OS MAX 50-58 Series
This series comes after the 15 and 19. Here again, we have a completely new and individual engine. The OS MAX 50 R/C is a small engine and is very capable of producing an extremely light, extremely compact and beautifully executed small engine in this size.

MAX 50 Std. $10.98
MAX 50 R/C $15.98

MAX 30, 35 Series
This is a very popular series OS engine. For the displacement these engines represent just about the minimum in weight and bulk. The OS MAX 30 R/C is an extremely light and small engine and can be operated right out of the box with a long extensive break-in. These engines are used for Galloping Ghosts in airplanes like Goldberg's Falcon 50, Sterling Tri-Paces. These are also used for Hot Wheels cars and for Sterling Mustang Specials.

MAX 30 Std. $14.98
MAX 30 R/C $19.98
MAX 35 Std. $14.98
MAX 35 R/C $19.98

OS MAX Series
This is a recent OS series and was specifically designed for the 40 engine size. The engine without a throttle is a very popular engine and the engine with a throttle is a very popular engine in this size. The engine with a throttle is also an excellent size engine for a model like the new Goldberg's Falcon. This engine is quite powerful for a 40 size and will turn a large prop. We recommend these engines being used in airplanes as large as a Top Flite Taurus. In fact, almost any other size full house airplane.

MAX 40 Std. $15.98
MAX 40 R/C $22.98

MAX 50-58 Series
This series represents just about the minimum in weight and bulk. The OS MAX 50-58 STD is an extremely light and small engine and can be operated right out of the box with a long extensive break-in. These engines are used for Galloping Ghosts in airplanes like Goldberg's Falcon 50, Sterling Tri-Paces. These are also used for Hot Wheels cars and for Sterling Mustang Specials.

MAX 50-58 Std. $10.98
MAX 50-58 R/C $15.98

OS MAX 30 Series
This is a recent OS series and was specifically designed for the 30 engine size. The engine without a throttle is a very popular engine and the engine with a throttle is a very popular engine in this size. The engine with a throttle is also an excellent size engine for a model like the new Goldberg's Falcon. This engine is quite powerful for a 30 size and will turn a large prop. We recommend these engines being used in airplanes as large as a Top Flite Taurus. In fact, almost any other size full house airplane.

MAX 30 Std. $10.98
MAX 30 R/C $15.98

OS MAX 15 Series
The R/C version of this engine is probably the most popular OS engine that we sell. Probably the reason for the popularity of this engine is its easy handling characteristics, its good idling characteristics and its long life. Furthermore, OS probably makes more than any other engine manufacturer is more capable of producing an extremely light, extremely compact and beautifully executed small engine in this size.

MAX 15 Std. $10.98
MAX 15 R/C $17.98

OS MAX 60 Series
There are two engines in this series. The first engine to come was the rear valve engine. This is the more powerful of the two because the breathing intake on this engine is better. In the first place, the actual intake size is larger and, in the second place, the passage to the valve in the drum is larger. It is impossible to cut a hole large in a crankshaft because of strength problems. If you are looking for power in an OS 60, we recommend the rear valve engine. The other advantage is that the needle valve is out of the way of the propeller.

MAX 60 RE R/C $32.98
MAX 60 RE R/C $39.98

Phil Kraft is shown with his new Flea Fly. We are happy that Phil consented to let us put this picture in our OS ad this month an OS 19 in Phil. certainly demonstrated to everyone at the RCIA Indianapolis Masters Tournament that you can do just about everything with a little airplane like this that you can do with a big plane and we sure are going to see a lot more small, possibly 19 size airplanes — flying soon with full house proportions.

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ABOUT this time of year the staff is hard pressed to close up the American Aircraft Modeler Annual. The E.T.A. — estimated time of arrival as the big plane pilots call it — is March 4 on the newsstands. This "thirteenth issue" is a special experience for its editors as well as its readers. What should it contain? How can it be designed to fulfill audience expectations for something super, for the new and different? Should it, as so many annuals do in many other fields, parade the events and developments of the preceding year? Or should an annual have a theme: Tell what air modeling is all about, or perhaps, how to get into model building? (In passing, it should be provocative problem of what to do for a lead.

