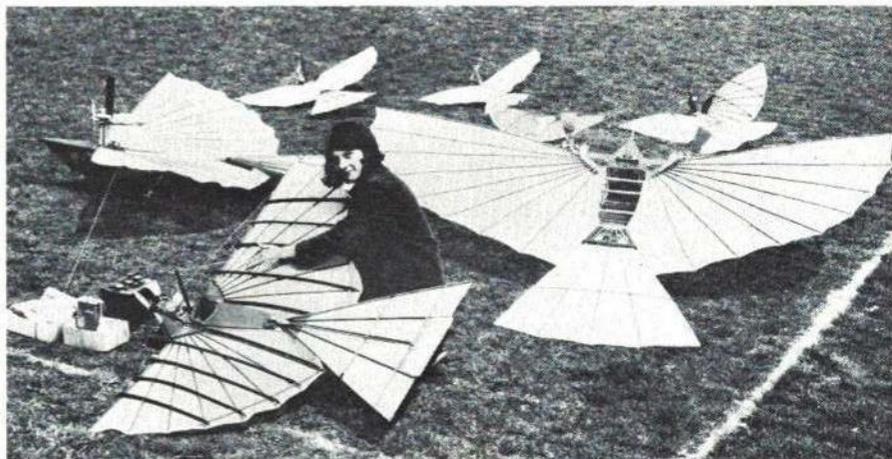


This "thing" flies? Yes! It was an entry at recent German FAI speed trials. Shown being measured for total wing area. Rossi 60 racing engine. Had landing problems.



Bill Coons.

Steerable water rudder on a Taurus is designed for all contingencies. It is able to lift up, or bend aside, if it should hit any floating object while under way.



Stella Randolph.

A fleet of radio-controlled models was built by Waldemer Leinert of Bavaria to prove the basic air worthiness of Whitehead's designs, and all fly very well. See page 14.



The real thing? Tony Mangos' all-yellow Stearman PT-17 climbs for altitude. This model is remarkably detailed. These Sterling scale jobs are quite aerobatic.



Dale Root's sailplane in flight has smoothly contoured fuselage made by molding balsa around a form. Silent, and graceful—a wonderful way to relax with radio control.



Seen in Japan with Mt. Fuji in background, are: Left, Yuji Oki, manufacturer of Micro-Avionics in Japan, and right, Bob Dunham, manufacturer of Orbit systems in U. S.

beck, N. Y. last fall. Shortly after this came the RAMS hydro meet on July 21st.

#### TECHNICAL

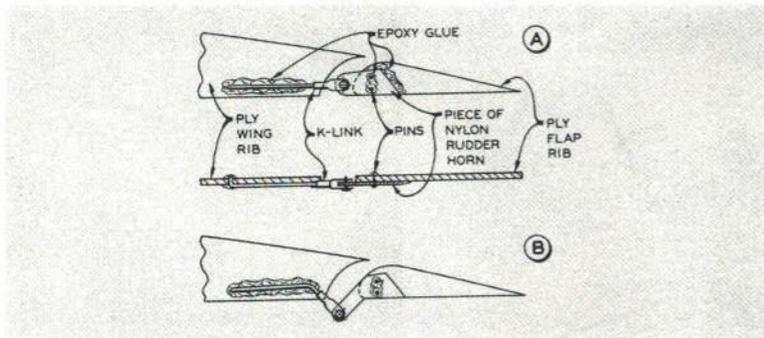
**Small plane steering:** For sport flying, a movable rudder isn't too necessary, but if one isn't fitted, most builders never think of linking the steerable nose wheel to the ailerons. It's quite practical, says Dick Sarpolus (34 E. Highland Ave., Atlantic Highlands, N. J. 07716), and the drawing shows the idea. An extra control horn is attached to each strip aileron (the normal horns that link the ailerons to their servo are not shown in our sketch) with a steering cable to each side of the LG tiller. A stiff shock spring may be incorporated in each side if you wish, to protect the linkage and servo from shocks. Actually, Dick has never used such springs. Control-line clips are used at the tiller bar, to facilitate easy disconnect, to make for handy wing removal and assembly.

**Flap hinging:** K-Links (made by Kavan, distributed in this country by Polks) have been used successfully by Peter Burkelj (Povsetova 72, Ljubljana, Yugoslavia), for hinging the flaps on a Cessna 172 R/C model. A rudder horn serves as the other half of each hinge, and the parts are cemented in place as shown. The ribs to which they are attached are of plywood. Two different forms of hinging are depicted—take your choice. Hinging at A is more like that of

ailerons (and this idea might be useful there too), while that at B drops the flap considerably and makes a much wider "slot" between it and the wing trailing edge. The K-Links make it easy to remove the flap when desired, and they also allow adjustment at each end to get perfect alignment.

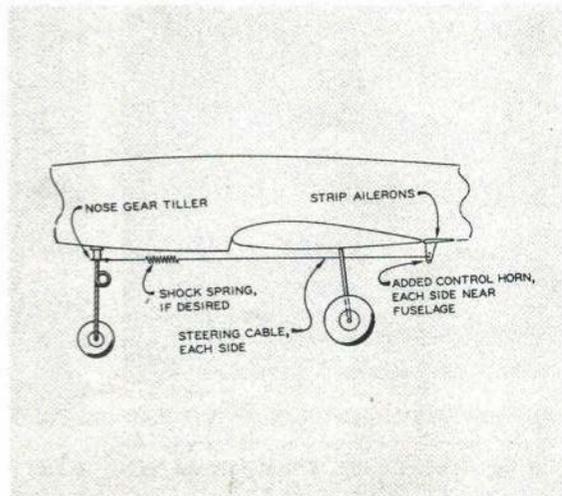
**Handy throttle mover:** In most planes it is impossible to move the throttle without turning on the transmitter and receiver, and doing it via radio. This little operation has doubtless caused quite a few crashes. A guy turns on his transmitter to fiddle the throttle. He thinks it's entirely safe to do so—if he thinks of this angle at all—because the transmitter antenna is collapsed. Plane taking off nearby on same frequency promptly rolls into the ground! Certainly a good argument for impounding transmitters, even at fun-fly sessions.

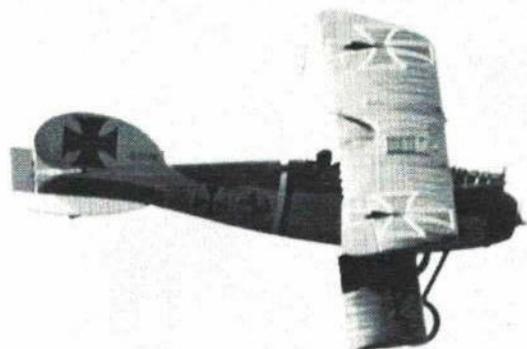
There is often real need to check an engine, and here's a way to make it possible with some systems. Idea was used on a Dee Bee Quadruplex outfit, which had a feedback propo servo fitted, per circuit and info in Oct. '68 issue, this space. Actually, the same idea had been used with previous planes and systems too, and we'd never do without it. It consists simply of a pair of tiny pushbuttons near the plane nose, which allow the MC servo to be driven to high or low speed, when the receiver is off.



Peter Burkelj's flap-hinge assembly uses metal clevises fastened to the wing as locus of rotation, to achieve slotted flap effect for scale models.

If your equipment or plane do not offer rudder steering, nose wheel can still be controlled from the ailerons by Dick Sarpolus' simple method.





Above: Biplanes in flight attract the picture-takers. Scratch-built Albatross D-VA by Petrevan, drones past majestically. Right, talented junior flyer is Dale Root's son, Steve, seen with his modified Midwest Astro Mite. REM by Bonner 4RS, Cox 09.



General circuit of latest lash-up is seen here. SW1 is the usual on-off battery switch, opening both plus and minus battery leads (but center tap is not disturbed). The throttle servo in case shown is driven by transistors, but these are not powered when SW1 is off. In order to operate the servo with switch off, the leads from SW2 and SW3 must run directly to the battery terminals, as indicated. Because of this connection, never push the buttons when SW1 is closed (we've done it a few times with no damage, but it could cause real trouble if the button were held closed). Point X is the only connection you need make in the actual servo circuitry. Resistor R1 was inserted to prevent damage to transistors and other receiver and servo parts due to "sneak circuits" that may not be immediately apparent (the Dee Bee receiver used here had relay drive for all other servos).

All servos move very slightly when either M.C. button is depressed; the system was in use for several years with no problems whatever. R1 still allows reasonable speed of M.C. servo action with the buttons—it has no effect on servo operation via R/C, of course. The same general idea was used with a non-feedback servo for throttle (in this case the servo was driven by the POD relay in the receiver, and R1 was not em-

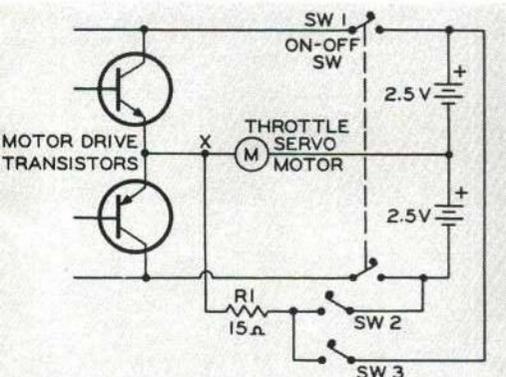
*Continued on page 73*



Bill Coons.

Trafford Hicks proudly shows off his unique semi-scale, twin-engined seaplane. It was test-flown with one centrally mounted engine, but would not ROW as a twin.

Bill Zaiser trusts his daughter, Linda, to operate his RAF Rescue Tender. It is powered by a converted McCoy 35 and, while under way, can fire off an Estes rocket to 2,000 feet.



Auxiliary throttle operation, without turning on the transmitter, is helpful at meets, or any time someone is flying on your frequency. Note: R1 is very important.



Bill Coons.

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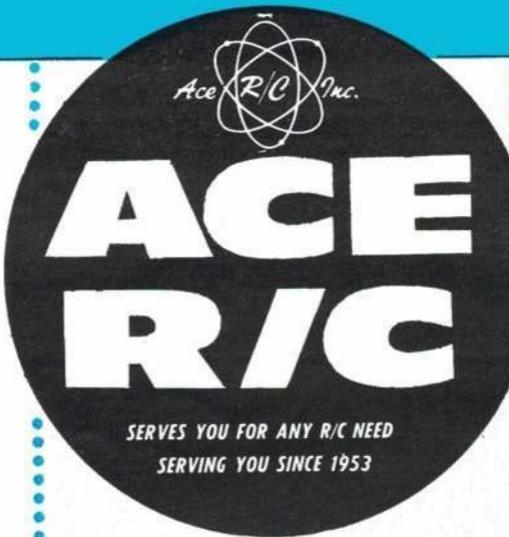
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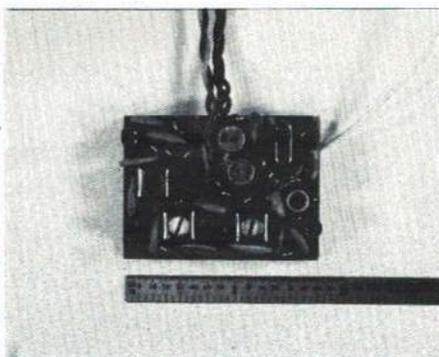
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Manufactured by Ace exclusively under license agreements with designers—several circuit breakthroughs found only in this unit.

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Not only is the Commander the smallest and lightest superhet available today—it is also the lowest priced at this special introductory offer.

Available on 26.995, 27.045, 27.095, 27.145 and 27.195 mHz. Be sure to specify.

No. 12K1—Commander DE SH, Rx,  
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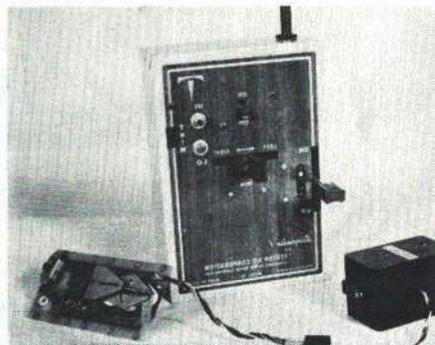
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**DICKERSON—TESTOR CONVERSION KIT**



Although intended primarily to convert the Testor Skyhawk to GG operation for rudder or elevator (motor if desired), the kits below are among the most versatile ever offered.

The plane conversion kit will give GG for the Skyhawk, but also may be adapted for airplanes up to .19 power! May also be used with almost any other type of receiver—relay or relayless.

**RECEIVER CONVERSION KIT**

The Dickerson conversion kit for the Skyhawk receiver utilizes some of the components already in the unit, but adds a switching decoder to convert signals for a Rand LR3. Kit consists of PC board for housing switcher, LR3, switch and charging jack on a 2 3/4 x 4 1/4" deck. Contains all transistors and resistors. LR3, connector, switch and charging jack are not supplied.

No. 15K53—Dickerson Skyhawk Rx Conversion Kit, \$11.50

**TRANSMITTER CONVERSION KIT**

While foregoing may be used with any GG transmitter, this kit makes the conversion of the Testor Simpulse Tx into a two stick GG transmitter easy and simple. Only hand tools required. Basic kit contains all pots, brackets, extra stick assembly (SPST push switches motor available as extras.)

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No. 30K3—SPST push switch for motor control (2 required) each, \$.45

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Printed Circuit base for plane and receiver conversion is available separately for the scratch builder.

No. 28K75—Dickerson-Testor Rx Board, \$3.25

**NEW!**

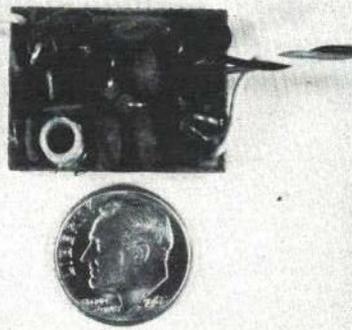
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Would you like to add a signal strength meter to your Jansson or Commander or almost any R/C transmitter that does not have one built in? This simple Ace kit, while designed primarily for the Jansson transmitter, can easily be adapted to any transmitter that allows just a bit of room in case.

The S/S Meter Kit monitors the RF going into your antenna and is a reliable indication of signal you have from your transmitter.

Simple to install: All components mount on a meter except for connections to antenna and case. Kit contains all components, including instructions.

No. 22K17—Transmitter S/S Meter Kit.....\$4



### NEW! ALBIN MICRO RECEIVER KIT

Would you believe a superragen receiver weighing just .2 oz? This Bill Albin kit design measures 1 3/8 x 1 1/4", uses silicon transistors, 1/8 watt resistors, micro mini caps, drilled 1/2" PC base. Single ended output for actuators of Bentert type. While it is superragen, this kit will be used in applications where this is not too important. Makes indoor R/C a distinct possibility! Recommended for those with some building experience, since small size makes care necessary. Not complicated, however.

No. 12K60—Albin Micro Receiver Kit, \$12.95

### NEW! AOSK II KIT

A switcher for the Albin .2 oz. receiver and the Adams Baby so you can use one set of batteries and don't have to use a spring for return!

Designed to fit on the actuator itself, this Add On Switcher Kit II is micro miniature. Designed for the Albin receiver only.

Complete kit contains 1/2 etched and drilled PC base, 1/8 watt resistors, tantalum cap, two Motorola transistors and full instructions. A gem of micro miniaturization using discreet components.

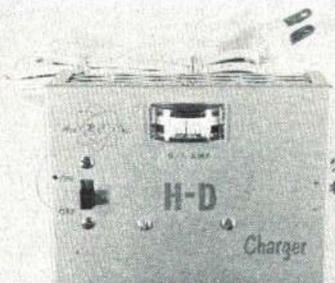
No. 15K55—AOSK II Kit.....\$3.25

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Ace has the American Modeler featured Simpro III kits, which allow you to go to decoder action for GG with two actuators for less wiggle, more power. Also kits for the Rand Switchers and Decoders. Full details in our 1968 catalog. (NOTE: Decoder systems require faster pulse rate than ordinary GG systems.)

COMING SOON! — Don Dickerson's Dual Dither low cost all transistor decoder for use with Rand actuators; a Micro Decoder Center which is all solid state including Adams actuators for completely inter-action-free flying. Also the Radio Control Modeler Decoder which will be featured soon will be available in kit from Ace.

Watch our ads for details—or better yet get on our mailing list by sending us an order! Free catalog supplements AND R/C Data—acclaimed by do-it-yourselfers all over the world



### NEW! H-D CHARGER

The H D refers to Heavy Duty—and that's exactly what this brute is—capable of charging your larger nickel cads and wet cells. For rates of 100 ma up to 1 amp. Has meter for monitoring and for setting of charge rate. Not dual purpose, but made for those husky charging jobs where you need the power. For nickel cadmiums from 1.2 to 10 ampere size. Will also series charge transmitter battery packages. Adjustable internal resistor sets rate.

Uses all new components double the ratings necessary to assure long life. Housed in aluminum case, with ventilated back, and rubber feet. A deluxe design. Assembled, tested, guaranteed. No. 34K1—H-D Charger, assembled.....\$13.95

New

### COMMANDER PULSE TRANSMITTER



The Commander Pulse Transmitter is designed expressly for magnetic actuators. Unlike most GG units, which are difficult to convert for

New

Rudder Only, this unit makes effective rudder control with magnetic actuator possible by a wide variation of 95/5 instead of the usual 65/35 ratio. Engineered as a complete package, this is not a conversion unit or add-on.

RF section uses powerful silicon transistors. Pulser section uses stable unijunction. Has an electronic centering adjustment to fit your installation in the airplane. Once set, does not require readjustment or constant trim adjustments.

Housed in exclusive Aluma-Sheen anodized-finished metal case measuring 6 1/4" tall x 3 1/8" wide x 2 1/8" deep. Uses large 9 volt battery of the M1603, D6 or 276 types for extra long life. Has base loaded antenna which collapses to 9 inches. Nicely balanced for easy-to-fly feel. Spring loaded stick is internally mounted.

High pulse rate for motor control may be easily added. Details shown in the instructions.

Designed expressly for the Commander DE Superhet receiver. With 2 nickel cads and an Adams magnetic actuator, this makes an ideal beginners package.

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Quality throughout, rugged reliability, custom crafted; completely assembled, tested and guaranteed.

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(Watch for package announcements soon.)

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Heavy duty transformer for complete isolation and shock hazard protection. All components used are twice required ratings to insure long and trouble-free life.

Dual range meter has LO range of from 0 to 100 milliamperes; HI range is from 0 to 1 ampere. LO range is completely variable by external knob from 0 to 100 ma; HI is internally adjustable from 100 ma to 1 ampere for the huskiest batteries.

UL approved line cord, ventilated metal case for safe heat dissipation, HI-LO switch, edge reading US made meter, screw terminal output. Completely wired, tested and guaranteed.

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### MORE THAN JUST A CATALOG FOR 1968!

Our 1968 version of the Ace R/C Catalog is also a handbook—has an R/C Glossary; How To Solder; Pulse Proportional Control for Rudder and GG, including Decoders; Schematic Symbols; Batteries and Charging; Resistor Color Code, Transistor Chart; Electric Motor Spec Chart and many more Data Sheets you will refer to again and again. Three holes punched, 8 1/2 x 11 in size, it is designed to be added to! Will fit special Ace Binder, for permanently keeping any of your R/C instruction as well . . . in addition it lists all the latest Ace R/C Products and thousands of other R/C items and R/C accessories made by other manufacturers all over the world . . . Cost is only \$1.00. BUT this is refundable on your first order! So actually the catalog costs you nothing. Your order also places your name on the Ace mailing list to receive regular additional R/C Data info, and newsletters . . . The Ace Handbook-Catalog is a must for the tinkerer, the Sunday and the sport flyer. We have served the R/C field since 1953 . . . Send your catalog buck on a round trip today. You can't lose!



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WILLIAMS BROS. R/C PLANES AND BONNER RADIO EQUIPMENT

### 1st in R/C SCALE EVENT

Williams Bros. multiple award-winning scale model 2" Neuport 28, is the leader in design and first place winner of this event in 1968. 3rd by Nate Rambo with Bonner R/C.



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### 1st in R/C PYLON FINALS

"La Jollita" PYLON RACER, sleek and beautiful, a Radio Control builders dream, the "La Jollita" 95% scale model with proven speed, stability and responsiveness by placing 1st in the Pylon Finals. The kit is of selected Balsa wood and plywood and contains 29 high impact, weight and labor-saving plastic parts. WING SPAN, 45", FUSELAGE, 41" long. ENGINE SIZES from .29 to .40.



### THE WINNING PARTNERS

Bonner Digimite 4RS and Digimite 6RS transmitters are the most efficient and have the highest radiated power. They are unmatched in performance by any other R/C systems in their class.

**Bonner**

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### NEW IN R/C

Those wanting to research the small battery field should get the brand-new Eveready Battery Applications and Engineering Data book, a 700-page paper-cover volume that exhaustively covers the portable battery types available today. Describes carbon-zinc, alkaline, lead-acid, nickel-cad, silver-oxide and mercury cells, has much info on charging units intended for such use (plus special varieties of alkaline cells), complete descriptions of each type, its advantages and faults. Lists at \$6 from Consumer Products Div., Union Carbide Corp. (270 Park Ave., New York N. Y. 10017), possibly available at lower cost from mail-order electronic firms.

Eddie Ellis is setting up new retail model business with strong emphasis on R/C. Since Eddie is an industrial plastics manufacturer, many products in this line will be offered. Among first is a kit for a "Mini-Taurus" including vacuum-formed fuselage and wing tips, foam wing, plywood fuselage formers, all listing at \$24.95. Send for list of other specials. New hobby outlet will be called Ellis R/C Inc., (300 Governor Ave., Babylon, N. Y.).

Being shipped, new Controlaire S-3 servos, offered in kit form for \$19.98 or completed for \$30. Servo is for systems such as Digitrio, measures 2.37 x 1.75 x .83" less lugs and other projections, features a very fast transit time of .45 sec. Has both push-pull and rotary outputs, with 3 lbs. force on former. Coming soon is the S-4 servo, much smaller than S-3, with just rotary output. Second printing of W. E. catalog has many additions; first four pages of Controlaire R/C goods completely changed. New shipment of OS 3 ch. is expected soon; has been popular at \$199 for complete outfit. Since K&S' battery charger is no longer available. World Engines (8260 Rossash Ave., Cincinnati, Ohio 45236) developed own unit; features an isolation transformer, dual-rate switch, meter for low range (up to 100 ma. charge) and indicator bulb for high range (up to .5 A). Full-wave rectifier is used, charging leads have alligator clips. Design prevents internal damage, even if leads are shorted. Assembled, \$15.98.

New, completely revised 3rd edition of the R/C Primer by Howard G. McEntee (published by Kalmbach Publishing Co., 1027 N. 7th St., Milwaukee, Wis. 53233) is now at hobby shops and mail-order R/C suppliers. The 64 pager includes more late info on FCC rules, getting a license to operate an R/C transmitter, on proportional systems and components than the 2nd Edition and increased use of semi-conductors. Illustrations of equipment are scattered profusely through the book. Generally, material is arranged in same chapters as before; updating is evident throughout. This book, intended for the rank beginner in R/C, still sells at \$2.

New from same publisher, also listing at \$2 in "Propo Primer," by the same author. As name implies, this publication, a 56 pager, is devoted exclusively to proportional equipment; such gear from simplest to the most complex is described. Since FCC and AMA rules are covered in R/C Primer, this latest volume omits such matters, as well as more general R/C info. Both books therefore are complementary, and will give the new comer to R/C modeling a good grounding in this art.

Free booklet, Sonotone Corp. (Elmsford, N. Y. 10523), "The Sealed Rechargeable Nickel-Cadmium Battery," by Louis Belove. Many illustrations and graphs of battery performance in 18 pages, several charging circuits. Covers various methods of "fast-charging," which may soon be available in R/C field.

Some Logitrol servos have gearing that permits feedback pots to slip; since EK Products, Inc. (3233 W. Eules Blvd., Hurst, Tex. 76053) cannot be certain which servos have this defect, they ask owners to return servos for gear replacement. Send only the servos; gears will be replaced at no charge and servos returned via parcel post, special handling within 24 hours (if Airmail return, send \$1 with servos). Servos with new gears have EK emblem label on one end—do not return these, only those without emblem. EK can supply an aileron servo mount for \$1.25 and a mount that holds three servos and the receiver for \$4.95.

\* \* \*

### DMECO'S "LIVE WIRE"

A new era is here for R/C flying, bantam weight and midget size radios plus powerful medium size engines. Changes like this can only add to the enjoyment of our sport!

The new Live Wire "Cobra" points the way also in airplane design, structure and in performance; it too fits this new era! This realistic model is patterned after the fabulous Bell P-39 "Airacobra" and is engineered to assemble quickly plus having outstanding performance at the flying field. It uses the proportional radios and handles well with engines in the .29 to .50 range.

The kit is new and modern in concept also, never before has the prefabrication been so complete. All parts are precision machined ready for assembly including even the sheeting, wing fillets and cowling! The hardware is complete and is included.

Complete Dmecco catalogue is available — 25c

### THE NEW R/C SCALE "COBRA"

Real Locking plus Winning Performance!

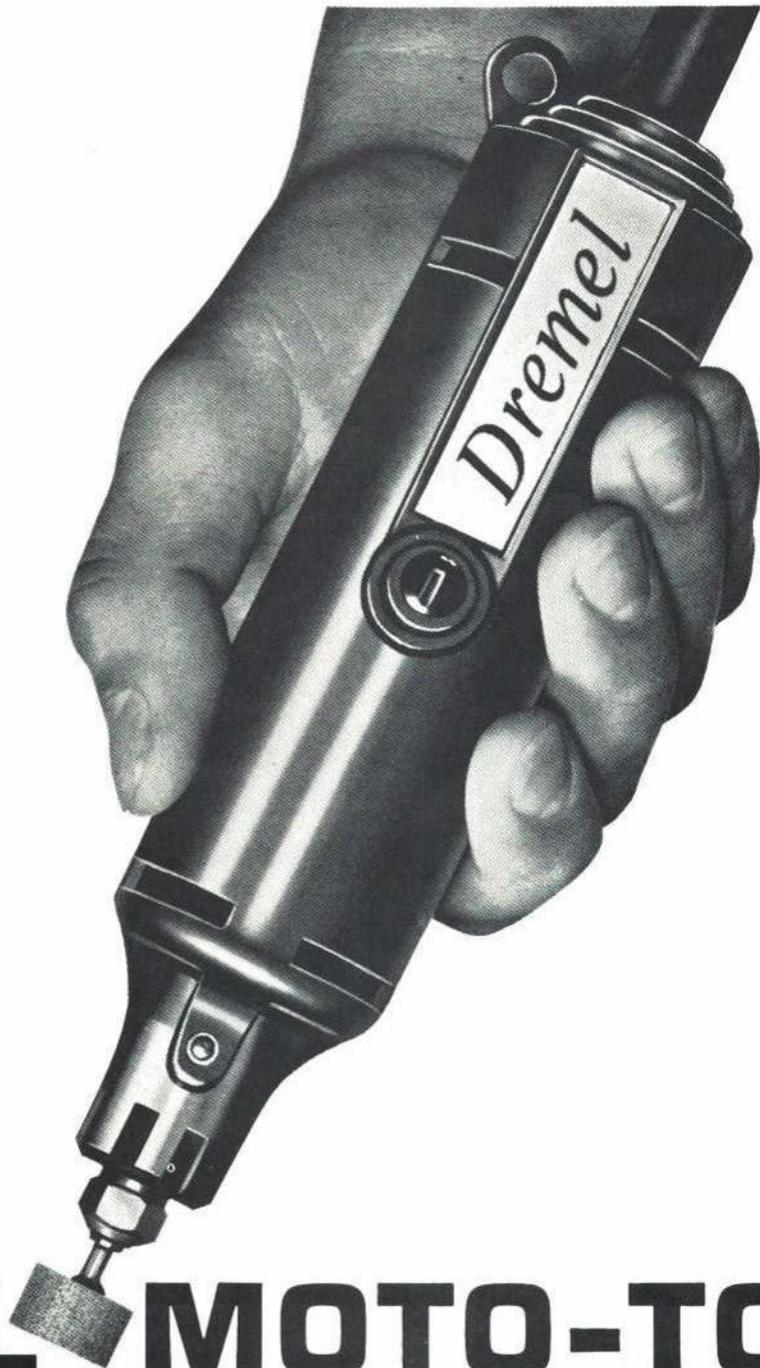


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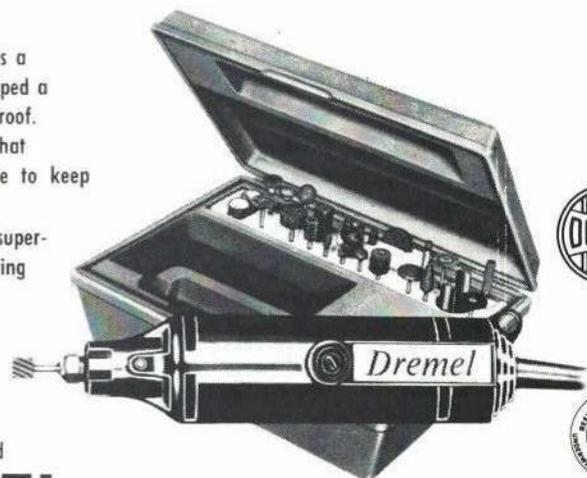


# NEW DREMEL MOTO-TOOL

If you're after professional-looking results, a hand tool is a help, but a Dremel Moto-Tool is a must. It packs greater speed, more precision, and more fun. Especially since we have developed a whole new line of Moto-Tools that belt out enough torque to make them virtually stall-proof. This new power comes from a space-age ceramic magnet that helped our engineers design what they call a "constant-torque" permanent magnet motor. To you, this means the muscle to keep churning away at top speed, even when you're really bearing down.

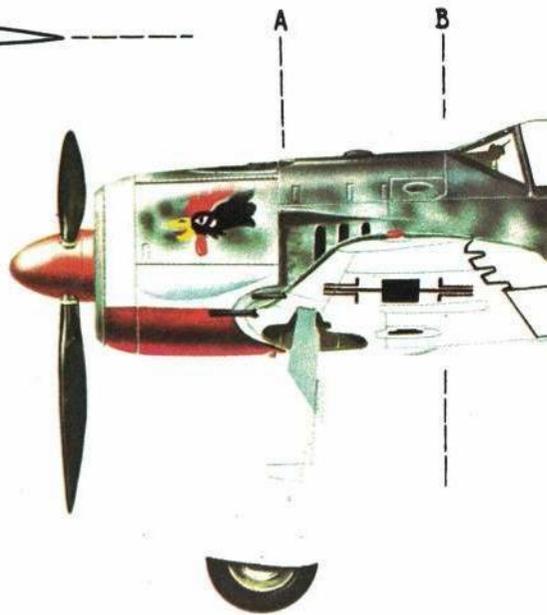
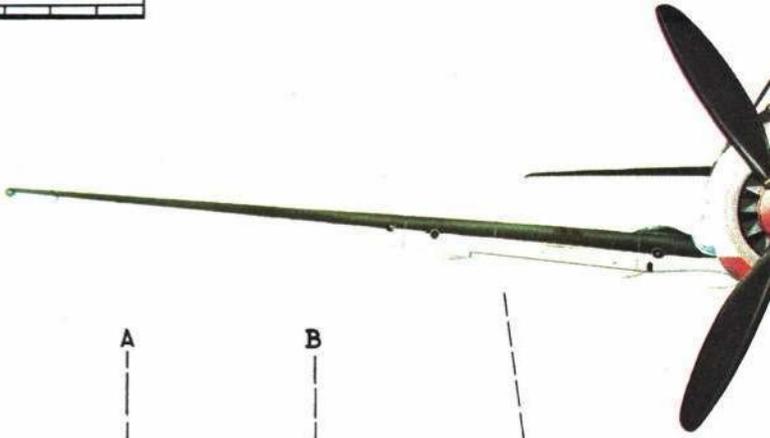
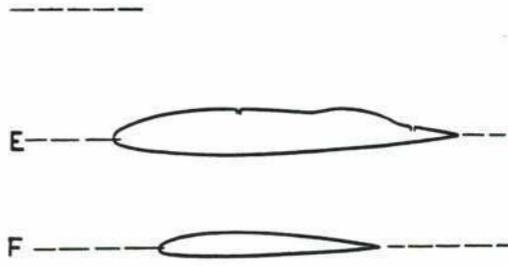
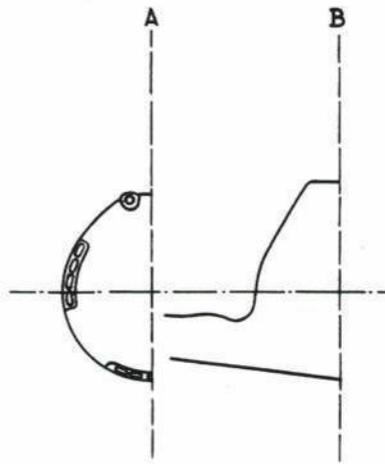
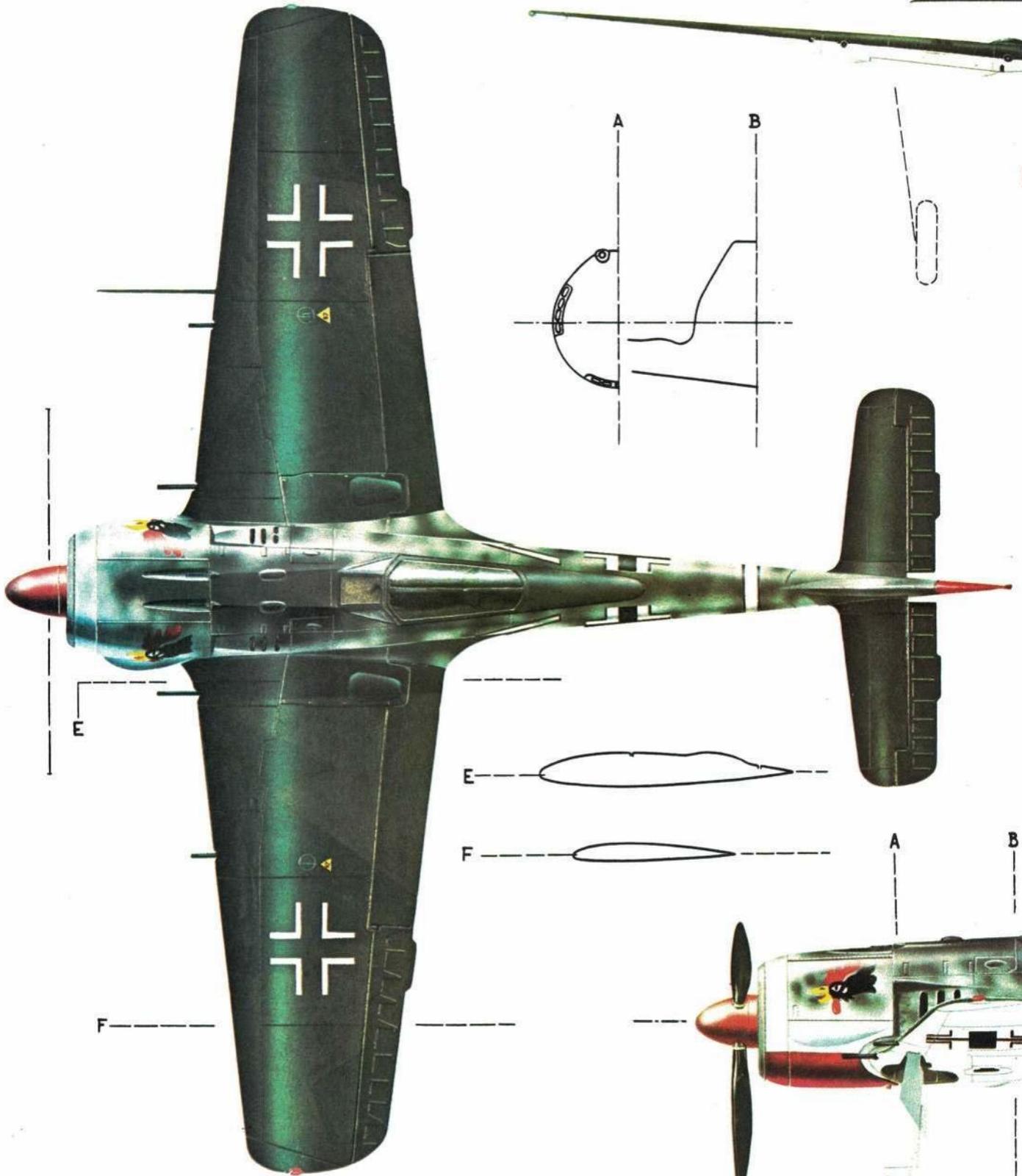
Each of our three models winds up 30,000 RPM and has a tough Lexan housing. The super-compact No. 260 weighs a scant 9 oz., while the larger No. 270 and heavy-duty ball-bearing No. 280 weigh only 11 oz. All three models are also available in kit form — the molded plastic storage case holds 34 accessories for grinding, drilling, polishing, carving, deburring, and sanding. Moto-Tool prices start at \$22.95, kits from \$32.95. So get professional — ask your hobby or hardware dealer for a "prove-it-to-me" demonstration.

Write us for your free copy of the complete Dremel Tool catalog. You'll also want to send us \$1.45 for a copy of our new 160-page Dremel Handbook of Hobbies, Crafts and Projects. It's packed with craft projects and how-to tips.



**DREMEL** Manufacturing Company, Department 688K, Racine, Wisconsin 5340

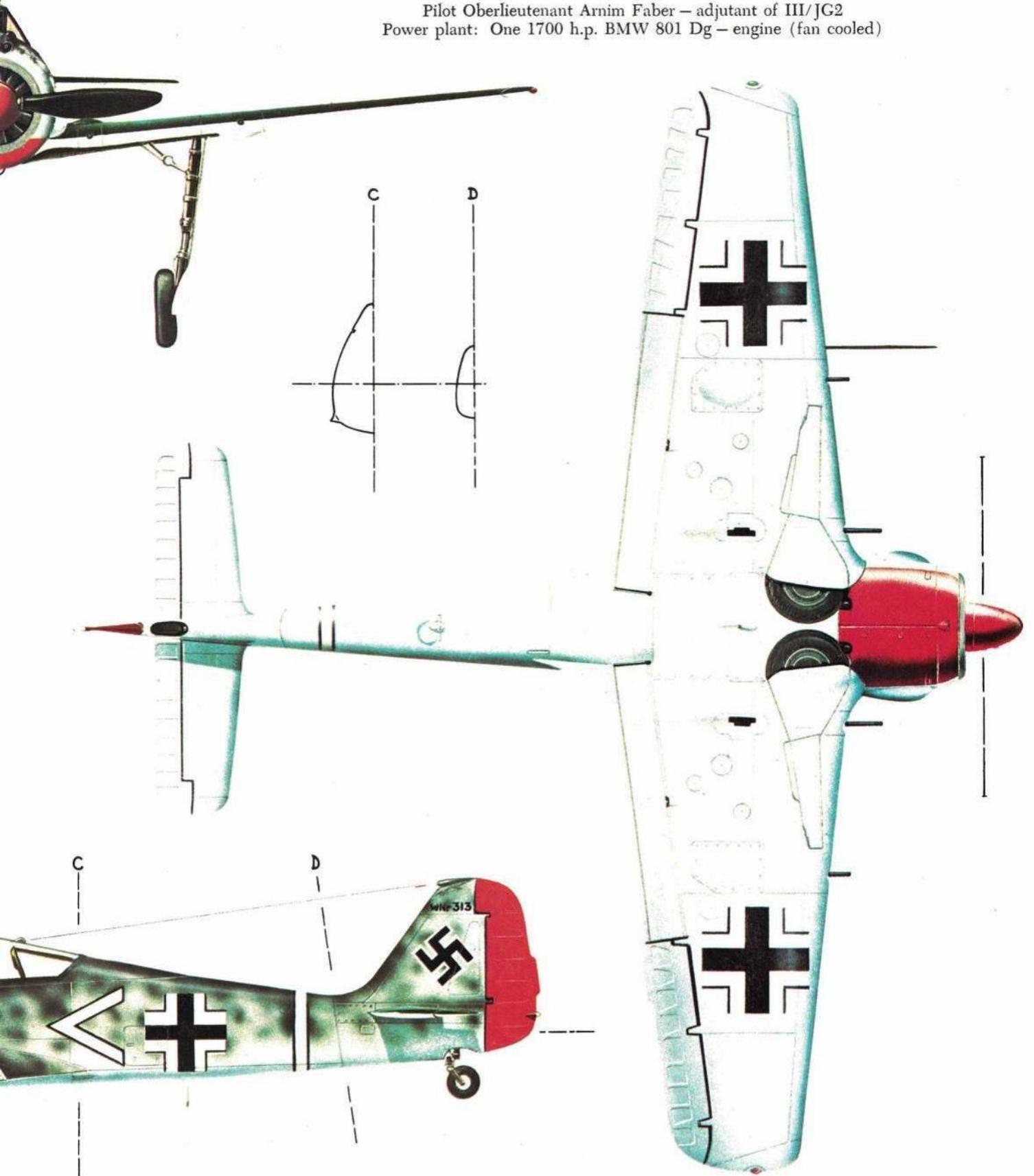
0621



American Aircraft Modeler album of all-time favorites:

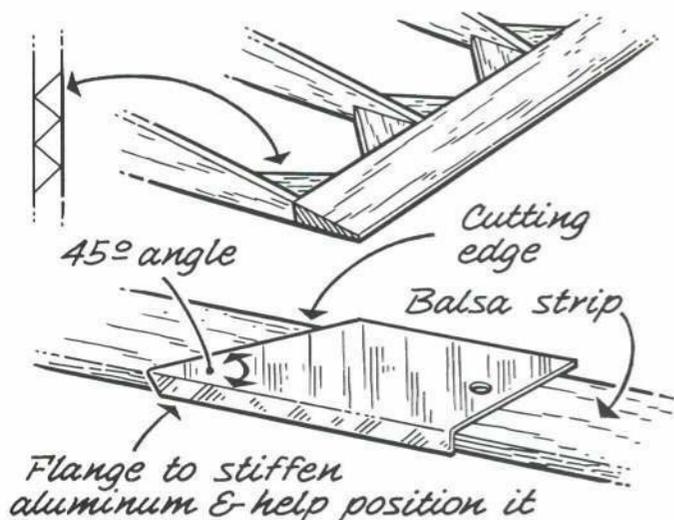
# FOCKE WULF FW 190 A-3

Pilot Oberleutenant Arnim Faber – adjutant of III/JG2  
Power plant: One 1700 h.p. BMW 801 Dg – engine (fan cooled)



BRUN  
H. H. H. H.