But, whatever treatment is selected, there is always the issue: "Scale — Where the Action Is," one has the feeling of having been here before. The average sport modelers, the guys who build alone, who don't ride the contest trail, are more demanding than both put together. Radio people protest that they are being short-changed. Free-flighters are momentarily content — we managed to find a handful of contributions. Now the control-line people wonder if the reader, demanding this or that column, is best served when he gets that column. If every demand is faithfully met, the reader would reject the results. One of these days, editors may join in this spirit of revolt, to put out the publications they think best. When they do, we'll stop seeing such things as brand-name transmitters staring at us from covers, and full-page pictures of manufacturers pushing buttons. Discussing the beginner problem with us, a well-known manufacturer remarked of our printed notice, that A.A.M. would lead off each month with its Tenderfoot series, "But, can you afford to take such a risk? Can you get by with it?"

Speaking of revolt, editors these days are troubled — or they should be troubled — by the problems of how best to cater to audience demand. It is gospel, of course, that any magazine must give the reader what he demands. The customer is always right, but the real question is, does the reader really know what he wants? Judging by the hardening cast of the magazines, there is considerable doubt that we publishers and editors always make correct interpretations.

Free-flighters have long protested what they consider inadequate coverage of their field. (Incidentally, they contribute very few articles to a magazine.) "Our" free-flighters are momentarily content — we managed to find a handful of contributings. Now the control-line people protest that they are being short-changed. Radio people are more demanding than both put together.

Any magazine policy seems too political at times. It is putting the cart before the horse, to cater to so many different groups with this or that column and standard features. Regardless, you must have three model designs every issue — R/C, F/F and C/L. You've got to throw in a solid radio department, maybe even an extra article. Give something to the plastic modeler. The scale buff — he requires plans and articles. So, you start every issue with two-thirds of the contents set in concrete, as it were. Rather than buy votes by pleasing all special interests, how much better it would be if any editor could simply put out the best damned publication he could dream up.

Articles and plans on helicopters and ornithopters, on design fundamentals, the hopping-up of engines, the ABC's of covering and finish, adjusting a free-flight, elements of U-control, how-to-do-its of all kinds. One wonders if the reader, demanding this or that column, is best served when he gets that column. If every demand were faithfully met, the reader would reject the results. Of these days, editors may join in this spirit of revolt, to put out the publications they think best. When they do, we'll stop seeing such things as brand-name transmitters staring at us from covers, and full-page pictures of manufacturers pushing buttons. Discussing the beginner problem with us, a well-known manufacturer remarked of our printed notice, that A.A.M. would lead off each month with its Tenderfoot series, "But, can you afford to take such a risk? Can you get by with it?"

Revolt? We took the risk. We are getting by with it. The response is roughly 400% greater than anticipated. Now, we desperately need such contributions. And, there is nothing to be had. No one demands beginner stuff! Yet, everybody wants, enjoys, it. What do they really want?
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Order-By-Mall From America’s HOBBY CENTER, 146 T West 22nd St., New York, N.Y. 10011
Junior for R/C gliding

I must commend you on a fine editorial that appeared in the October, '68 issue. I am a junior AMA member, 15 years of age, and have been seriously interested in R/C gliding for a long time. Your editorial clinched it for me. I want to get started in this sport, but I need a little help. Could you send me any and all information on the “Scurry” and “Nelson KAS” gliders that were mentioned in the editorial? Also, the scale Libelle sailplane which appeared on p. 28 of the August '68 issue. I would sincerely appreciate your cooperation.

Gary Osoba, Wichita, Kansas

Judging by the glider names, Gary refers to Howard McEntee's editorial for the R/C World section. Our own Jerry Nelson is no good source as any on radio-control motorless stuff. He is as busy in gliding as a Galloping Ghost actuator going full tilt. We've given Gary Jerry's address and will forward other such requests to Nelson. Ed.

Tin Goose Epic

In regard to your article on “The Cry of the Tin Goose,” in your October issue — congratulations—a little. In 25 years of modeling, yours is the only article on the Ford trimotor that even mentioned the only other owner and operator in the U.S. besides Island Airways — that is the Johnson Flying Service.