# SKETCHBOOK

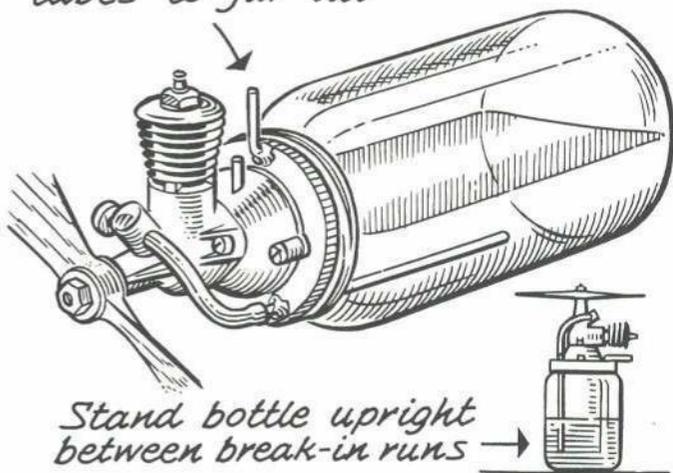


▲ Triangular gussets greatly strengthen model frames. C.O. Wright, Topeka, Kansas, utilizes metal guide to cut gussets precisely and to keep wood grain in desired direction —

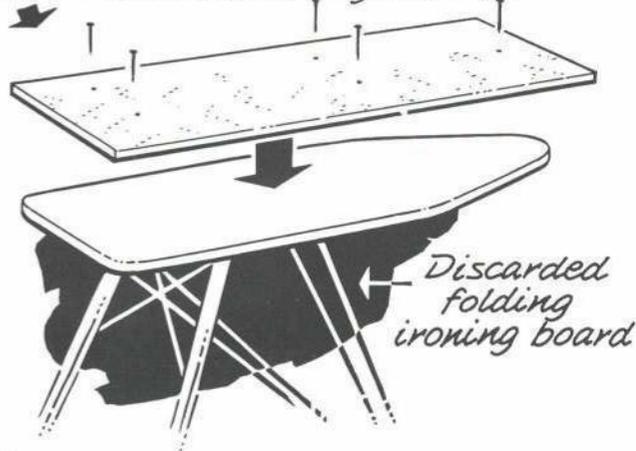


▲ A felt-point marking pen is ideal pattern tracing tool says John Frankosky, New Albany, Pa. Duplicate parts are easily made —

▼ Mayonnaise or large size dope jar serves as convenient break-in engine tank-mount. Unit is conveniently hand-held says Scott Prindle, Chicago, Ill. Solder vent & fuel line tubes to jar lid



Carl Schrader, Jr., Dayton, Ohio



▲ Modeler with limited working space can use portable, collapsible work table made by nailing piece of "Celotex" or other wallboard to top of discarded ironing board. Store in closet; take to contests for repairs, etc.

# Getting Started in R/C

## Location and protection of airborne equipment

HOWARD McENTEE

WHILE it may seem to the novice that the placement of all components of a R/C system in a model might be based mostly upon individual whim or preference, such is definitely not the case. There is, in fact, a very special reason for the precise positioning of every portion of the system. Probably of prime importance is balance of the model, and location of the various weights to bring about the desired balance point. The majority of model planes tend to come out tail-heavy, especially those built by novices. Thus, heavy equipment items should generally go pretty far forward. The battery pack is often the heaviest individual item, and is usually found in the nose area. If your model allows it, try to leave a little fore and aft leeway for battery pack placement; then you can shift it to bring the CG of the model to exactly the desired or specified spot.

There is another reason for putting the pack ahead of all other R/C components. In a crash (we all have 'em sooner or later!), the heavy pack can become a lethal projectile, will fly forward and crush anything in its way. It might smash a fuel tank or tear out a bulkhead or two; such damage is not too costly to repair. But better this than to have it mash your costly receiver!

The receiver is generally the next item to the rear, and the servos, at least those for rudder and elevator, generally go at the rear of the cockpit or cabin area to simplify linkage to the tail surfaces. The receiver is always well-wrapped in foam rubber or plastic (the latter is often not soft enough for relay receivers, to avoid a rattling armature from engine vibration). If space permits, the battery pack should also be well-wrapped. Vibration can break connections between cells, and even cause internal

damage. When wrapping round packs, make certain the pack is restrained from rotating inside its protective covering; vibration can cause such rotation that will eventually break leads or pull out connectors!

The on-off switch should naturally be mounted on the side of the fuselage away from the engine exhaust. The fuselage bottom is not too good a place, for fuel and oil almost always gather there, no matter where the exhaust stack points.

If at all possible, mount all components above the bottom of the fuselage. The simple reason for this is to keep them away from any fuel that may come from a leaky tank. Some harried modelers have pumped an inch or more of fuel into the fuselage bottom, thinking they were filling the tank; a split or leaky tank, or just a defective fuel filler tube, can cause such problems—and that fuel won't do any of your system components a bit of good!

With considerations of balance and protection out of the way, let's look at convenience and accessibility. First, don't seal any component in permanently—you'll want to reach every part at some time for checking or replacement. We've seen battery packs cemented solidly into the nose area which had to be removed with a saw or razor blade! Even nickel-cad packs must be checked once in awhile; you'll be more apt to do so if you can reach the pack easily.

Many builders install their R/C system so that it can be removed completely from the model—on-off switch, connectors and all wiring included. This allows easy bench testing, also—dare we mention it?—makes it simple to remove the outfit for return to the factory for checkup or repair. Main necessity here is to provide large enough

holes in bulkheads for connectors to pass through.

Be sure your battery connector is easy to reach, if you are utilizing a rechargeable pack. Some builders prefer to mount a charging connector on the outside of the fuselage (on the side away from exhaust oil, of course).

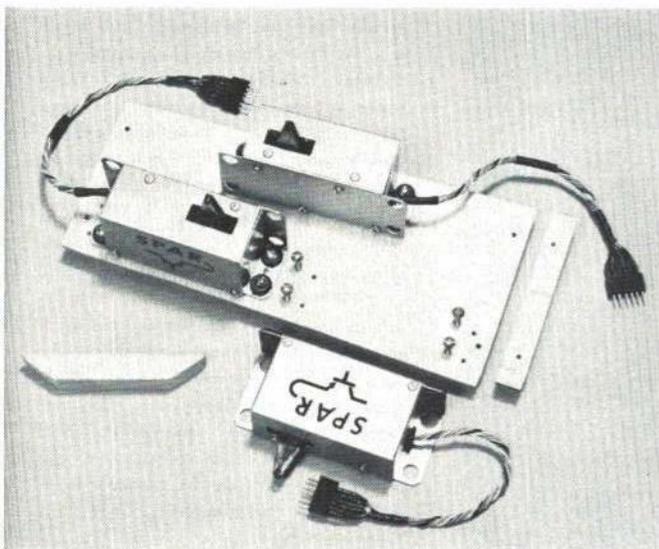
As noted earlier, servos for rudder and elevator normally go at the rear of the open cabin or cockpit area, so there is a clear run for linkage to the tail. Escapements and magnetic propo servos, which generally operate tail surfaces via torque rods, are often mounted on the bulkhead at the rear of the cabin area. Should you use an escapement, make sure you can reach the hook on it, to replace the rubber, and provide a handy way to get at the rear end of this rubber for winding.

The throttle servo should be positioned to allow the easiest linkage forward to the engine. However, with all the flexible linkage materials we have these days, this is no great problem, and many builders mount the throttle servo right alongside those for rudder and elevator.

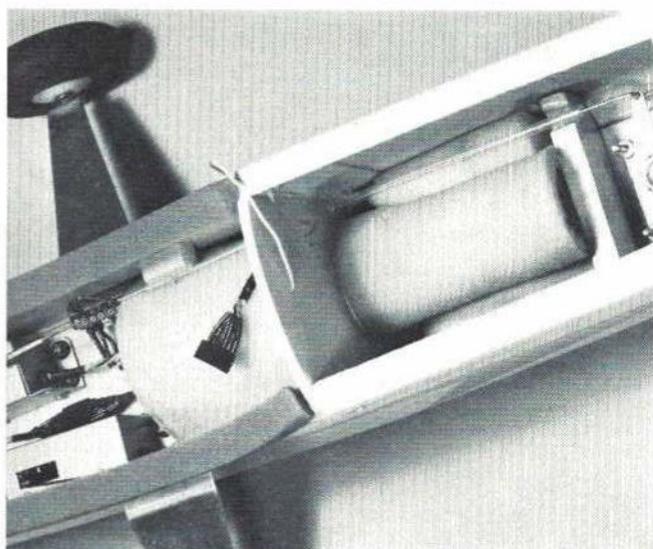
Makers of both the simpler and the most complex R/C systems are offering mounting plates that will hold up to three servos, possibly will hold the receiver, on-off switch and so on. These unit-mounting systems are very handy, if your plane allows room for them. In the simpler systems, several makers market complete plane installations in a single unit; these are not only handy to install, but they allow easy shifting from one model to another, thus keep your total costs down if you have several planes.

With non-digital systems, it has been pretty standard to run the antenna out of the fuselage and back to the top of the fin. On smaller planes, this might not allow sufficient length. You should always try to utilize the length the receiver maker specifies, considering the entire length of wire from the receiver itself right out to the end as the antenna. Some flyers simply allow the loose end to hang off from the top of the fin. This usually works all right; the loose end will stream out straight behind the plane, when latter is in flight. However, we've heard of some catastrophies caused by the loose section getting tangled in the rudder or elevator during stunting, and jamming them; a better and safer way

*Continued on page 67*



For convenience, servos can be mounted on a removable plywood tray which is positioned to properly balance the model. Servo location on tray is determined by pushrod and linkage hook-up.



Receiver and batteries are vibration-isolated with sponge rubber. In front of receiver is a piece of "G Pad," material which absorbs the impact energy of a severe crash. It really helps!

# model rocketeer

NATIONAL ASSOCIATION OF ROCKETRY

1239 Vermont Avenue NW, Washington, DC 20005



## COLUMN POLICY SET

As announced recently in this space, editorship of the column was changed to permit James (Kasey) Kukowski a chance to use his valuable talents elsewhere. Unexpectedly, Kasey found himself up to his ears when recent legislation on gun laws included portions of model rocketry. Kasey got plenty of expert help from NAR officials, members and the manufacturers association to head off possible laws enacted which would prohibit the hobby.

Official recognition of the obvious benefits of the hobby took many years, required much "behind-the-scenes" effort that could be lost to brief legislative action. If NAR members are called upon to defend their future program, the Board of Trustees feels confident the Association will respond eagerly.

All editors set forth certain policies which act as guidelines to follow when a publication is designed to serve one segment of public interest; this column is no exception to the rule.

My intention primarily is to: follow Kasey's column format, use more section news/photos, credit sources of feature material and, lastly, present interesting facts and products from equally represented MR manufacturers. Naturally, the section directory and a calendar of events will be included.

Mindful of the fact Kasey found time to regularly publish this column without compensation, deserves our highest praise. Meanwhile, dig into that stack of photos and other MR info. Send it to my USAF address: CMR #3-Box 676, Ent AFB, Colo. 80912, for publication — Larry Loos.

## TWO ITEMS FROM S&T COMMITTEE

The correct conversion factor from Newtons to pounds-force and Newton-seconds to pound-seconds of total impulse is: 4.45 Newtons = 1.0 pounds-force.

In the past, this conversion factor has been incorrectly stated as 4.46 and certain members of the Nit Pickers Society among the ranks of NAR members made sure G. Harry Stine, Standards and Testing Committee chairman, acted to change it.

S&T's second subject referenced the standardization of egg size, par. 26.1 of 1967 edition, US Model Rocket Sporting Code. Because eggs mentioned in the rule were not standardized by size or weight to be used in competition, the decision by the committee (after usual research) is: that the standard egg for egg lofting shall be a fresh, Grade A, large hen's egg with a weight range of 2.00 to 2.25 ounces (56.70 grams to 63.7875 grams).

According to "The Old Rocketeer" Stine, NAR standards for eggs are now in line with those of the American Poultry Grow-

ers and Hen Breeders Chowder, Marching, and Perloo Association of North America.

## NEW CHAIRMAN FOR HIAA'S MR DIVISION

Hobby Industry Association of America president, Lee L. Blyler, announced in July that Tim Skinner has been appointed chairman of the newly created Model Rocketry Division of HIAA. Lee, an official with Ambroid Co. also mentioned that the proposal to create the division was made by Prem Gary of International Balsa Corp., and official of HIAA at recent Association board meeting in May; adoption unanimous.

A leading expert in the merchandising, marketing and sales of model rockets, Tim is currently working with manufacturers, wholesalers and retailers in developing overall procedures and guides for the sale of model rocket related items.

NAR members should be interested in several remarks by Lee which include some facts hitherto unknown about our hobby:

"Last year, for the first time in recent years, a model rocket manufacturer exhibited at our Trade Show. At our 1969 Show, we expect more rocket manufacturers to be represented. Thus, we have created a division for them in our association's structure," he said. The MR Division, we understand, is designed to anticipate the needs of a growing segment of the model industry in the nation.

"With Tim Skinner's guidance," Blyler continued, "we expect to develop a relationship with the NAR similar to the one we have with the Academy of Model Aeronautics in the area of model planes. We hope this relationship will prove beneficial and effective to model rocketry and the hobby industry."

## SHORT BURSTS FROM THE PAD

Bob Atwood, secretary of the Board of Trustees, NAR, was quick to supply the MR column with info from various Sections. Since his input, more has been received from individual sections. Space does not allow discussion in detail—hence the short bursts are: News has come in from Sections named Birch Lane, Pascack Valley, Astro-Modelers, NARHAMS and NAR Orbiters. Birch Lane reports a sanction meet against the Dixon Heaven Heights Section (Calif.) with BL capturing 68 pts.; DHHS, 4 pts. . . Pascack Valley publishes the "Impulse," which looks very good . . . Astro-Modelers have affiliation with Purdue Aeromodellers and print "Ionic Trails" pamphlet, which has editorials, news, model designs and announcements . . . NARHAMS also obviously active, publishes monthly "ZOG 43," which adds comic section, crossword puzzle and other goodies to regular fare. NARHAMS has a member-

*Continued on page 64*

## Continental K.B.-1

*Continued from page 23*

engine. With the upper tank kept at a constant level and being, in a manner of speaking, forced fed, the machine could operate at more diverse attitudes in flight over a longer period of time without fuel cut-off problems.

The author had brief discussions with pioneer aviators Vincent Burnelli, Charles Arens and Filip Bjorklund regarding the K.B.-1 and from personal notes a fair evaluation of the plane's handling and capabilities can be recorded. It was a "snappy" machine in the air, controlled very well, gave good speed, responsive on the controls, especially the elevators and rudder, and had an excellent climb. Although the aft cockpit was a bit small, the forward one was downright cramped. The plane was, however, well designed and constructed. The biggest complaint stemmed from the four-wheel semi bogie-style landing gear. All appreciated the forward visibility this tail high arrangement provided but it was murder taxiing—and the spurs on the skids didn't allow much nose-up attitude for takeoff.

There was a theory behind this. By 1916 standards, the wing angle of incidence was set very low. This gave the greatest amount of speed from the USA-5 airfoil but lowered the lifting capabilities compared to normal practice. The idea was to let her fly herself off. A longer takeoff run would be necessary but higher performance could be assured. Even the best of pilots were not quite ready for this procedure. As a consequence, there were many spur diggins' in the turf and rough times given the forward pair of wheels. Takeoffs were sort of "don't rock the boat, Mother, or we may come to an unintentional screeching halt or break our nose wheels clean off . . . or both."

The first flight of the K.B.-1 was made by C. D. Rice, test pilot for L.W.F., who was

*Continued on page 45*

## ATTENTION ALL N.A.R. MEMBERS

A special and entirely new editorial program is being developed for the model rocketry field within the pages of the American Aircraft Modeler. In a winter issue Jim Barrowman will begin a series for the beginner—a parallel to McEntee's "Getting Started in R/C." His series will be aimed at all of the more than 80,000 readers, in order to expand both the field, and the N.A.R. membership.

In addition, the editors will entertain suggestions for articles and plans, construction projects, how-to-do-its, and many other things of value to both beginner and expert. To this end the magazine has discontinued Countdown, the regular department which G. Harry Stine prepared for so many years. The primary purpose is to generate materials from many potential contributors who surely must exist in the rocketry field, just as they do in model aviation. The time has come to encourage general participation by the rocketry hobbyists themselves.



# model aviation

Official magazine of the Academy of Model Aeronautics • 1239 Vermont Avenue N.W., Washington, DC 20005

INTERESTED IN JOINING A.M.A.? Over 24,000 already have in 1968. Membership details are in FREE BROCHURE from above address.

## 1968 National Contest Winners

The 37th National Contest was held August 3-8 at N.A.S. Olathe, Kans., 21 years after the first U. S. Navy-hosted Nats at Olathe in 1948. The principal winners here—full list next month.

Grand and Open National Champion	- - - - -	Glenn Lee
Senior National Champion	- - - - -	Dan Wakerly
Junior National Champion	- - - - -	Mike Taibi
Club Team Champions	- - - - -	Oakland Cloud Dusters
Nats Team Champions	- - - - -	U. S. Air Force

### INDOOR

<b>Stick</b>	<b>Time</b>
Jr. — L. Randolph	18:44.5
Sr. — J. Servaites	14:39.4
Op. — J. Richmond	31:07.8

<b>Paper Stick</b>	<b>Time</b>
Jr. — L. Randolph	15:30.5
Sr. — J. Servaites	12:41.0
Op. — R. Randolph	18:40.0

<b>Cabin</b>	<b>Time</b>
Jr. — R. Dunham	11:58.4
Sr. — J. Servaites	14:02.0
Op. — B. Servaites	20:08.5

<b>Hand Launch Glider</b>	<b>Time</b>
Jr. — Bill Gibbs	2:04.9
Sr. — A. Markiewicz	2:10.6
Op. — D. Reed	2:10.6

### OUTDOOR GLIDER

<b>Hand-Launched</b>	<b>Time</b>
Jr. — B. VanHoozen	3:09.0
Sr. — C. Taft	3:11.0
Op. — R. Larsh	5:42.0

<b>Nordic A-1</b>	<b>Time</b>
Jr. — P. Andrade	9:21.0

<b>Nordic A-2</b>	<b>Time</b>
Jr. — R. Tweed	13:41.0
Sr. — C. Monts	17:46.0
Op. — D. Reed	16:10.0

### OUTDOOR RUBBER

<b>Unlimited</b>	<b>Time</b>
Jr. — G. Heeb	27:54
Sr. — J. Waldron	12:10
Op. — J. Gremel	13:57

<b>Wakefield</b>	<b>Time</b>
Jr. — G. Heeb	13:41.0
Sr. — J. Servaites	17:42.0
Op. — R. Anderson	18:40.0

### FREE FLIGHT

<b>½A Gas</b>	<b>Time</b>
Jr. — K. Romak	18:44.5
Sr. — M. Ettel	14:41.0
Op. — V. Cunnyngham	19:12.0

<b>A Gas</b>	<b>Time</b>
Jr. — J. Raines	20:59.0
Sr. — M. Richardson	12:23.0
Op. — K. Oliver	15:00.0

<b>B Gas</b>	<b>Time</b>
Jr. — B. Webster	12:32.0
Sr. — A. Markiewicz	11:15.0
Op. — E. Bellinger, Jr.	15:00.0

<b>C Gas</b>	<b>Time</b>
Jr. — M. Thompson	13:18.0
Sr. — L. Neuman	10:02.0
Op. — R. Johnson	15:00.0

<b>FAI Power</b>	<b>Time</b>
Jr. — D. Dock	12:53
Sr. — G. Neighbors	17:08
Op. — J. Wumer	19:34

<b>Flying Scale</b>	<b>Points</b>
Jr.-Sr. — J. Servaites	307
Op. — T. Meyer	377

<b>Helicopter</b>	<b>Points</b>
Jr.-Sr.-Op. — G. Lee	150.9

<b>Rocket</b>	<b>Time</b>
Jr. — M. Taft	5:23
Sr. — M. Ettel	5:02
Op. — L. Polansky	10:20

### CONTROL LINE

<b>½A Speed</b>	<b>m.p.h.</b>
Jr. — B. Pardue	93.42
Sr. — B. Hobkirk	93.71
Op. — C. Legg	119.32

<b>A Speed</b>	<b>m.p.h.</b>
Jr. — B. Nelson	137.35
Sr. — G. Myers	148.70

Op. — Beatty/Baltes	157.83
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<b>B Speed</b>	<b>m.p.h.</b>
Jr. — G. McGraw	156.46
Sr. — J. McKinzie	165.07
Op. — Graham/Booher/Davis	171.36

<b>C Speed</b>	<b>m.p.h.</b>
Jr. — M. Marsh	138.41
Sr. — J. McKinzie	176.40
Op. — Anaston/Morton	183.04

<b>Jet Speed</b>	<b>m.p.h.</b>
Jr.-Sr. — D. Bartley	150.32
Op. — M. Olson	175.54

<b>FAI Speed</b>	<b>km/hr</b>
Jr. — H. Nash	177.78
Sr. — no official flights	
Op. — Newton/Nightingale	228.57

<b>½A Proto Speed</b>	<b>m.p.h.</b>
Jr. — T. Herron	84.87
Sr. — G. Brown	73.44
Op. — W. Kurth	92.94

<b>B Proto Speed</b>	<b>m.p.h.</b>
Jr. — T. Herron	121.57
Sr. — J. McKinzie	136.05
Op. — G. Lee	148.33

<b>Stunt</b>	<b>Points</b>
Jr. — T. Morgan	396
Sr. — R. Howard	427
Op. — R. Gieske	477

<b>Flying Scale</b>	<b>Points</b>
Jr. — D. Salguero	391
Sr. — D. Hungerford	342
Op. — L. Keith	548

<b>Combat</b>	<b>Points</b>
Jr. — T. Morgan	396
Sr. — R. Courey	427
Op. — R. Wooten	477

<b>Rat Race</b>	<b>Time</b>
Jr. — T. Zimmer	5:41.2
Sr. — G. Riede	6:12.0
Op. — H. Weaver	5:47.9

<b>FAI Team Race</b>	<b>Points</b>
Jr.-Sr.-Op. — No contest	

<b>U. S. Navy Carrier I</b>	<b>Points</b>
Jr. — J. Gerber	353.81
Sr. — E. Gross	412.04
Op. — H. Mottin	552.04

<b>U. S. Navy Carrier II</b>	<b>Points</b>
Jr. — D. Tomayko	422.73
Sr. — E. Gross, Jr.	526.24
Op. — E. Willman	552.64

### RADIO CONTROL

<b>FAI Pattern Qualifying</b>	<b>Points</b>
Jr. — R. Smith	1367
Sr. — W. Reed	1579.3
Op., Novice — W. Thomas	1602
Op., Expert — P. Marrot	1801

<b>Pattern Finals</b>	<b>Points</b>
Jr.-Sr.-Op. — P. Kraft	3215.3

<b>Scale</b>	<b>Points</b>
Jr.-Sr.-Op. — G. Williams	19818.68

<b>Pylon</b>	<b>Points</b>
Jr.-Sr.-Op. — G. Williams	21

# National AMA Outdoor Records as of August 9

## Once Over

Miss America graciously assisted with Nats pre-contest publicity in the Kansas City area in mid-July. Unfortunately, her schedule did not allow her being at Olathe Naval Air Station during the contest week.

AMA HQ recently tallied the number of requests it responded to for FCC and AMA information as a result of an experimental mutual benefit activity with Testor's RC Corporation. Testor put a postcard in each Skyhawk ready-to-fly RC model package with which the owner could request such information. The number of requests received was 930, of which 202 became AMA members later on.

National Contest advance entries show a somewhat higher percentage of Junior age entries this year than last: 195 to 120. Seniors up also: 90 as compared with 72 last year. Percentage of total entries for modelers under 21 years is up from 24% to 34%.

U.S. teams for the FAI World Control Line Championships in Helsinki, Finland, held July 29-Aug. 1, departed for the long trip arranged by AMA on July 18. John Worth (executive director) and Frank Ehling (technical director) of the HQ staff saw them off and helped work out what looked to be a sticky situation when it was found that some of the boxes carrying models to be flown in the Championships might not fit the airplane on which they were to fly. Some of those boxes measured 4' x 4' x 2'! A switch to a different plane solved the problem.

Carl Fries, Crestwood, Mo., accepted appointment earlier this year to the chairmanship of the AMA Safety Committee. He and the fellow committeemen he has named are laboring to develop a safety code for all kinds of models—control line, free flight and radio control.

The recently concluded elections of the National Free Flight Society (AMA affiliated) resulted in the following being placed on the NFFS Board of Directors: Herb Franck (eastern district), Chuck Broadhurst (western district), and Bill Gieskieng (at-large). Other Board members are: Pete Sotich, chairman (central district) and Bob Stalick (at-large).

Nothing definite at the time of this writing, but there is planning going on for establishment of an AMA affiliated group to promote RC gliding activities. Results of some recent experimental RC glider contests seems to show that this kind of modeling may develop into a significant activity.

The first Free Flight Technical Symposium for many, many years was arranged by AMA and the National Free Flight Society during the recent National Contest. The published papers from the meeting are now available from AMA HQ. Price of the bound volume, more than 100 pages with photos, graphs and drawings, is \$3.50 to AMA members.

Reports coming in indicate that many hobby shops are catching onto the direct advertising potential of the AMA Cub model. (See story in September "Model Aviation.") The low unit cost (\$160 for 1,000 kits), plus the ready ability to print a "message" on the 12-inch plus wing, makes them a *best ad buy*. Shops usually give them away to organized programs, such as Boy Scouts, and/or sell them below the usual 35c cost for the exposure. Special order blanks for the AMA Cub kits in quantity, as well as the material for incorporating your special wing imprint, may be had by writing to AMA HQ.

### FREE FLIGHT

1/2A Gas	Established	Time	Wakefield Rubber	Established	Time
J—Walter Lee	10-10-65	28:00.0	J—G. Heeb	8-6-68	13:41.0
S—Walter Prey	2-13-66	30:05.0	S—J. Servaites	8-8-68	17:42.0
O—Daryl Farnsworth	10-10-65	57:34.0	O—Robert B. Meuser	4-28-68	20:07.0
<b>Unlimited Rubber</b>					
J—Marty Thompson	6-30-68	8:45.0	J—G. Heeb	8-8-68	27:54.0
S—(no current record)			S—Steve Perryman	4-28-68	12:38.3
O—Natko Antoniolli	12-10-67	13:37.0	O—J. Gremel	8-8-68	13:57.0
<b>Unlimited Rubber ROW</b>					
J—San Sciacca	9-19-65	31:48.0	J—(no current record)		
S—Jack Christiansen	2-18-67	33:28.0	S—(no current record)		
O—Amos Kleinsasser	7-3-66	51:24.0	O—(no current record)		
<b>H. L. Glider</b>					
J—E. Marty Thompson	6-30-68	10:55.0	J—Terry Buddingh	4-28-68	11:50.0
S—Dennis Matsuda	12-10-67	11:51.0	S—Tim Batik	5-20-67	16:53.0
O—Natko Antoniolli	1-29-66	14:52.0	O—Ron Wittman	5-20-67	19:32.0
<b>A-1 Towline Glider</b>					
J—Dennis Matsuda	3-6-66	27:38.0	J—Martin Schroedter	6-30-68	18:03.0
S—Mike Achterberg	3-27-65	31:15.0	S—(no current record)		
O—Robert L. Cherny	6-3-67	70:07.0	O—Ross Steekel	6-29-68	22:54.0
<b>A-2 Towline Glider</b>					
J—Bruce Hannah, Jr.	6-30-68	7:58.0	J—Brian VanNest	3-24-68	18:12.0
S—(no current record)			S—C. Monts	8-5-68	17:46.0
O—(no current record)			O—Pierre Brun	6-9-68	34:26.0
<b>Autogiro</b>					
J—Fred Anderson	9-17-67	49:49.0	J—Norman Furutani	7-27-60	0:12.8
S—Larry W. Kimrey	12-17-67	21:00.0	S—David Ullman	11-27-60	3:10.3
O—William Mette, Jr.	7-27-67	58:28.9	O—William R. Bigge	9-15-63	3:39.0
<b>Ornithopter</b>					
J—David Erbach	9-16-62	0:57.4	J—Edmund Smith	9-20-64	2:57.9
S—Edmund Smith	9-20-64	2:57.9	O—Jerald B. Murphy	2-17-63	6:13.0
O—Jerald B. Murphy	2-17-63	6:13.0	<b>Helicopter</b>		
<b>Helicopter</b>					
J—Norman Furutani	4-10-60	10:06.0	J—John R. Jennings	10-3-64	1:10.8
S—Edmund Smith	10-10-65	3:49.0	S—Gary McDaniel	5-8-66	1:37.6
O—Thomas Finch	5-8-60	14:57.0	O—Austin Leftwich	7-28-65	0:48.0

### RADIO CONTROL

### CONTROL LINE

Endurance	Established	Time	Jet Speed	Established	M. P. H.
J—Jerry Baxter	6-4-60	2:08:45	J—Jack L. Olson	7-27-67	156.60
S—Louis Meden	7-19-59	3:01:02.0	S—Glen E. Payne, Jr.	5-8-65	159.79
O—James A. Wilson	9-24-67	3:40:37.0	O—Thomas & Fisher	5-19-68	183.60
<b>1/2A Speed</b>					
J—Danny Wakerley	5-29-65	105.96	J—William Fisher	8-13-67	83.69
S—Dubby Jett	5-29-65	106.34	<b>1/2A Proto Speed</b>		
O—Warren Kurth	7-29-67	112.46	J—Alan M. Nixon	10-2-66	85.68
<b>A Speed</b>					
J—Bill Nelson	5-18-68	147.78	S—Bruce Tunberg	9-18-66	87.09
S—Dubby Jett	2-21-65	149.69	O—Warren Kurth	6-23-68	97.10
O—Theobald & Wisniewski	2-18-68	175.37	<b>B Proto Speed</b>		
<b>B Speed</b>					
J—Danny Wakerley	7-26-67	165.53	J—Stephen Mueller	2-20-65	130.86
S—William C. Fisher	7-14-68	170.23	S—Joe C. McKinzie	6-2-68	140.68
O—Theobald & Wisniewski	7-26-67	182.67	O—Jim Delaney	6-11-67	151.20
<b>C Speed</b>					
J—Mary Lou Brown	7-9-67	171.69	<b>Navy Carrier Class I</b>		
S—Joe C. McKinzie	7-6-68	179.93	J—John Gerber	6-18-67	447
O—Theobald & Wisniewski	7-27-67	192.24	S—Albert Stanczyk	9-5-66	494.34
<b>NOTE: Records listed in bold face indicate they were established during 1968 Nationals.</b>					
<b>O—H. Mottin</b>					
<b>Navy Carrier Class II</b>					
J—D. Tomayko	8-8-68	422.73	J—E. Gross	8-8-68	526.74
S—E. Gross	8-8-68	526.74	O—Raymond A. Thiel	5-19-68	604.23
O—Raymond A. Thiel	5-19-68	604.23			



Assemblage of U.S. team members departing for the Control Line World Championship at Helsinki, Finland. Photo at right shows team shirts sponsored by K&B Mfg. Co., modeled by Jim Silhavy. Shirts were blue, with red and white lettering.

## Thirty Years of Modeling

Conceived in 1960, countless hundreds of man-hours have gone into the research, writing and production of *The History of the Academy of Model Aeronautics* from its beginning in 1936 to the year 1966, a 30-year span. The work was chiefly a volunteer effort of long-time AMA friends Walt Billett, Willis Brown, first AMA president, and Dick Black, now deceased.

Original thought was that the history would be an insert in the then small size *Model Aviation*; concept later changed to a larger insert at the time MA's pages changed to letter size. Finally, the history outgrew the insert idea, increasing the writing and production time—as well as expense—many fold.

*The History of the AMA*, now printed, is available through the Supply and Service Section at AMA HQ. Price is \$2.00 to AMA members, including postage and handling. The book consists of 80 pages, 8½" x 11", two-color heavy-weight cover, no advertising. Seventeen of the pages are photos!

**A sampling:** Did you realize that gas-powered models came close to being outlawed in the thirties? Two states, Connecticut and Massachusetts, actually put such a ban on their books. The Junior Birdmen of America, sponsored by a large newspaper chain and claiming a huge membership of model builders, came out against the then new gassies. The Birdmen, using the newspaper chain to run its publicity, was a powerful force.

The AMA and a model magazine club for gas modelers, the International Gas Model Airplane Assn., were strongly in favor of gas models. And the National Aeronautic Assn. lent its strength and prestige for the benefit of the model builder.

A conference arranged by NAA with the Department of Commerce, the federal agency then responsible for airports and airspace, was ended by the agency not only refusing to ban gas model flying, but in its issuing a strong statement of endorsement, setting out its values to youth.

## Membership Record Set

Your officers and HQ staff must be doing something right! For the second consecutive year the number of AMA members has broken a record!

At the time this was written in late July, membership had exceeded 24,000 topping the 1967 record-breaking total of 22,700. Giving added cheer to those of us concerned with these things is that the 1967 figure was achieved in October, making it entirely possible that a record of 25,000 AMA members may be enrolled in a similar time period this year.

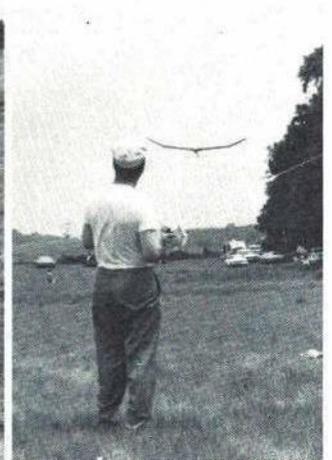
Actually, many AMA members tell us that we are doing lots of things right!

The number of clubs Chartered by AMA also has already beaten the 1967 figure by a good margin—433 compared to 409. In addition to receiving AMA's Monthly Mailing which contains up-to-the-minute official information (including contests, rules and flight records), Chartered Clubs also receive liability insurance for the club and club flying site owners—protecting each against both model flying and non-flying accidents. This insurance has, over and over again, been credited as being of immeasurable assistance in obtaining and keeping flying sites.

Clubs with as few members as seven may apply for AMA Club Charter. Full particulars will be sent upon request to AMA HQ.



Paul DiNoto, 19, shown at upper left with his father, flew Super Tigre 60-powered AAMCO Sportmaster 66.9 mph to claim FAI World Record for radio-control seaplanes. Paul is replacing model's wheels after taking off the floats his model used for successful hydro flight. Lower photo shows Fran Mitchell, John Secondo and Bob Barkowski with identical Mitchell-designed RC speed models powered by Rossi 60's. Though not successful in breaking the land-plane RC World Speed Record of 198.8 mph held by Germany, all flew faster than 150 mph. Maynard Hill, previous holder of land-plane RC speed record at 140 mph, had top speed of 178 mph. The RC World Speed Record Trials was late May at Westover AFB, hosted by the AMA-chartered Hampshire County RC Club.



Shown are a lineup of RC World War I Scale and WW I Aerobatics entries, and Chet Lanzo with RC glider at DCRC Mirth of July Meet. Gliders competed with powered RC models in ETA events. Idea was to obtain a 3-minute flight after tow release or engine stop, and to land within a 50-ft. circle. During the contest there were usually 5 or 6 RC models in the air at a time. Other events were for RC glider duration and for powered racing in the FAI 1.7 meter class.

# Area RC Team Qualifiers

The following AMA members were qualified, by means of their flight performance at designated regional RC meets, to compete in the Team Finals held during the 1968 Nationals at Olathe, Kans., just concluded. Previous to entering the regional meets, they had preregistered — as required — their intentions to vie for the three spots on the 1969 U.S. Radio Control World Championship Team.

### Qualifier

W. Salkowski, Canoga Pk., Cal.  
D. Coleman, Citronville, Ala.  
L. Leonard, Northridge, Cal.  
J. Edwards, New Albany, Miss.  
J. Oddino, Woodland Hills, Cal.  
T. Bonnetti, Emerson, N. J.  
P. Ennis, Salisbury, Md.  
R. Chidgey, Pensacola, Fla.  
D. Ballreich, Tiffin, O.  
T. White, Albuquerque, N. Mex.  
J. Whitely, Decatur, Ga.  
H. Parenti, St. Cicero, Ill.  
J. Spurlock, Willows, Cal.  
N. Page, Mt. Prospect, Ill.

### Where Qualified

Los Angeles, Cal.  
Port Arthur, Tex.  
Fresno, Cal.  
Atlanta, Ga.  
Los Angeles, Cal.  
Rochester, N. Y.  
Wallops, Va.  
Decatur, Ala.  
Dayton, O.  
Denver, Colo.  
Bridgeton, Mo.  
Chicago, Ill.  
Turlock, Cal.  
Minneapolis, Minn.

There were no eligible qualifiers at the April 27-28 Phoenix meet.

Also qualified to compete in the Team Finals were members of the '67 team: Phil Kraft, Doug Spreng, and Cliff Weirick. Special Note: Phil Kraft donated to the RC Team Fund his \$300 first place money from the Denver Mile-High Meet!

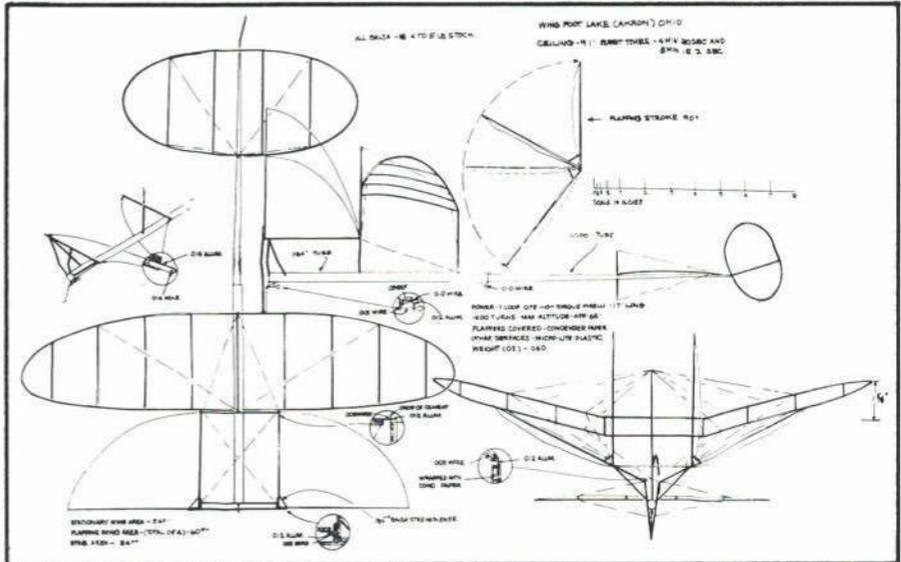
These seventeen modelers, together with approximately fifteen more who were qualified Monday and Tuesday during the Nats, flew off for the three team positions the next two days.

# CONTEST CALENDAR

## Official Sanctioned Contests of the Academy of Model Aeronautics

Oct. 5-6 — Las Vegas, Nev. (AA) LVRC RC Annual Contest. Site: Railroad Pass Dry Lake. R. Mearns CD, 5412 Holmby Ave., Las Vegas, Nev. 89102.

Three-view sketch of Indoor Ceiling Category II Ornithopter national AMA record-holding model. Outstanding flight of 5 min., 15.2 secs. made by Kenneth Johnson in Open age class.