Oh yes, two corrections, please. First, no self-respecting pilot would ever call one of them a “Tin Goose.” They are “Fords,” first, last and always, although they may be occasionally referred to as “trimotors.”

Second, it is U.S. Forest service, not Forestry service. (There is a difference. Check with Lassie.)

Now, back to the Fords. I am a professional forester. As such, I received my degree at Montana State University in Missoula, Mont. (’64). Before that, as early as 1944, I worked in the woods for the Forest Service.

Region I of the Forest Service is headquartered in Missoula, Mont. (’64). Before that, as early as 1944, I worked in the woods for the Forest Service.

Since 1905, the U.S. Forest Service has been charged with protecting this area from wildfire, whether caused by man or nature. This area is dotted with small fields and landing strips which are used for supplying forces in the back country. (The field at Big Prairie, for instance, is only 1100 ft. long.) With these conditions, it is natural that Johnson (the prime contractor in Missoula for flying service to the Forest Service) would use Fords for this freight work. I don't know how far back Johnson goes, but I do know that in 1938, they were flying freight in the Fords.

In 1938, the idea of dropping men on a going fire was begun and if the first fire jump wasn't made from a Ford, I'll bet the second was. Around 1946, Johnson started using C-47's for Smokejumping because they could haul a larger crew faster, but the Jumpers themselves preferred the Fords — at 80 mph the slipstream wasn't so bad.

The characteristic hum of the trimotor has been a welcome sound to firefighters for quite a few years now, and is likely to be for several more.

The procedure for a fire jump is pretty much standard. The Fords carry eight Jumpers and their gear. First, of course, the fire is sighted, and a landing spot is selected. Then there is a test chute to check for wind drift, then the men go out. Two at a time for four passes. Under most conditions, the pilot throttles the outboard engines back so that the plane seems to almost stall. That way, the Jumpers get carbon monoxide for two full minutes. The next Jumpers then are dropped. This supply drop is made at such altitude that the trees are occasionally shaken by the prop blast, but whether the drop spot is in a canyon or a
mountain top, the spotter doesn't miss and the tools end up in a pile. The jumpers go to work and the pilot goes back to Missoula.

The ride in one of those things is truly something to remember. I rode into the Bob Marshall Wilderness area one frosty morning in 1951 on top of a sack of oats, and the ride went something like this:

First of all, Johnson's Fords are not prima donnas. They are working girls. No seats, no doors, just dents, nicks, scratches, and mud. Anyway, back to the ride: I had been told to report for work at Big Prairie Ranger Station, 40 miles from the nearest road, when college was out. So I haggled for a ride on a load of supplies—including 1000 lbs. of oats—bound for Big Prairie.

They loaded the freight, then the pilot crawled in over the oats, and told me to get in. I did, made myself comfortable on the oats, and we were off. With three motors rattling and shaking, the whole adventure raised serious doubts in my mind about its completion.

When we started down the runway, I looked out the window and at that time I could have sworn that I could run that fast. All of a sudden, there was no more rattle-bang, and we were airborne not a little bit, but the old girl was climbing like a homesick angel. (There were 9000 ft. of mountains between Missoula and Big Prairie.) Once we were airborne, the ride was the smoothest, most worry-free plane ride I've ever experienced. The wings did not flex, as those of a C-47 are prone to do, and it was somewhat comforting to look out at the oil gauges on the motor struts and be sure we still had pressure.

We didn't fly over Holland Pass—we flew through it. Not people to waste gas by foolish climbing, Johnson's pilots cross mountains on freight runs at minimum altitude—this was no exception. We cleared the treetops by at least 15 ft. On the other side, we started down and in a few minutes, we were over the field. There was one pass over the field (at 100 ft. altitude) to A) Check the wind by looking at the flag as we went by; B) Scare off a herd of ten elk which were grazing peacefully in the middle of the field, and C) get somebody out to help unload the oats.

After this run, there was a pull out, a tight bank, throttle back and a 4 mile approach, down on the end, just past the stumps and taxi to the back door of the Ranger Station, 900 ft. down the runway.

They had no movies, no pretty girls, and they didn't give away any cards saying "I rode a Ford," but still I won't forget that ride.

Oh yes, in your library of Aviation books, put in "Tall Timber Pilots." It is the story of the Johnson Flying Service, written by Larry Florek, a Johnson pilot, and published about 1955.

No axe to grind, just a friendly letter.

David R. Grosson, Navajo, N. M.

American Aircraft Modeler receives many letters too long to be printed. An occasional one—like this one—proves irresistible. As Dave said, a Ford is a Ford to a pilot but to a great many people, that trimotor will always be a "Tin Goose."

Oily bird gone west

I built the Oily Bird as shown in the October issue. It was a single-type aircraft, I built it on 26" wide graph paper and didn't bother to lay out any plan as such. Using a ruler, I measured the length of my wood and cut and pinned it to the graph paper, insuring it was straight by using the graph line as a guide.
After it was constructed, I found the glide a bit nose-heavy and added a slight amount of weight to the tail. I filled the tank of the .020 with fuel and flew it by hand launch.

It climbed in a wide circle and reached about 300 ft, before it ran out of fuel. However, the glide was fantastic. Flat, and in a wide circle. My only problem however, was the fact that it glided out over the trees from the base and into Goffs Falls. I lost sight of it after it dropped below the timber line, which is around the edge of Grenier.

I would suggest it as a simple and easy to build aircraft. Not very expensive to construct, and a beautiful flying aircraft. Do not fly with over half tank of fuel for the first few flights, however.

Robert K. Newton, Grenier, AFB Manchester, N. H.

The Oily Bird, a Tenderfoot project, certainly has wide appeal to all.

Walker got mad, too!

Your recent editorial about Jim Walker hit me. I knew Jim about as well as anyone not in industry knew him, I think.

Several times, I helped put on his show if his regular crew was not with him. In this capacity, I had my share of cross words from him if things didn't go right. Those of us who worked with him knew that this was the way Jim was, and just accepted it.

Your editorial is the finest piece of writing about anyone I have ever read. Thanks for bringing back such a vivid memory of a great man.

Bud Tenny, Richardson, Tex.

Whitehead gains support

You might be interested to note in your growing file on Whitehead, that a letter from Bavaria arrived yesterday. It concerned an article which appeared on Sept. 24, 1968 in the Ansbach newspapers. It concerned the result of studies made by Gottingen University, who evaluated Waldemer Leinert's models of #21 and all of Whitehead's known statements, etc. Gottingen University's periodicals and other information contained in our joint files.

The men who evaluated these formulas are aerodynamic scientists. As I understand it, Gottingen is Germany's equal to M.I.T. in aerodynamic studies.

1) They have determined that Whitehead's #21 aircraft was fully capable of powered-flight from aerodynamic standpoints.

2) They have found Whitehead's engines to be under-rated in horsepower by 25%—i.e., the 1902 model (#22) instead of having 40 hp, actually had 50 hp.

Bill O'Dwyer, Fairfield, Conn.

Fifteen men – yo, ho, ho!

Here are some details for my cruiser. Building time was approximately two (2) years, off and on, evenings and weekends. The hull was coated inside and out with polyurethane X waterproofer and then fiberglassed over that. The deck was natural
mahogany with mahogany stain for a darker effect. Railings were made with mahogany strips and brass tubing. The fit-...ing was proportioned to lights and gave ample light for night running which in-... and I could hear “Hey, look at the little boy and his boat!” But when I turned on the lights and let her loose, the crowd gathered and love-making came to a half. Lots of fun though. My wife wants me to make another one. That’s unusual, because she’s never shown an interest in my hobby until I built this 40” model of a Chris Craft ’63 motor yacht. Enclosed is a picture taken five years ago when I was at Vitro Laboratories. They did a story on these boats in their paper that goes out to employees. The other fellow, right, is Jack Jeese and his Mighty Mo.

Mrs. Frank Sansone, N. J.