- Oct. 5-6 — Dahlgren, Va. (AA) 7th Annual Dahlgren RC Meet. Site: Naval Weapons Lab. P. Rawlings CD, 5600 Helmsdale Lane, Alexandria, Va. 22310. Sponsor: No. Va. RC Club & Fly Away RC Club.
- Oct. 5-6 — Sebring, Fla. (AAA) Hurricane Meet for FF & CL. Site: Air Terminal. C. Adams CD, 5201 88th Terr. No., Pinellas Park, Fla. 33565.
- Oct. 5-6 — Albuquerque, N. Mex. (AA) SWAT 4th Annual FF Meet. Site: Club site. C. Averill CD, 2314 Palomas N. E., Albuquerque, N. M. 87110. Sponsor: South West Aero Team.
- Oct. 5-6 — Sunnyvale, Calif. 1st Annual Kosby Flying Tournament. Site: Club Flying Field. J. Sunday CD, 667 Rainbow Dr., San Jose, Calif. 95129. Sponsor: Pioneer RC Club.
- Oct. 6 — Lincoln Park, N. J. (AA) 10th Annual Model Air Show for CL. Site: GSCB Club Field. J. Miske Jr. CD, D-3 Orchard Ct., Clifton, N. J. 07012. Sponsor: Garden State Circle Burners.
- Oct. 6 — Chandler, Ariz. (AA) 2nd Annual Invitational CL Meet. Site: Galvestor School. J. Valenta CD, 3041 E. Shangri La Rd., Phoenix, Ariz. 85028. Sponsor: Air-Zona MAC.
- Oct. 6 — Pittstown, N. J. (AA) 1968 Eastern States

- RC Meet. Site: Sky-Manor Airport. L. Shulman CD, 42 Blake Ave., Cranford, N. J. 07016. Sponsor: Central Jersey RC Club.
- Oct. 13 — Ft. Worth, Tex. (AA) Planesmen Fall FF Contest. W. McCormick CD, 4612 Pleasant, Ft. Worth, Tex. 76115. Sponsor: Ft. Worth Planesmen.
- Oct. 13 — Richmond, Va. (AA) 1st Annual Brainbusters Fall FF Meet. Site: Curles Neck Farm. A. Anderson CD, c/o D. Orr, 320-D 73rd St., Newport News, Va. 23607. Sponsor: Brainbusters Model Club.
- Oct. 13 — Lincoln Park, N. J. (AA) 10th Annual Model Air Show for CL. Site: GSCB Field. W. Swentzell CD, Sunset Ct., Montville, N. J. 07045. Sponsor: Garden State Circle Burners.
- Oct. 13 — Sacramento, Calif. (AA) 5th No. Calif. FF Council Meet. Site: Jackson Rd. & Sunrise Ave. D. Foote CD, 2438 Palmetto St., Oakland, Calif. 94602. Sponsor: Oakland Cloud Dusters.
- Oct. 19-20 — Ft. Worth, Tex. (A) Fort Worth Thunderbirds RC Club Meet. Site: West Shore, Benbrook Lake. B. Lutker CD, 3105 Cockrell Ave., Fort Worth, Tex. 76109.
- Oct. 19-20 — Winter Park, Fla. (AA) 8th Annual RC Rendezvous. Site: RCACF Field. W. Schoonard CD, 2080 Sharon Dr., Winter Park, Fla. 32789. Sponsor: Remote Control Assn. of Central Florida.
- Oct. 20 — Taft, Calif. (AA) SCIP's 2nd Annual Texaco Type Event Meet. Site: Gardner Field. B. Chandler CD, 7858 Farralome Ave., Canoga Park, Calif. 91304. Sponsor: So. Calif. Ignition Flyers.
- Oct. 20 — Phoenix, Ariz. (AA) Drisk Memorial FF Contest. Site: Pinnacle Peak. W. Ross CD, 1706 E. Montecito Ave., Phoenix, Ariz. 85016. Sponsor: Phoenix Model Airplane Club.
- Oct. 27 — Fresno, Calif. (A) Fresno Monthly FF Meet. Site: Near Kerman. F. Gallo CD, 1725 Kenmore Dr. W., Fresno, Calif. 93702. Sponsor: Fresno Gas Model Club.
- Oct. 13 — Watermill, L. I., N. Y. (AA) Suffolk Falcons 2nd Annual Hydro Meet. Site: Mill Pond. D. McGovern CD, Drawer E, 140 Wagon Lane West, Centereach, N. Y. 11720. Sponsor: Suffolk Falcons.
- Nov. 9-10 — Taft, Calif. (AA) WFFA Annual FAI FF Contest. Site: Gardner Field. B. Bogart CD, 469 Paulette Pl., LaCanada, Calif. 91011. Sponsor: Southern Calif. Aero Team.
- Nov. 10 — Tampa, Fla. 3rd Annual Fly for Fun Contest. Site: 30th St. & Bougenville. D. Rothman CD, 1502 Heather Ave., Tampa, Fla. 33612. Sponsor: Tampa RC Aircraft Club.
- Nov. 24 — Fresno, Calif. (A) Fresno Monthly FF Meet. Site: Near Kerman. F. Gallo CD, 1725 Kenmore Dr. W., Fresno, Calif. 93702. Sponsor: Fresno Gas Model Club.
- Nov. 29-Dec. 1 — Tucson, Ariz. (AA) RCM 1st Annual RC Festival. Site: 30 mi. N. W. of Tucson, Marana Air Park. K. McDaniel CD, 4808 E. Fairmount, Tucson, Ariz. 85716. Sponsor: Tucson RC Club.



The recently concluded AMA-HIAA-Navy Regional Contests proved to be an inspiration to both the novice model flyers and the organizers. The eight special events in the program allowed for steady, dependable flying to get a good score, de-emphasizing the need for high-performance models. The Time Target Gas Event, for instance, brought out Dick Sullivan, L, with unusual B-70 and Jerry Geraghty with typical model. Youngsters turned out to register before officials had all the signs erected. Photos from the Northern California Regional, directed by Karl Gies.

Chosen during the RC Finals of the 1968 Nats, the following are slated to represent the U. S. in the 1969 Radio Control World Championship.

Phil Kraft  
Jim Kirkland  
Jim Whitley

## Continental K.B.-1

Continued from page 40

hired for the first few flights only. Several other well-known pilots of their day also took a crack at the sporty pusher including the noted instructor, Overton H. "Rusty" Bonds and Swedish born, free-lance test pilot, Filip Bjorklund. It was from Filip that we gleaned most of our first-hand information regarding the K.B.-1's flying characteristics. The machine actually flew on many occasions and was well liked by those who flew it.

The Continental was designed for no specific purpose, although attempts were made to interest the military in it as an unarmed scout, the observer having an unusual panorama view from the front cockpit. There is no indication any armament was to be employed.

Any additional weight in the nose would have made the plane out of balance in its original configuration. The manufacturer seemed to try generating more interest in the civil or private market. After all, the fashion-plate K.B.1 was fully upholstered in beautiful red leather and you could have your own personal emblem emblazoned on the nose if you desired. The overall concept did not find sufficient interest in any market and no one seems to know what became of the Continental pusher. Vincent Burnelli turned his attention to more conventional designs and in 1916/17 the Continental K.B.-3T trainer was developed. The outward appearance of this machine was similar to the Curtiss JN-4 Jenny. It was better received, several being sold to private flying schools but none being purchased by the military.

Obscure as the Continental K.B.-1 remains, it is an interesting and unusual subject to review, discuss and perhaps build a model of. Its simple construction, few major parts and novel lines should lend well to either flying or static display. Maybe sheet balsa wings and tail surfaces, thin wrap around balsa tube for the fuselage and a couple of hardwood dowels would be all that is necessary to make this a one night project. Rubber power—with an extension rod out the nose for more turns, light counter balance weight on the tail and let her rip. It's a simple, novel ship just to have something different to build.

## Catapult Gliders

Continued from page 13

shows how to make one. Spruce leading edges do not get chewed up if the model comes in fast. When they come in—they come in fast. Well-glued dihedral joints are a must, and it helps to overlay strips of silk set in cement on these joints. Two small nails running through the wing and fuselage and epoxied into drilled holes will keep the wing from leaving the fuselage, and they will also keep the fuselage from splitting, as it often likes to do just under the wing. Some kind of finger grip must be provided so you can pull back with a force of 10 or 20 lbs. for launching. The sketch shows several ways of doing the job. Too often the modeler ignores the problem and tries to brute-force his way out of it by using a two-handed pull. The result is, more often than not, the separation of the tail from the rest of the model, and a sore left hand. A little extra weight won't hurt a thing. In fact, it will result in a higher launch, so it pays to make a model that is rugged enough to survive a few bad landings.

For old-timer or newcomer and for sport or competition, the catapult glider is hard to beat. Why don't you give it a try?

Jerry Nelson  
on R/C

## Anything and everything -straight from the shoulder.

**Don't Knock the Pattern Rules:** Received several letters (sent to me as the AMA R/C contest board chairman) on our current AMA pattern rules—several being a total of three letters. Pretty bad, considering we have over 12,000 active R/C'ers in the AMA. I never did receive any comments from my district X members.

The points I am bringing out are that there are quite a few local club comments about our AMA rules in the pattern event, and that the AMA contest board never receives any direct recommendations on what should be done to improve our pattern event. You tell your friends what is wrong. Newsletter editors yack about their proposals and why they are so much better than our current rules. And, magazines publish formal rules on new pattern events. Why aren't these proposals suggested to AMA for action and discussion? After all, that is why we have an AMA contest board.

Read one comment by a newsletter editor saying that current rules are so far out that they no longer include maneuvers that full scale airplanes can perform. A loop with a snap-and-a-half was given as an example. If this editor studied full-scale acrobatics, he would find that this maneuver can easily be accomplished with a full-scale acrobatic ship. Maneuvers extremely more difficult than our models can do, are performed with normal full-scale acrobatic ships. These more difficult maneuvers could be added to our schedule but they couldn't be judged easily. Are our models performing unrealistic maneuvers? Hardly.

I recently read a well prepared article by Don Lowe in the July 1968 MAN Magazine. Don stressed that the stunt or pattern model must fly realistically. What is scale-like flying? How does a judge score a model when he very probably has never seen the original fly? Unless you have rules that clearly state how to score a model, then it is best to eliminate that rule if you cannot score it without doubt. Experience in Goodyear pylon racing showed that a scale-like pylon racer was impossible to determine. No set of judges could accurately determine what was "scale like."

Having a strict design limitation as mentioned in Don's article is not the answer to having a successful pattern event. Our basic problem—no matter what set of pattern rules you have—which makes all pattern flying a point of argument—is the judging. It is impossible to have a perfect judging system for evaluating the performance of an acrobatic model. The weak link is the human with his opinions. There are so many variables that it is impractical to attempt accurate judging of a model. All we can do is make several evaluations of a flight by a set of judges, and go by an inaccurate average score.

The specs for a pattern design must be left open. The only requirement must be a

maximum weight and engine size, as described in the general AMA rules for pattern flying. If we start limiting the pattern designs, then the event will die.

The rules we have now for pattern are not perfect. After all, we had only a very few modelers who cared enough to spend the time to draw up a new set of rules. If enough people cared enough to write an occasional letter to the contest board, then maybe we wouldn't have such injurious comments about our rules.

Why not give the rules a chance? Over a year of work went into them. They do work, as proved by many successful contests. Current airplane designs can do these maneuvers in spite of comments by some self-named expert flyers. The beginners have been considered to a major extent with the Class A and B event. The C pattern event is highly demanding for the expert flyer. What more do you want? If you know, then write your contest board member. I doubt very much if you complainers will ever write.

**R/C Glider Association:** An R/C glider association is in the process of being formed. It hopefully will be the AMA advisory committee for R/C glider rules and standards. A newsletter will be begun. A standard set of regulations and rules will be forthcoming soon. This association will become a major segment of our R/C hobby. Interested modelers can be put on the glider association mailing list by writing to me: Gerald Nelson, 8638 Patterson Pass Rd., Livermore, Calif. 94550.

**Contest Idea:** During my recent visit to Germany, I was impressed by the technical modeling interest of their modelers. A suggestion was made by some to have a STOL competition (short takeoff and landing). The competition would be to determine how short a distance an R/C model could operate from by flying over a 15-ft. obstacle at each end of a runway. Two classes would be flown. One class would be for standard models without lift-producing devices—example, flaps—and one class with such devices. The barriers, cloth streamers stretched across a narrow runway, would be moved closer together until the model could not land and take off without hitting or going under them.

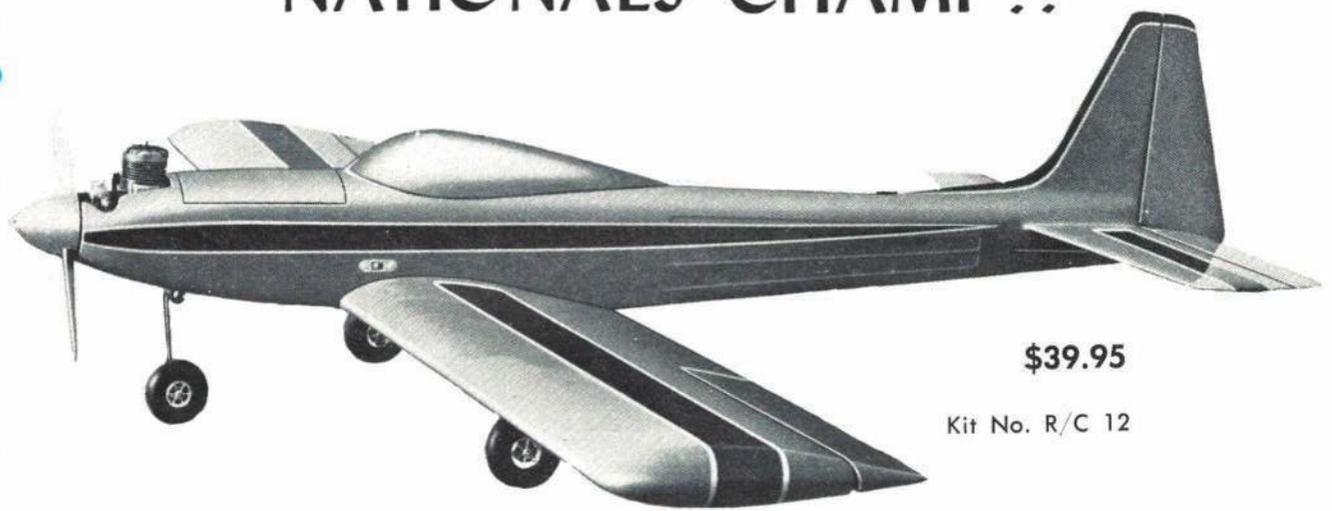
The aerodynamics of a specially designed model would be challenging. To design a 7-lb. multi job that could operate from a 25-ft. strip with a high barrier at each end, would be interesting indeed.

A by-product of such competition would be possible interest by the major aerospace manufacturers sponsoring these technical events. Several of the European manufacturers have shown interest in or are sponsoring, such R/C competitions. Think of a contest that Ling-Temco-Vought or Bell could sponsor, if they became interested in this type of event.

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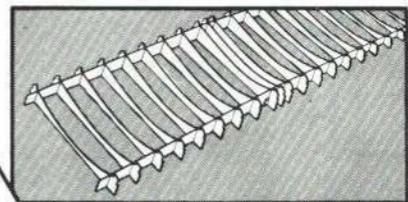
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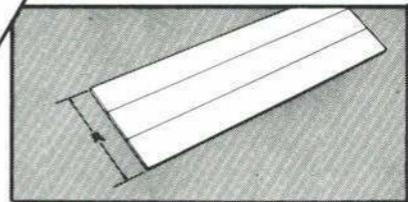


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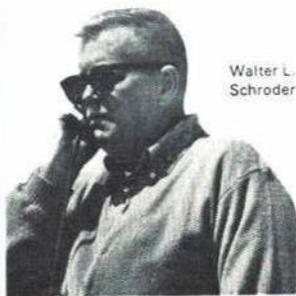
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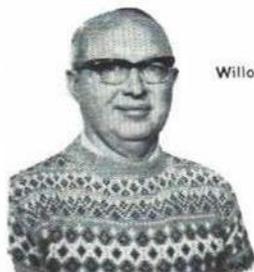
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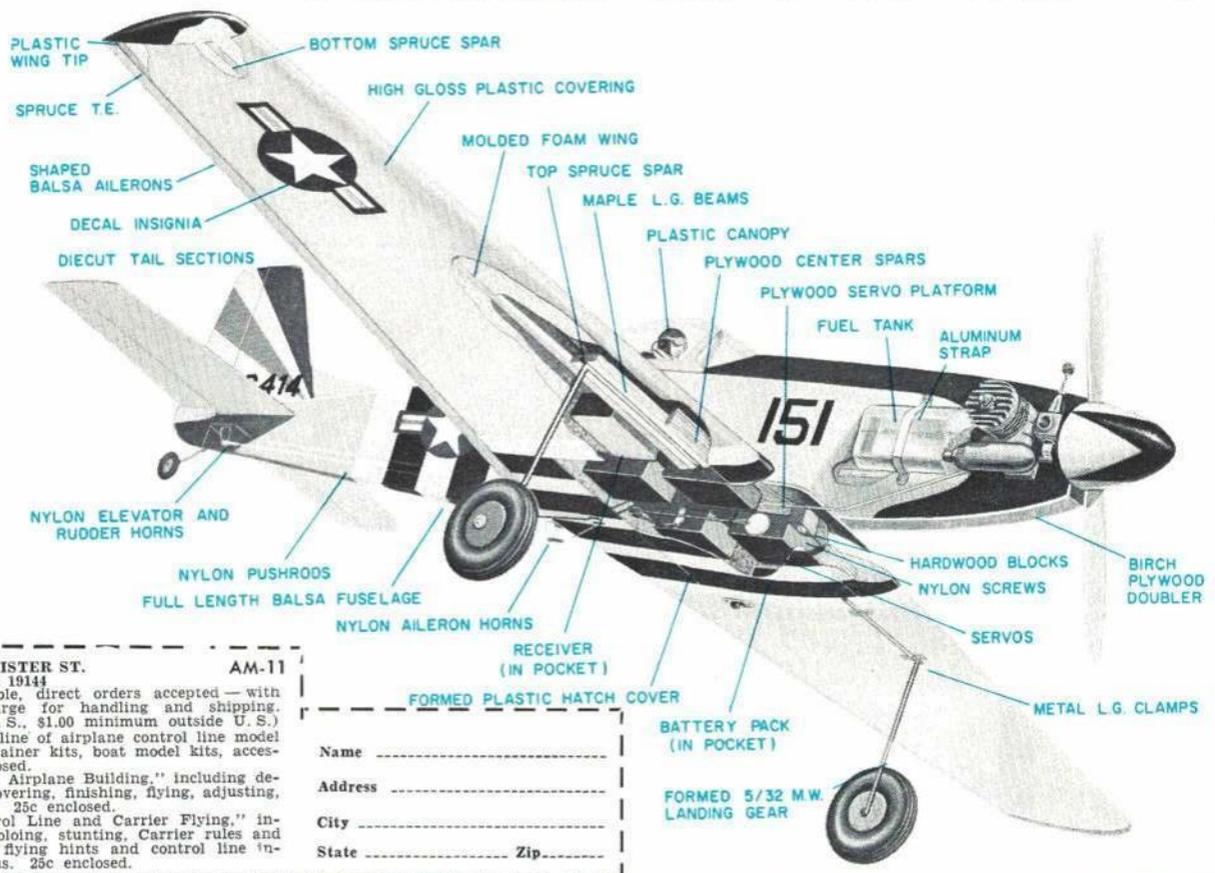
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## Whitehead Before Wrights?

Continued from page 17

not once, but on numerous occasions." This is a portion of a statement made by the witness for Vecsey.

Enthusied with the thought there might be others who would step forward and testify to their own recollections, we began a serious search knocking on every door along Tunxis Hill, where Whitehead once lived. From those first inquiries, we learned Whitehead had made many flights, and in time we did expand this routine survey to include his original neighborhood near Pine Street in Bridgeport, and we eventually traced neighbors who had moved out of state. Overall, our entire project has tracked the Whitehead story from Canada to Florida. But to get back to the sequence of our story, we happened to locate a gentleman by the name of Anton Pruckner, who had reportedly been closely associated with Whitehead. He lived in Fairfield and was in his 80's.

Anton Pruckner proved to be Whitehead's first, full-time assistant, and mechanic. He met Whitehead when he first arrived in Bridgeport after immigrating from Hungary. Whitehead was also new in Bridgeport, having been recently "run out" of Pittsburgh for his experiments with powered aircraft. The fact they were both immigrants (Whitehead landed in Boston in 1895), and that they were German, made it easy for Pruckner to gain Whitehead's confidence. Pruckner was a tool-maker and an expert machinist. After a long tape-recorded interview with Pruckner, we decided to contact Miss Stella Randolph of Garrett Park, Maryland. (Editor: Pruckner was born in Hungary. His father was German, his mother Hungarian.)

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plastic canopy, a host of nuts, screws, etc. etc., and also one of the new 8 oz. Sullivan "see-through" R/C fuel tanks!



CAHA had told us she'd written a book in 1937 titled, *Lost Flights of Gustave Whitehead*. CAHA added: "The book and the author were condemned by every leading aeronautical society as being totally unreliable and the Whitehead affair was highly distorted. She was not a student of aeronautics, and many feel she was unqualified to perform the research."

When an all-out research is on, you never leave a stone unturned. With this in mind, we invited Miss Randolph to our squadron for a special lecture, along with CAHA and Anton Pruckner. Pruckner had signed an affidavit for Stella's 1937 book. In our own discussions with Pruckner, we soon learned he had misunderstood questions we asked, due to the language barrier. The few discrepancies that did show up were no fault of his or Miss Randolph's. A 1902 flight which he had said he witnessed, was not the one challenged by historians. It had been other flights over Long Island Sound, some of which Pruckner himself had participated in. The earliest flight he recalled occurred in 1900, shortly after he had joined Whitehead.

Before Miss Randolph arrived, we proposed to CAHA that we begin a serious research with the idea of formulating a "one file concept" about Whitehead and his works. This meant we would appeal to anyone who had ever looked casually into the Whitehead matter or who had expressed any opinion, pro or con. In addition, we would conduct a full check of all his previous surviving neighbors, friends, family and possible associates. After Miss Randolph proved her work in the thirties was most sincere, and the astounding discovery that her files included all of Whitehead's remaining memorabilia (in the form of unpublished photographs and actual hardware), we immediately urged that these important

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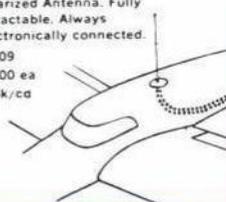
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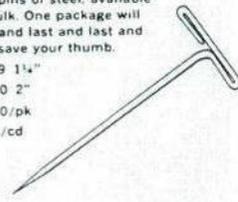


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pieces to the puzzle be returned to Connecticut. They had been entrusted in her custody by the Whitehead family in 1935.

In exchange for Miss Randolph's return of the Whitehead memorabilia and allowing us to read through and copy her files, we offered her full usage of our findings in the sixties for her then forthcoming new book, *Before The Wrights Flew* (published by G. Putnam's & Sons, in 1966). We were certain her files would reveal many unknown factors.

As the Whitehead memorabilia filtered back to Connecticut, and our rapidly expanding files from other sources became abundant with evidence that the entire world had misjudged the true genius of Whitehead, and the remarkable work of Miss Randolph's "unholy quest" of the thirties, it was CAHA's time to become dumbfounded!

Without the slightest hesitation, the photos we acquired, which had never been published or known to exist, stood in stark testimony to Whitehead's career. By and large, he was the most versatile aeronautical pioneer for his time and era. None of his contemporaries designed, conceived or constructed so many different types of aircraft from 1896 to 1908 (over 50 in all), or gave equal dedication and serious study to the problems of powerplants. His engine work alone assured him a lasting tribute would be made. Of more than 36 engines produced in his simple shops, Whitehead experimented with gunpowder, kerosene, acetylene, alcohol and gasoline fuels. His engines, both wet sump and dry, spanned one, two, three, four, six and eight cylinders. These were made in either vertical, horizontal opposed, or V-8 configurations.

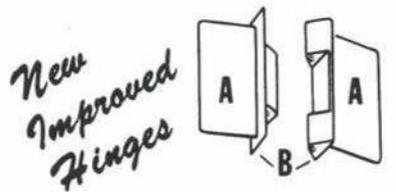
Armed with this overwhelming evidence, CAHA took the only course open, which would begin the recognition Whitehead deserved. They appealed their case to the head of the Connecticut State Department of Aeronautics, who upon seeing the evidence in photographic form, went directly to the Governor, which brought about the Official Statement of 1964.

Heavier hardware, which Miss Randolph could not bring to her home in the thirties, was lost after the Whitehead family moved to Florida. Had Miss Randolph found the help and guidance she needed in the thirties, and had her book prompted a full inquiry instead of controversy, the engines which found their way to the scrap heap in World War II, would now be reposed in a museum. His original steam engines of 1900 and 1901 were once resting on the shelves of the old Blue Ribbon Garage until they moved after the war. Now these are gone forever. Such are the results of narrow-minded prejudice! If future generations are to understand Whitehead at all, it will have been due to the "unprofessional services" and dedicated energies of a "non-aeronautical" female, Miss Stella Randolph.

Our next discovery led us to Charles A. Wittemann, a noteworthy pioneer in his own right, who first sold gliders in kit form back in 1905-6 on Staten Island. Charles was the founder of Teterboro Airport, designer and manufacturer of the famous Red Devil used by barnstorming Early Birds, and contractor for converting DH-4's into the early mail planes. He built America's first six-engine (the Barling) bomber. Charles Wittemann's first successful powered flights were made possible by having utilized a Gustave Whitehead four-cylinder in-line gasoline engine in 1908-9. This fact should stop dead all tales about Whitehead "never having produced an engine which would lift an aircraft off the ground."

It was after we met and tape-recorded Wittemann, that we found ourselves going to Whitehead's grave and removing the

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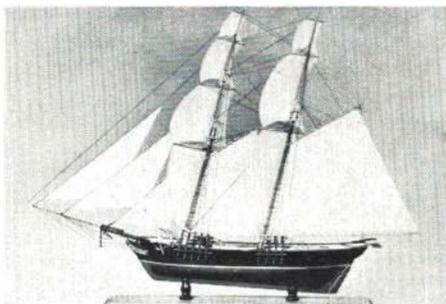
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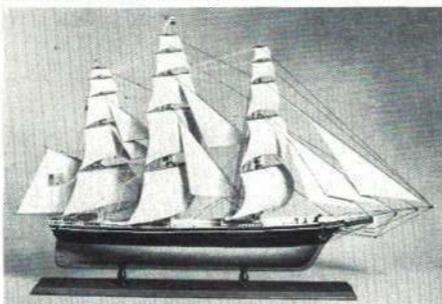
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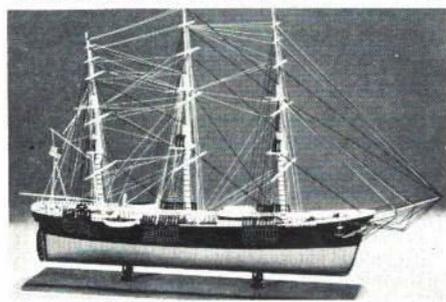
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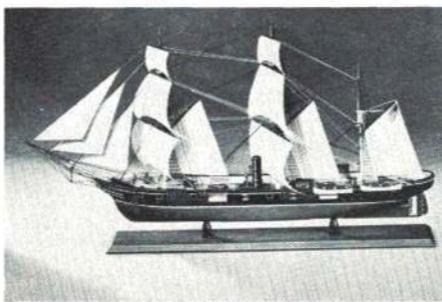
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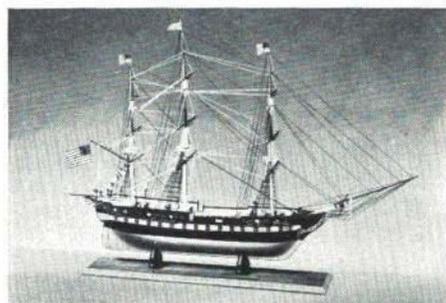
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small bronze disc (#42, Row 27), which seemed to symbolize his obscurity. We replaced it with a suitably inscribed monument, dedicated by Governor Dempsey. The next step was to inform his home city of Leutershausen about their long lost native son. They went to work for us locating his old birth records, baptismal certificates and finding photos of his home and the church he had attended. They named a new street on the outskirts of their ancient walled-in medieval city, "Gustav Weisskopf Strasse."

Next came a formal presentation of the Whitehead Research Committee findings to the First Northeast Aero-Historian Conference in the latter part of 1965. A tape recording of that formal lecture was requested by Mr. Paul Johnston, the new Director of the National Air & Space Museum at Smithsonian. In January of 1966, we were invited to Smithsonian for a formal hearing and a full display of our files. They copied these after urging us to take the precaution against losing the only file we had, to fire or vandalism. These files were copied and placed in restricted custody until our research is completed, in order to avert anyone from distorting the intent or the contents.

In the summer of 1966, Leutershausen and the Aero-Club of Ansbach (Whitehead went to school in Ansbach) created a Whitehead Festival and asked us to attend with our display of photos and documents. When we were unable to gain a "space-available" flight through our Air Force, the city of Leutershausen paid for the round trip fare and all expenses for a three weeks' stay. We helped christen the new hangar at the Ansbach Aero-Club as "Gustav Weisskopf Halle." A member of the club, Herr Waldemar Leinert, built a large 9-foot model of the controversial #21 aircraft. It was not an exact duplicate of the original monoplane, but the wing area, tail surfaces, and weight ratios fell within an "initial" allowable tolerance. It was often said by many in our research encounters, "such a craft and design would never support powered flight." In addition, many had felt the vast difference between the Wrights and Whitehead had rested in the area where their craft was controlled and #21 was not.

Herr Leinert has proved both theories wrong. The day he presented his model to go on display in Leutershausen, he showed us how he had discovered "controls" when he accidentally depressed the wires leading away from the central mast to the ribs. In so doing, the wings warped in a controllable manner. The 1901 newspaper editor had said, "Whitehead's hands flew to the controls." (Is this why "Whitehead would have stood up in #21 and clung to the wires"?)

Leinert's models have been enjoying successful radio-controlled flights ever since.

Now that we do know #21 is reportedly a practical aerodynamically sound design, our long desire to have a full-scale model tested is about to become a reality. Herr Fritz Jacobsen, vice-chairman of CAHA's Whitehead Committee has recently written he expects to soon announce the name of a German aircraft manufacturer who will devote his energies and facility to building such a machine.

In the meantime, we recorded Anton Pruckner thoroughly for three full years until his death in late November, 1966. The last interview was conducted in his home in the presence of Paul Garber, then assistant director Smithsonian NASM, who found Pruckner to be "a most cooperative and well informed link to Whitehead's experiments." Garber made the "deadline" by just two weeks.

Paul Garber has been one of our re-

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spected critics of this research probe. He has faithfully guided us in this endeavor, remaining neutral and "recently" open to listening. He does concur with our contention, whereby no single scholar has the ability, or the knowledge, to judge Whitehead from an authoritative stand. "No one individual can relate Whitehead's full meaning to history. This must be done after thorough studies are submitted and evaluated by a panel of experts who can sit down in an objective manner of study."

Between 1966 and 1968, our work never ceased.

On June 15, 1968 Paul Garber again traveled to Waterbury, Connecticut, this time to sit in on an interview with a new "chance" witness. We'd run into Frank Lanye through a routine survey of old leads. The tape-recorded interview was postponed from April, until Paul could arrive in June. He helped us out with many questions. It was Lanye's naive and innocent statements which compelled us to record his words and to consider them as being sincere.

"I know nothing about the technical matters of airplanes. I do not understand why you would want to interview me. I think you are wasting much of your valuable time. Look, I never knew Whitehead personally or anything about his aircraft. All I did was watch him fly."

Paul Garber, Harvey Lippincott (pres. of CAHA), and Don Richardson (a Sikorsky engineer), and myself, came away from Lanye's interview convinced his testimony centered around the 1903-08 experiments of Whitehead's flights. "That man was most sincere. He was about 24 or 25 when he witnessed the flights, certainly mature enough to recognize what he'd seen, and I do not find this witness to be the sort of person you could label as a crackpot or a crank. He was really trying to recollect what he knows he saw." So spoke Paul Garber in front of Lanye's house before he left for Washington and a staff report to Smithsonian.

On Monday, June 17, 1968, two days after Paul Garber interviewed Mr. Frank Lanye, the 92-year-old eyewitness to many of Whitehead's flights, Paul sat in on the weekly staff meeting of the National Air and Space Museum at the Smithsonian and made his report. Later, he telephoned Harvey Lippincott to relate what he had said.

"I told them it was my opinion, after I met with you this past Saturday at Lanye's, that Whitehead deserves a place among those who flew between 1903 and 1908, along with the Wrights and Santos-Dumont. I said 'the Connecticut Aeronautical Historical Association should be commended for their sincere study of Whitehead. I added CAHA should have our support and credit for their work.'"

Such words, by so eminent a scholar as Paul Garber, must command respect. The Gustave Whitehead research has come a long way over the past five years. In time, others will take up where we have left off.

We are most grateful for Paul Garber's honest words; apparently Paul became so convinced: after viewing our files, after his personal talk with Pruckner, and from his interrogation of Frank Lanye. What would Paul Garber's recommendations have been had he spoken to the other witnesses to the 1901 flights or the individuals who recalled powered flights in 1900 and 1902? What was the cause for so long a delay?

When Miss Randolph spoke with these witnesses in the thirties her evaluations had been that they were equally sincere. I have spoken to some of them since 1963 and I spoke with Frank Lanye. I can honestly state I found them to be equally as reput-

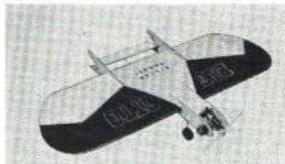
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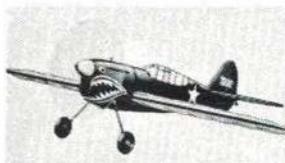
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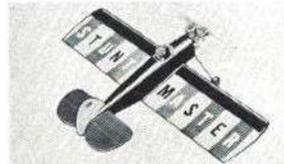
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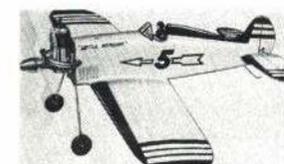
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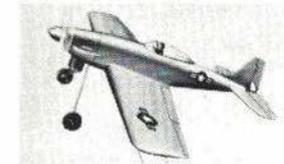
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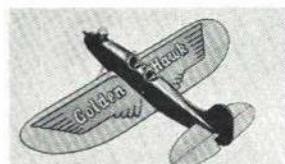
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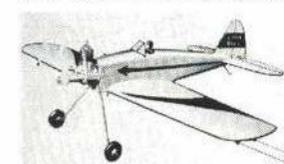
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able as Frank Lanye. I can recall vividly how intensely concerned Mr. Cecil B. Steeves was the day he called at my home. He insisted he'd seen the Wrights at Whitehead's shop on Pine Street, matching the testimony of Anton Pruckner. When I asked him if he would be willing to repeat his statements about pre-1903 flights, which he swore happened in 1901 and in 1902, he did. Only the next time he did it with one hand holding our Bible. Mr. Steeves believes this should verify his sincerity.

He then brought us out to where such events took place. He showed us where the craft #21 took off and landed. His detailed description matched those of another recorded witness whose testimony never was published. Would Paul Garber have urged the staff at Smithsonian to accept Steeves' testimony? How can we set the credit date for flights beginning with 1903 when all the witnesses were never heard? Is this another move to offset Whitehead's recognition? Actually, I do not believe it is. It simply represents Paul Garber's more recent honest opinions. Perhaps if he hurries north again, he can talk to Cecil Steeves before it's too late. I wouldn't like to see Paul miss out as he almost did with Anton Pruckner.

Photos of the 1901 flight were never known to have existed. However, eye-witness accounts have been documented of claimed flights in 1900, '01, '02, '03, '04, '06, '07, '08, '11, and '12. Interesting in many instances is where testimony of minor details match other testimonies. It was not by way of collusion. Certain particular witnesses never knew the other person at any time, nor had those flights been recorded or published. Yet trajectories, time of day, starting point and other details matched. The only difference was from the point where they'd observed the flights. Coincidence?

The witnesses were all checked for character and community standing. (Some who

did testify in Whitehead's favor were not recorded because they did not meet these standards.)

It is not our position to state whether or not Whitehead flew, as claimed, in 1901. None of us were there. For this very reason, no historian or scholar can intelligently deny those flights occurred. If we did take a stand, our five-year probe would be instantly tainted and wasted. Our position has been to investigate, where others more outspoken, had not.

When Whitehead's case is tried by an objective panel of aeronautical jurors, it will have to be a trial in every sense of the word. A man's entire dedicated life's work and effort are at stake. Up to now, it has hinged on the matter of the claimed flights alone. This is absolutely wrong! Are we to condemn a man to historical oblivion over a claim which had never been officially investigated?

When any man is accused of a crime, minor or capital, he is afforded a hearing and a fair trial. It has taken only one eye-witness's testimony to see to it that some men were hanged, shot, electrocuted or beheaded, or gassed. Is the claim for a powered flight in 1901 a major crime and so horrible a thought that witnesses are barred from a hearing? Were those individuals, who were put to death, convicted on testimony which necessarily included photos of the crime? No court of law would accept such a verdict, in any civilized nation.

Gustave Whitehead adopted America as an immigrant with every conscious fiber of his being. Where is it an accepted moral conduct to deprive him, damn him and disgrace his name, just because his claims conflict with our sincere admiration and respect for the Wrights? I am certain Orville and Wilbur would be the first to request a reopening of the case of Whitehead vs. American Aeronautical History—if they saw our files.

No one denies the Wrights their just re-

spect. They had the know-how and genius to create, as well as follow it through and develop their products into a tangible benefit to mankind. They were the true fathers of successful powered flights. Let no one disturb that title. They were superb in methodical experimentation and in industrial application. Their achievements have no equal.

However, if Whitehead did fly as claimed, it should be recognized as an isolated success story which did not directly bear upon all our air progress. Yet he is a legitimate contender for a most significant niche. And he did have more than 20 "firsts" to his credit which have never been acclaimed. These could possibly swell to dozens more if a full study is completed. He was not "just a mere visionary, a back-yard tinkerer, or an empty fanciful dreamer" of which he still stands officially accused. These quotes hardly describe a man whose versatile genius conceived and experimented with power-boost control systems in 1901 and 1902, or who produced equipment to test the means for controllable-pitched propellers in the same years, or who designed a control system to alter the position of wings more than 60 years prior to the F-111.

He was surely a true inventor of the highest quality rather than "a charlatan" when he announced he had begun work on an instrument to sense the direction of the wind while airborne, another automatic F-111 feature. His engine work did launch Charles Wittemann into an aviation career which places those works in aviation's hall of fame. It is even possible, many of his other ideas were lifted or taken from experiments he worked upon, by others who now get the credit. If they were lifted, it was not uncommon. "The Wrights had their spies among many camps, including the camp of Glen Curtiss," states Paul Garber. This is all factual record. Industry does the same thing today in a more sophisticated manner.

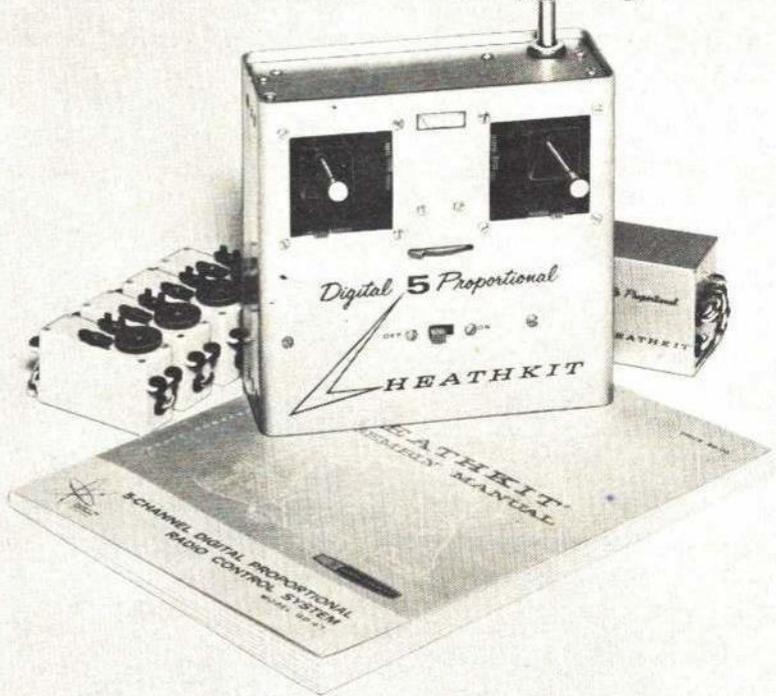
Our Gustave Whitehead Research Committee — the joint and international probe — has now entertained that a fair hearing be held before an acceptable international panel at Smithsonian and that an intelligent verdict be rendered.

We should all give Smithsonian's National Air Museum a sincere vote of confidence. They were the first major institution in the world who moved to correct the obviously botched records of the past. They have listened. They have opened the doors to a sensible path. They have admitted they never stood on authoritative ground.

Paul Garber's June 17, 1968 statement, and the Director's expressed interest in Whitehead's engines and their request that we carry out the study as "the logical group due to our sincerity," are proof of their desire to record history as it happened, not like many would have liked to see it happen. It has taken them more than 67 years to act. Will others charged with the same integrity remain inexorable, unwilling to be fair? If posterity is to look upon contemporary historians with respect and trust, they must abandon their present prejudiced "protective" course. This course has been dictated through political indifference.

For the first time, due to our joint probe, Whitehead can speak out from his grave. To continue producing books of speculative condemnation and monographs prepared and based upon third- and fourth-hand information, among "authorities" who never looked at the one and only non-biased official file, is to abandon their responsibility. If it is a fact that he did not fly at all, in 1901 or 1902, why all the fuss? Why the 67-year delay and the deliberate avoidance to

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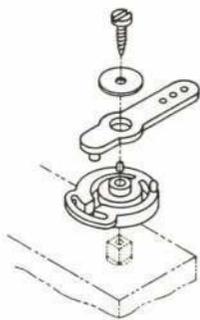


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## Junkers D-1

Continued from page 20

available wheel. In our case, the 4 $\frac{3}{8}$ " wheel is about 1.72 inch-to-the-foot scale. This works out to a little over 500 sq. in. of wing, while the 5" wheel is about 2" scale for 650 sq. in.

After much hemming and hawing, I decided on the smaller scale; mostly because I wanted to use an ancient and reliable Enya 45. The one lesson I've learned about scale R/C is the virtue of power. Never, never underpower a scale model. If you want to impress the judges by flying slowly, use the throttle, but an underpowered machine on a windy day is an incipient accident. Incidentally, similar remarks apply to wing loading. A light Avro 504, with yards of wing, looks beautiful floating along on a calm day. But, in a wind, it's agony.

While scale-size airfoil, dihedral and tail are used on the model, it is not a "museum piece." Rather, the aim is for a practical flying machine that will still gather lots of scale points in a "Rhinebeck" type meet. Hence, I did not try to reproduce the corrugations. Appearance is helped by the dull camouflage which hides the lack of corrugations.

Have no fears about the huge rudder and no-fin tail. Low-wing configurations with small dihedral simply are not very sensitive to rudder deflections. Roll-due-to-yaw produced by dihedral is countered by an opposite roll torque produced by the rudder because it is situated well above the center of gravity. Hence, lots of rudder throw may be used to produce some control on the ground. Hold full rudder and blast the tail around with throttle—it really impresses the judges if they know anything of old airplanes. I was worried about the small, horizontal scale tail before the first flight. But the pitch action proved quite gentle as indicated by the fact that I managed to land right-side up (with the engine still ticking over) on our rather rough grass strip after the D-1's first flight. Anyone who's seen me fly will know that it was not all piloting skill. This particular characteristic is probably due to the wing thickness and camber taper, which in effect, produces a heavily washed-out surface even though the bottom is flat. This also is scale. Because of their generous size, aileron action is very positive.

While the all-up weight of 5 lbs. 4 ozs. is not light for 500 sq. in., the high-lift wing produces a landing speed considerably lower than the average multi-pattern machine. All in all, it's an easy flying model and anyone with even a minimum of multi-proportional experience should have no difficulty. However, I would not recommend use of Reed equipment on any scale model unless you are a real Reed hot-shot. A good digital proportional system will make an acceptable pilot out of the most ham-handed Reed switch thumper.

But, scale is no more difficult to fly than any other model, except for a psychological factor. The first flight of any scale model is a traumatic experience. It's just that spending all that effort and then going wing-tip-over-wing-tip while landing is not very profitable. No scale model can be as durable as a good trainer, and the average flyer can do much better landings with digital-proportional.

Since it's my firm conviction that no beginner should tackle any "scratch built" model, much less a scale model, I'll not give a bit-by-bit description of construction, but will touch on particular points.

**Fuselage:** This is a simple box. Install horizontal stabilizer with tail block, rudder post, and both control pushrods before covering the bottom. This way, all control

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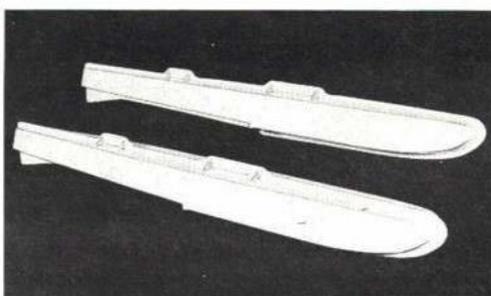


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horns can be inside and out of sight. Note that, by using Rand hinges, the elevator may be removable. I used cable in nylon tube for elevator and rudder actuation. This works well, but these must be supported every three or four inches to avoid compression buckling. For good tight control, even "Nyrods" should also be supported at about that interval. The rudder is not glued to the tail post until the model is completely finished.

The cowling is built in place. Attach cowl formers to base frame, place it on model and tape the water-soaked  $\frac{3}{32}$ -sheet cover over it, and let dry. Then glue it to the formers and base frame. This easily forms the  $\frac{3}{32}$ -sheet to the complex cowl curve, and assures that the base frame does not warp with respect to the fuselage. This same technique is used to cover the turtle-back. Incidentally, never glue wet sheet wood in place, since it will shrink and

either pull your joints apart, or sag badly on curved portions. I recommend aliphatic resin glues, such as Titebond for sheet covering. They are strong; slow drying aids in sheeting large areas with one piece, and, unlike white glues, they set up hard enough to sand.

A good trick on open cockpits is to cover the inside with a piece of Celastic. This strengthens the cutout. Similarly covering the inside of the cowling between the formers with heavy cloth and epoxy will also make it as strong as a fiberglass cowl without the necessity of finishing the plastic.

Internal rubber bands are my favorite method of holding a cowl. Rubber bands run from former #2 through a hole in the cowl to a hook on the bottom of the dummy motor. Another hole, large enough to admit a plug-on connector, is centered over the glow plug. In this manner the dummy motor may be lifted, turned 90

degrees and rested on the cowl top to allow access for the glow-plug connector. After the engine is started, the dummy BMW engine is returned.

A working manifold and exhaust system is well worth the effort. The sight of blue smoke coming out that saxophone more than repays for the few hours work required. Be certain to use silver solder and neoprene tubing. Also use a cool fuel, like Supersonic 100, and run the engine a wee bit rich, or you will melt even the silver solder. Priming the engine through the door-screen radiator can be simply accomplished with a hypodermic needle.

**Wing:** I'd like to be able to say this construction was my own invention. Personally, I think it's lighter, stronger and just as quick as a foam wing. But, you've all seen the Ken Willard "school" of design, so you'd know I was lying. What you may not know is one Charles Hampson Grant beat Ken to the idea by about 30 years, and I don't know who invented it before C.H.G. Anyway, it is sparless, built in three pieces (two outer panels and a center section) and then butt-joined with epoxy and cloth over the joint.

Start with bottom cover, glue in leading edge, tip piece, and all ribs. Before proceeding with the top cover, shape the lead-

ing edge and tip to conform with the profile, and install nylon tubing for the aileron cable. Cut a one-piece top cover to approximate shape, soak in hot water, and then strap it to the wing while it's still pinned to the work board. Lots of bands around the tip will form the cover over the slight compound curve. When dry, remove, squirt glue on all the mating surfaces and it will literally fall in place.

The  $\frac{3}{16}$ " aileron spar is not installed until after the Rand #1025 hinges are glued to the top cover. If the hinges are roughened with coarse emery paper, alphatic resin glue will hold them without dowls or pins. Pinked aircraft cloth tape makes a good wing joint cover that is easier to work with than glass cloth.

**Landing gear:** To insure a perfect fit, solder the gear joints while it is attached to the model. Use tinplate soldered to the two  $\frac{1}{16}$ " wire spreader to form an axle fairing. A  $\frac{3}{4}$ " length of heavy-wall surgical tubing ( $\frac{1}{4}$ " I. D.,  $\frac{1}{2}$ " O. D.) makes the best shock-cord, but rubber bands or small "O" rings can also be employed. Use twice as many as you think necessary. Landing gear fairings are epoxied to the struts and then wrapped with nylon tape or ribbon and coated with epoxy. This adds considerably to buckling stiffness of the strut and, while you can break the fairing when the strut's bent, it will never pop off.

**Equipment installation:** Nose-heavy scale models are rare, so mount everything as far forward as possible. On the original, all R/C equipment (Bonner 4RS) was forward of former #3. The throttle servo mounts on an aluminum tray with foam tape and then is screwed to former #2, closing off the battery compartment. Rudder and elevator servos mount on the fuselage sides with foam tape, and the RX rests in the middle.

The throttle servo drives vertically through a cable and Teflon tubing with a 90 degree bend. Rudder and elevator servos work through throw-reducing arms mounted on the cockpit floor. Total control-surface motion, measured at the trailing edges is:

Rudder  $\pm 17\frac{1}{16}$ ; Elevator  $\pm 7\frac{1}{16}$ ; Aileron  $\pm 11\frac{1}{16}$ - $9\frac{1}{16}$ . I like to fly a model with very snappy aileron action. In general, it does not make smooth control more difficult since motion in roll is always better damped than either pitch or yaw. But if a trainer-type response is preferred, the aileron travel should be reduced somewhat.

**Finish:** One of my major failings in model building is incurable optimism—I always believe that I have a better way to finish a model. In this case, the bright idea was a dope and talc mix on bare wood with an acrylic color sprayed on. Yes, it was easy, and light. Yes, cracks appeared after three days cure time. No, I'll never do that again.

The finish was saved by another bright idea—satin polyurethane varnish was sprayed on over the top. This is available through Montgomery Ward in inexpensive spray cans. It is tough, flexible, and completely fuel-proof. Anyway, my favorite sheet-balsa finish remains butyrate over Silkspan, as a compromise between toughness, weight, and difficulty.

Do not finish any WW I model with a "patent leather" shine. First of all, no one spent that amount of time on the real thing. Secondly, shiny finishes were avoided intentionally since they would glint in sunlight, and no pilot wanted an enemy to have the advantage of first detection. Note that the bright colors, used by many German WW I units, were not any great disadvantage, if they did not shine, since all aircraft at a great distance look like a black dot against the sky.

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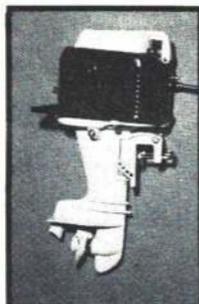
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"dull" finish. All involve final overcoating. Under no circumstances, make all your finish coats a dull color, since most non-reflective finishes are made by use of an additive which greatly reduces the strength of the original shiny material. The "satin" polyurethane varnish previously mentioned is a good over-spray that gives low reflection—not completely dull—finish. But, remember that dope cannot be applied over varnish, so touching up is more work.

All automotive paint stores carry a "dulling" compound under different trade names which, while made for acrylic, is admissible in Aerogloss or butyrates. Thus, a final coat of dull dope or acrylic is possible. I'd recommend you use a dull, clear overspray, since it can be squirted over everything without masking problems, and is generally a little tougher than pigmented paints.

**Flying:** I think that scale models should look like the real thing from ten feet away. My other pet peeve, besides shiny finishes, is WW I aircraft models with thick, symmetric airfoils. Therefore, any WW I model of mine either has a thin, cambered airfoil, typical of most; or the thick high-lift airfoil, typical of Fokker and Junkers aircraft. This looks right, produces quick takeoffs and good glides, but they do stall more abruptly than the thick symmetric airfoils typical of "pattern" multi. Most pattern models can be gently landed from a full stall at 20 feet, sinking like an autogyro. This is not recommended with any thin or high-lift wing. The Junkers stall is gentle, but it will finally drop its nose, so keep the speed up on final approaches.

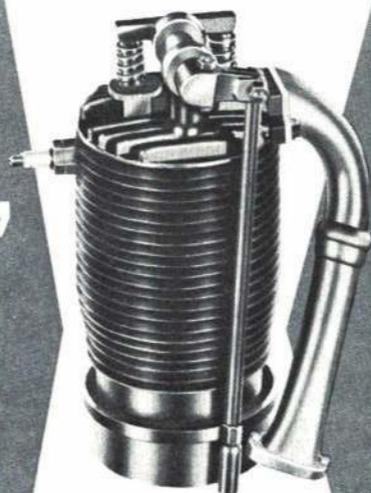
**The Corrigan**

Continued from page 30

Check the control system for freedom of operation. Spend time on this; tight controls cause crashes. Solder the bellcrank nut to the bolt.

Plank the bottom of the wing. Install the ballast weight and outboard wing weight. Use pieces of solder for this. Be sure to squeeze the ends of the solder closed before gluing in place. The top of the wing now is planked.

Next, epoxy the engine firewall to the pod, then epoxy this assembly into place on the wings. The booms may also be epoxied in at this time, and the rudder can be glued into place. While this is drying, the horn should be installed on the elevator.



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When the above is dry, the booms should be spread apart, and the elevator should be slipped into place. Now pin the elevator in the neutral position, and adjust the leadouts so that their ends are even. The forward end of the pushrod can be bent to engage the hole in the elevator horn.

Bend the top end **only** of the landing gear wire to shape, and push the wire down through the firewall. Bend the lower end for the wheel, and epoxy the wire in place.

Cut four each 1/2-A bushings as shown on the plan. These are used to hold the wheel, elevator and pushrod in place. They should be soldered in place with resin-core solder. If you choose to use acid core here, be sure to neutralize the joint with a solution of baking soda (found in the kitchen) and water, followed by a drop of oil. Otherwise rust and binding may occur. Add the tip and rudder skids.

Sand the entire structure with #220 or #180 sandpaper. Brush on two coats of clear dope, and sand with #400 wet or dry paper. Use the sandpaper dry, of course.

Your airplane is now ready to cover. You may use whatever type of covering you wish; but we prefer Jap tissue for models of this size. It finishes well with a minimum of work and weight. After covering, the engine may be mounted with the four wood screws.

**Flying:** Use a 6-4 Tornado Pusher (sometimes called left-hand) nylon prop. Crank and run the engine backwards (clockwise when viewed from the front). This will keep the lines tight on takeoff. We are taking advantage here of the effect of torque. This is shown in the sketch on the plans.

Make a handle as shown on the plans. Its light weight will give you better feel while flying. Use solid steel wires for flying. Thread or Dacron adds too much drag, and hampers performance. The lines should be .008 or .010 in diameter, and about 40 feet long. Make up the ends of the lines as shown in their accompanying instructions. Use snaps from your hobby shop to attach the lines to the handle and plane.

Takeoff should be made with the wind at your back. So should all maneuvers. Use a little up for takeoff. Remember, the trailing edge of the elevator moves down for up and up for down—see the sketch on the plans. Your up line should be attached to the rear leadout to obtain proper control. Flying is a real pleasure with no tricks or oddities.

It may be helpful to cover a couple of problems that sometimes arise when operating 1/2-A engines.

In the first trouble, the engine will start up normally, but run only 20 to 30 seconds, and it is impossible to obtain a needle valve setting. This is caused by the glow head working slightly loose. Tightening the head with a wrench cures this one.

The second trouble may occur after a few rich runs on a hot humid day. The engine will run, but it won't obtain full power, and upon examination, it is tight or stiff when you turn it over. The inside of the cylinder is coated with shellac or fuel varnish. The Cox company tells us that there is no way to avoid this; the engine has a well-finished and well-fitted piston-cylinder assembly. This problem is remedied by removing the head and cylinder, and scouring the inside of the cylinder with fine steel wool. **Don't** use sandpaper. Wash the cylinder in solvent or fuel, lubricate it with light oil and install cylinder and head.

You will enjoy flying your Corrigan. It's a real eye catcher. If you have any comments, or have done any work with control-line canards, we'd like to hear from you in care of this magazine.

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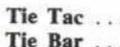
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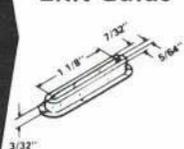
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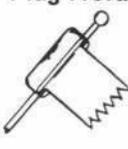
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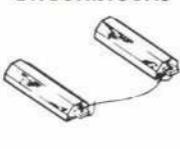
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## Model Rocketeer

Continued from page 40

catcher information sheet needed by all Sections . . . write to Andy Elliot, 10203 Leslie St., Silver Spring, Md. 20902 for your latest copy. . . .

NAR Orbiters Newsletter is exceptional on layout, originality and news. . . . Other Section pubs include "Igniter Current," by the Fairchester Section, which claims membership rolls within top three Sections across U.S. . . . A top-notch pamphlet was sent in by West Covina Model Rocket Society in California which is pledged to "Safety, Education, and Recreation Through Model Rocketry." Their photos are excellent, info presented together with a city map to locate range is well worth effort, but most important is back-page list of 17 clubs or related MR activities in the state that gives name, advisors, range sites and brief comments.

## Straight and Level

Continued from page 6

dentally, kept his radio frequency secret because we all loved to louse up his mower act with clandestine handheld transmitters. With the mower marching around him like a crack drill team, passing between his feet, and stuff, it was no time for such monkey-shines! Poor Jim never knew what happened but he'd stare us through and through!

During that early New York visit, he dragged the Polk brothers from their shop to see the Fireball fly. Conveniently at hand was the block-long post office on the city's west side. Nothing would do him but to fly in front of the steps. The crowd was immense. Buses stopped. Cars stopped. Nobody could move. Out came the Emergency Squad in special trucks and flashing red lights and deafening klaxon horns. When the same thing happened in Chicago, Jim was insulted when only one cop on a motorcycle was dispatched. Jim got even by handing the lines to the cop. Not being told to pivot with the model, the man was soon tied up by steel wires.

Jim had an unbelievable mastery of models. For him they'd do everything but talk. Once, going into a buyer's office, he noted an open window on each side of the desk in the corner. So he tossed a glider out of one window just before shaking hands. The obedient bit of sheet balsa circled around

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the corner of the building, came in the other window, and back to Jim's hand. What buyer would say, "No" after that? Jim could toss gliders with an infinite variety of motions, backhand, around his back, a kind of upside-down, upward flip, to the right, to the left, anywhere. And the darn things always came to roost in his hand.

He had a barrel of tricks. A little kink in the prop permitted him to catch the wound-up prop in the wire landing gear. He casually would hand-glide the model. When it struck the floor, the prop would spring free, and the ship would power-circle around the group—totally ignored by its pilot. He had the Ceiling Walker—in fact, it was a bust, and he ended up with a warehouse full of the things. It was just a stick with a prop on top and another on the bottom. It would bore straight up to the top of a ten-floor building. He'd hand these things out in any large city street, and soon dozens of the copters would be sailing on high. He did this in New York one day, summoned us down by his car phone—as well as the entranced buyer from swank Abercrombie and Fitch.

There was a night parade up Broadway. It so happened—as it always seemed to happen—that Jim was on hand. He slipped the searchlight operator a fiver to follow his Interceptor gliders in flight. As the caravan went through Times Square, the crowd was treated to a rapid-fire launching of gliders high into the sky. Walker never missed a chance to show model planes to the public.

He invented a sound-control glider. This creation had a diaphragm built into its side. Jim ran beneath tooting on a horn, steering the thing about like any R/C rudder job. Behind the project was a vast amount of trial-and-error research. Testing response of the "receiver" to various sounds, Jim walked out of his house one night, and down the street. He was loaded down with noise-making devices—including whistles, a drum (to hear him tell it), and even a revolver. When he fired the gun in an empty lot, the nervous neighbors called the cops. Climbing out of the cruiser—it is unknown what effect the siren had upon the model back in the basement—the burly arm of the law inquired what in the name of Ned was Walker doing. Noting Jim's little pop gun, the intrigued cop dragged out his own bigger shooting iron, and in the cause of aeronautical science, emptied it into the air.

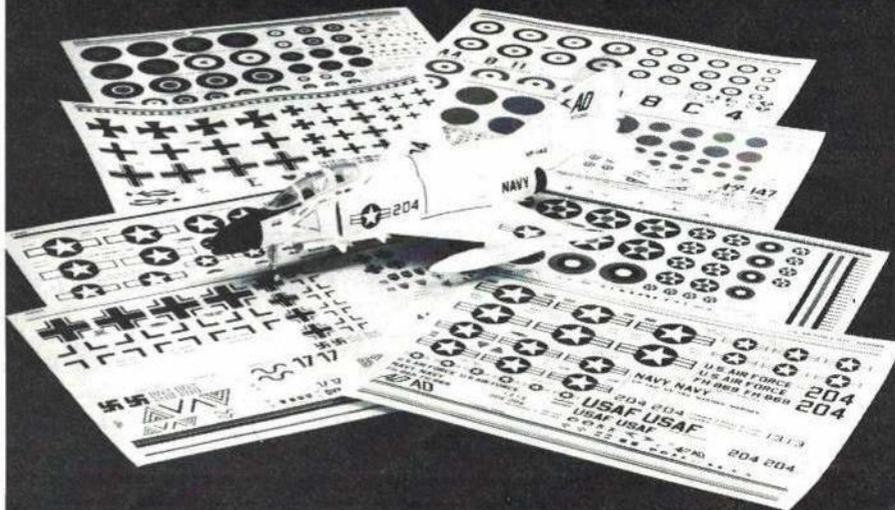
It follows that a supercharged guy like Jim would be a bundle of nerves. They were forever advising him to take up a hobby! Whatever he took up, he excelled in. His model railroad setup included a crane (so he said) which deposited him in the center of things. A golfer, he established a scientific way—another service!—of testing golf balls. A born prankster, he pocketed extra lively pellets and, when some sharpie would spot Jim-the-duffer on a course, ready for fleecing, somehow they'd end up in this driving match—must we go on?

He'd give away his shirt. He loved kids and they loved him. He'd stop his station wagon, loaded with ready-to-fly Firebaby's, put on an act, catch the crowd, and then offer one free to anyone who would start the engine. He was true to his word and would hand out dozens, if not hundreds.

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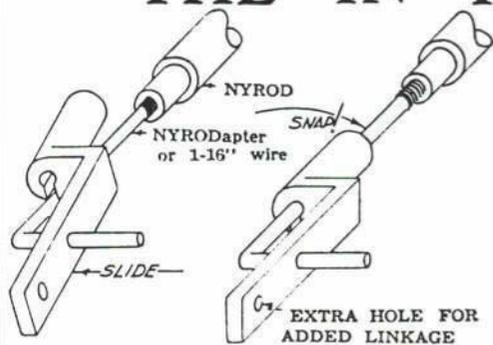
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were working at a bench in the work hangar at the Nats, he would slip one of these jobs under the bench where it would bounce up and down.

He won radio at the Nats—several times we think. Before the war he flew a modern-looking trike-gear ship—the first—which taxied out, maneuvered on the ground, took off and looped. Once, when Jimmy Slagle (the phenomenal bare-foot kid of the Wichita Nats) was practicing at the Minneapolis Nats, he and Jim fell to topping each other. Jim had his Fireball—which was not supposed to be a stunt ship. So Jim finally said, try this, and executed a perfect step-stairs climb to a higher altitude. And, you have trouble with those corners on a square?

Jim was impatient with us all. None of us ever did enough! Back before AMA set up programs to get teams to world championships, the Wakefielders begged every red penny in sight. At one hobby industry convention in Chicago, Ed Lidgard made a pitch for money to get the Wakefielders overseas. The silence was deafening. Up popped Jim who announced, "You guys make me sick; here's \$5,000 for them!" And, that's how they got to Europe that year. If he liked you, you'd get a surprise carton every year, loaded with kits and ready-to-fly things of all descriptions. Out to convert the world to model airplane flying, he was pretty well on the way when he abruptly left us.

It fell to us to write Jim's obit. Ending it, we had said that, "You knew him, too. Everytime you pick up a U-control handle, you will think of Jim Walker." There's a letter this month in "You Said It," which remarks that Jim Walker would turn over in his grave if he saw what had been done to model aviation. Jim surely would.

There are no giants these days in our hobby. Competition is so diversified that the days of the individual stars—the Walkers, the Kordas, the Grants, the Goldbergs—are gone forever. But, we shall never run out of the great things Walker left us. He'd put back the fun in model aviation.

We would all do well to remember such a man. We badly need another. Has God destroyed the mold?

## Code Name: Beethoven

Continued from page 29

erational purposes. The JU 88A-4 color scheme I used on the model for the article is that of the Eastern front, as shown on the plan. The Bf 109F also is painted in the Eastern front color scheme. After both models are assembled and painted, build and paint the carriage unit for the Bf 109. The plan furnished in article is in 1/72 scale, so all measurements for templates and assembly may be taken directly from drawing.

To construct the carriage which connects the two components together, use plan as template and saw strips of .0040 styrene, then streamline sections. Cement parts "A" and "B" together using plan as guide. After "A" and "B" are dry, locate and cement to the JU 88 wing. Chamfer both ends of part "C" and, after cutting to correct length, cement parts "A," "B," and "C" together. In reality, you will then have a small "tripod." After completed, paint entire unit with the base color of the JU 88. Several coats will be required. Repeat process for other half of carriage. For part "D," you may streamline or use piano wire. If you are using wire, it is a good idea to drill a hole in the JU 88 at the location point on plan and one in the Bf 109F before connecting the component aircraft. Locate point where "A," "B," and "C" connect in each side of center-

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line on Bf 109F plane. Cut or file a small indentation on the Bf 109G-type model at the point where the completed part will be installed.

If you are using wire for part "D" in place of streamlined section, insert wire in JU 88 before cementing the Bf 109 in position. After the cement and paint are completely dry, attach the "control" plane in place. You now have a highly unorthodox, but certainly different aircraft to add to your museum.

## Getting Started in R/C

Continued from page 39

to utilize excess length is to run the wire up to fin top, then down to one stab tip. If you need a still longer run, make it from fuselage to one stab tip, up over the fin and down to the other stab tip.

With many digital systems, it's best to run the antenna as far from servos and their wiring as possible (this is wise in any R/C system, but non-digital systems aren't as fussy on the matter—just try to keep the wire away from servos as you run it through the fuselage). One way to do this is to exit the wire from the fuselage side right at the receiver—which is generally toward the front of the wing—and then back to a stab tip; up over the fin and down the other side will allow more length, if needed. Actually, putting right angle turns in the antenna really doesn't provide as much electrical-length as stretching it out straight. But it works pretty well, which is the real test. Moreover, the bent antenna might have some advantages in picking up signals, when the main portion of the antenna is at the least advantageous angle to the transmitter antenna.

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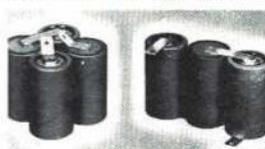
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specify parts positions for proper balance. If you use similar equipment, you can follow these closely, but if not, use common sense to reposition the components for balance, protection, convenience. Your plane will fly better, fly longer and be much easier to service, if you follow the simple suggestions outlined above.

## MRC Futaba F-69 System

Continued from page 24

linkages. Binding or uneven operation can affect the sequence time. In the case of the throttle servo, the quick-blip permits the servo only a moment to move from a given switch position. If a bind in the linkage is present, more than one blip will be required to start the sequence to the next throttle position.

The receiver must be well insulated from shock and vibration. The following is recommended: Place a square of G-pad, the size of the receiver, against the back side of a bulkhead. Surround the receiver with 1/2" of foam and place it with the bottom (PC board) toward the G-pad.

The airplanes used must be reasonably well trimmed, particularly in pitch. Ideally, it should fly in a slight climb at full power with a broad left turn for initial flights. Hand-glide the model and adjust for straight ahead flight with no tendency to float or nose down sharply. Next, a few launches should be performed at medium power over heavy grass. The model will probably settle into the grass but should show no tendency to dive, nose-up, or turn sharply. Finally, apply full power and launch with wings and nose level.

— Fred Marks



MRC's MU-2 R/C aircraft, equipped with the Futaba F-69 system, is an attractive, RTF (ready-to-fly) beginners model. It is made of a tough, specially treated styrofoam.



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## FAI Pussy Cat

Continued from page 25

obtain stability. On various occasions, an unwanted skid would appear under power. On any power ship, the rudder should never be located on top of the stabilizer unless absolutely positive keys are used. A little play in a key-way and—wipe out! At the very minimum, the same power pattern twice in a row is a novelty. One Pussy-Cat was constructed using a rudder on the fuselage under the stab. Stability under power was great, so great that it would follow power-rudder settings perfectly but would never try to roll out into a glide transition until all forward speed fell off. Waiting that long for recovery from a vertical climb is too late. That fuselage was rebuilt with the rudder shown.

Possibly some of the fastest climbing models in the world have been developed for the open power event as flown in England. Most of their designs incorporate the rudder-behind-the-stab configuration and I concluded they must know something about power control. It turned out to be the proper location for this ship too. With no side-thrust or rudder-tab adjustment, a right turn under power is expected. This is exactly what you want, because a little left power tab will make the ship climb straight away or slightly left. When the engine shuts down, the tab setting causes the left turn to tighten up until the forward speed is lost. By then, the all important transition has taken place. I feel the rudder has been most underrated in its overall importance to design.

Shown on the drawing is a special gadget attached to the flood-off timer. This is not one of those mickey mouse items I referred to earlier. It is truly a model saver in spite of the name "DT Tripper," and is

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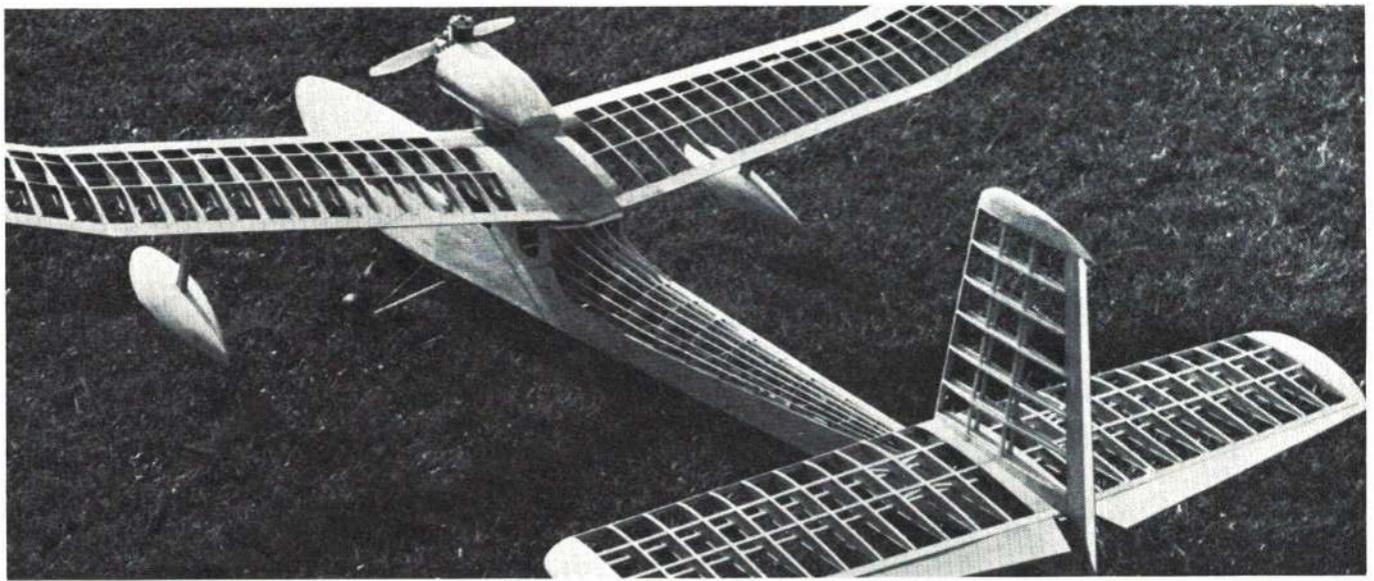
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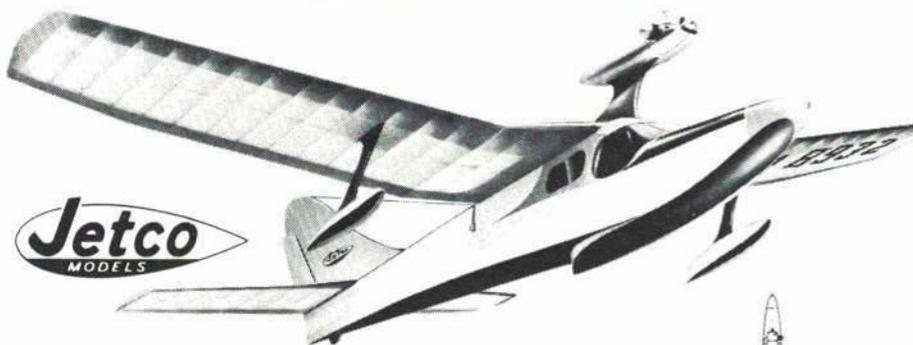
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used for all test flights until a safe pattern is established. The DT line is hooked up to it instead of the DT timer. In operation, the engine floods off and after a two-second delay, the model dethermalizes. It also works very nicely when checking the full engine run while testing in small fields.

The model is rather easy to build, provided you plan ahead. A couple of suggestions to avoid trouble are in order. Master rib templates are used to cut all tapered ribs by simply shifting the template to give the correct depth at leading and trailing edges. Cut the spar notches into the top of the ribs after assembly to the leading and trailing edges. Glue in the top spars. When the components are dry, notch the bottom of ribs and glue bottom spars and planking in place. After adding dihedral to the wing, plank the center top and bottom.

Start fuselage construction by cutting out the sides; glue in the longerons and build up the rudder and pylon as shown. Mount the engine on its mounts, notch the back edge of the mounts to keep the engine on centerline and glue to pylon. Taper front and rear of the longerons per fuselage, bottom view. Glue both sides to pylon with two formers in place and rudder bottom line up perfectly.

The landing gear mount shown is not required, but it is handy when it becomes necessary to replace a broken landing wire. The mounting can be made in many other ways, but do not omit the gear entirely. FAI models DT very hard.

Component weights shown are for a silk-covered model with six coats of nitrate dope and one coat of Hobbyoxy. If planning to use a tuned exhaust, go easy on the total weight. A pipe will add about 2 to 2 1/2 oz. alone. It will be necessary to shorten the nose about 1-1/2" to keep the CG in its

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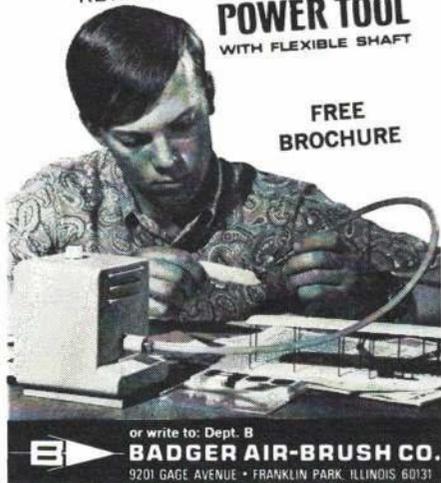
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proper place. Using a metal engine mount, requires shortening the nose to compensate for that extra weight, too.

Testing really begins with the first razor cut and glue joint. The major requirement for durability is a sound construction, having no hidden flaws to crop up later at a critical time. Test flying is generally regarded as fun by some modelers, but the first flight with a new model can be a very unnerving experience. I cannot over-emphasize caution at this stage. Always work up to full engine runs through a series of many test flights.

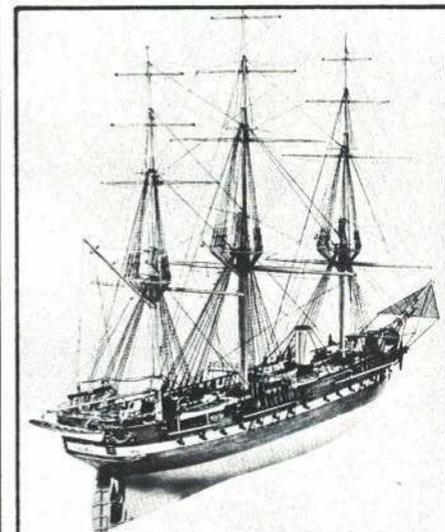
The CG must be properly located as shown before any testing can begin. A location of plus or minus 1/8 of an inch either side is O.K. for first flights. Hand-glide the model and shim the stabilizer for a fast but flat glide. Add stab tilt until a left turn is obvious. Power flights may now begin. Check the DT Tripper and stabilizer to see that they work properly.

Attempt the first flight with a three-second engine run, being certain to launch the model at no less than a 45-degree angle — observe what happens! If she goes slightly left, it is O.K., straight or right is still fine, but some left power tab should be added. The nose dropping below 45 degrees while under power requires additional incidence under the stab trailing edge, while nosing up vertically usually indicates the CG is improperly placed. Finding the CG too far forward, requires adding weight to the tail and hand-gliding until proper trim is achieved by shimming.

For a properly located CG, remove some incidence from under the stab trailing edge. Use the same engine run for the next flight and note the change. Repeat the above analysis and adjustments to correct any bad tendencies. A left turn power pattern with a near vertical climb is the desired trim. Increase the engine run one or two seconds at a time, still using the DT Tripper, until reaching about eight seconds. Shift over to the DT timer, set it for 30 seconds flight time and check the transition to glide, using the same engine run as before. Shim stab tilt to establish the proper glide circle diameter and shim incidence to obtain a flat glide.

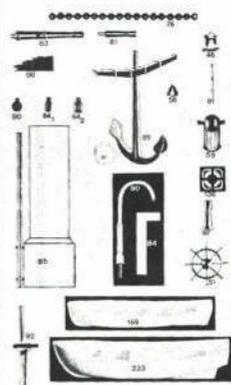
Contest flying is another speciality all its own. Some people can fly the most erratic and unpredictable models to first place any day of the week. They are the naturals whom I envy very much. Most of us have to work hard just to place near the top. As Joe Bilgri says, "The more I fly, the luckier I get." This philosophy really works!

A self-imposed training program for Bong was conceived primarily to condition me. Starting in April, I flew at least 15 flights every Saturday and Sunday except for contest days. In mid-May, I continued the



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same program plus an additional requirement of being under the dethermalized model on every flight to catch it. (I obviously didn't make them all.) This required much running and has a tendency to build endurance and stamina—provided you have the endurance and stamina.

By the time I reached Bong, I could pitch Pussy-Cats blindfolded. I did just that! I blindly pitched Pussy-Cat into dead air—climaxing all that training and work with one big blooper.

## Radio Control World

Continued from page 35

ployed). This idea can doubtless be applied to many throttle servos, but check carefully to make sure you are not applying full voltage without intervening resistance to any semi-conductors in the system; start with a fairly large resistor at R1 (perhaps 50 ohms or so), and monitor battery current; if it doesn't seem excessive, cut the resistance until the servo moves at reasonable speed both ways. Be sure no parts are getting hot! This arrangement is so handy that it's worth taking time to apply it to your own throttle servo, after carefully checking that no damage can be caused.

### CLUBS AND COMPETITION

Further speed info: Details continue to dribble in on the FAI Speed Trials in Germany last April, when a new record of 198.8 mph was attained by the top man. The top five placers were using planes designed by Schoenfeld, all very similar; they had foam wing with balsa covering, fiberglass fuselage, elevator and aileron controls (the latter were tiny strips about a third of total wing span, and placed fairly close to the fuselage). Top three placers used modified ST60 Speed engines, while the other

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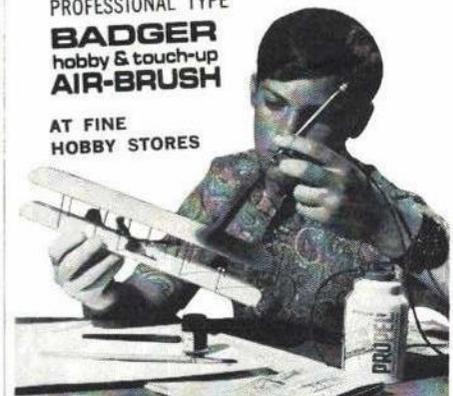
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five who actually made official scores had Rossi 60 Speed mills. Wing section appears symmetrical and reasonably thick. All eight flyers who got times used the Simprop Digi-2+1 equipment. All entrants were required to top 225 kph in qualifying runs on Saturday, with the final official scoring runs on Sunday. High vibration, high speed, considerable wind on Sunday, and difficulty in seeing the tiny planes as they flew toward the pilot when entering the course, all added up to quite a few crashes; one plane dropped its engine during a run! Timing sounds quite a bit like that used over here, with two clocks on each run, their times having to be no greater than 2/5 sec. apart for a run to be considered official.

**U.S. FAI speed trials:** In view of the success of the German flyers in far surpassing Maynard Hill's old record, much interest was generated by Trials held at Westover A.F.B., June 29-30th. Trials were part of the Fifth Annual Rallye-Conference sponsored by the Hampshire County (Mass.) Radio Controllers. The Conference meeting took place on Saturday evening in nearby Northampton, Mass., where a goodly gathering of modelers gossiped, looked over many planes, gliders and engines on exhibit, and enjoyed two narrated slide presentations by Walt Good, covering the FAI R/C Championships in Corsica, and a sequence on R/C gliders.

Meeting was presided over by Cliff Piper, who also handed out the raffle prizes (top prize was a complete Orbit multi propo outfit!). C.D. John Papageorge handled the action at Westover, where speed attempts by land and float planes, and one glider were interspersed with exhibition and fun-flying. During the speed runs, Hill made one pass at an officially clocked 198.8 mph (which equals the German record claim), but could not put two such runs — going both directions — together in one flight. And of course, he would have had to make a bit over 200 mph, in order to exceed the German mark by the necessary percentage. He did have three two-way average times of over 175 mph, however.

While there were some very fast planes on hand, most pilots were unable to keep them within the prescribed altitude and course width. There were five flyers trying for landplane speed, and four for seaplane. In the latter category, the planes took off from a lake some two miles from the course, were flown to latter with the pilot in a convertible. A bit hairy but it did work, and Paul DiNoto was able to establish a new mark of 66.8 mph (subject to final checking) for R/C Seaplanes. He used a Sportmaster with ST 60 and floats designed by Gene Rogers (from a Flying Models article). Charles Olson had an even higher speed — 75.58 mph, but the two clock times on his best runs did not agree closely enough for this to be counted. Hill made several attempts at the R/C Glider Speed mark, using the big Nelson KA6 glider; last attempt ended in disaster when the plane was towed aloft via a potent high-start attached to a moving auto — the combo was too much for the glider wings, which broke!

It has been pointed out that Hill's 175-plus mph speed is an "American FAI" record. Such records have not been listed in this country so far, but we gather the AMA will publicize them from now on, to give well-earned recognition to R/Cers (and perhaps UC and FF modelers too) who expend much effort in the cause, don't quite top the existing FAI marks, but do set a new figure for this country. Most foreign countries consider such records quite an honor; most do not have a listing of records under the name of their national model plane group, as we do here.

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