Continued on page 46
IT'S a sunny afternoon with a slight breeze. You unpack the Mini-Rod, measure the fuel into the tank, connect the batteries, flip the engine to life, light the dehomologized fuse, and launch it into the wind. When the engine stops 15 seconds later, your model is a bright-colored speck in the sky silhouetted against the white clouds. Then the fuse burns through the dehomologized rubber band, the stabilizer trailing edge pops up, and the Mini-Rod descends slowly into the grass. If this picture stirs your imagination, you can quickly build a good model from the plans on the next two pages. Begin on Friday and fly it Sunday.

Mini-Rod is the ideal design for the new AMA-HIAA-Navy youth program as the time-target free-flight model. This design was arranged so that you could make your first model from the magazine plan. Mini-Rod is inexpensive, costing less than $1.50 for materials (less engine). It can be built in two forms. Choose the one you like better. It's rugged in all-balsa form, but it performs better with the built-up wing.

Mini-Rod has been flown with a number of engines from the O10 Tee Dee to a tired old O15 Baby Spitfire. It seems happiest with the O20 Cox Pee Wee or Tee Dee. One Mini-Rod was modified for Jetex 150 power!

The plans are straightforward, but before beginning to work, obtain all the supplies in the Bill of Materials. Here are a couple of hints for selecting the right kind of balsa wood to do the best job. C-grain balsa—call it quarter-grain—has a strange mottled or freckled appearance with shiny spots. You will generally find that the lightest and stiffest and strongest wood has this grain. Pick it for wing spans, ribs, leading and trailing edges. Use it where flat sheets are needed as it doesn't bend over curves easily. A-grain balsa is identified by the grain streaks running side-by-side the length of a sheet. It fits over curves—like polyhedral wing—one with "double" dihedral—requires putting dihedral in tip first, then center section. Sheeted wing shown here.

Hoh, man, how you like my crate? We admit such a young shaver would need Dad's help to fly Mini-Rod, but it's a quickie model.

Here's how to put in that dihedral when you make the built-up wing. Prop up the tips the required amount with wood scraps.
How the fuselage and wing mount go together. Text tells how to assemble the mount flat on the bench. It's simple and really tough.

Airfoils—and rolls into tubes nicely (and especially when wet). So look over the wood rack. Choose first for strength and then for lightness. Later on, you can shoot for lightweight and compromise on strength.

Now that you have chosen the materials and readied tools, pick a nice straight and flat work surface to pin your plans on. Cover plans with waxed paper, then before you cut anything, read the plans very carefully. Notice that there are two different types of wings shown. One is sheet balsa, the other is built-up and tissue-covered. Be careful, don't try to build one wing panel of all balsa, the other with ribs and spars. Even though Mini-Rod would probably fly with this arrangement, it would be tough to trim out. For speed and ease of construction, build the balsa sheet wing first.

Construction:

1) Build the sheet wing by gluing a 30” long 1/8 x 2 sheet of balsa to a similar length of 1/4 x 3. Be certain that they are glued evenly and securely. I recommend Sig-Bond or similar adhesive. Cut the tapered tip to shape as indicated on the plans, and mark all the rib locations directly on the underside of the wing. This is a good time to sand the topside of the wing to get a good smooth surface joint. Preglue all the ribs and the sheet where the ribs join. Glue in all ribs, except at the dihedral joint, starting at the trailing edge (on the 1/4 sheeting). Allow this to dry thoroughly. Before gluing the ribs to the 3/16 leading edge sheeting, dampen the topside with water to allow the balsa to flex more easily, then pin the ribs to the 1/4 sheet and glue securely. After this assembly has completely dried, cut the wing at the dihedral and polyhedral joints where indicated. Add a large sanding block, sand the ends where the panels join so that they fit when the angle is glued in. Preglue and allow to dry. Glue the tip panels to the main panels, blocking them up as indicated. After they have dried thoroughly, join the two wing halves in a manner similar to that used on the tips.

Add the remaining ribs at the dihedral joints. After everything has dried, reglue all joints. Sand all ribs flush at the bottom and at the ends of the wing. Add optional cloth reinforcement at the dihedral joints. The stab is constructed in a similar fashion, with the exception of the addition of the wire hold-down hooks glued and sewn as indicated on the plans.

2) Construct the pylon next. Cut sheet to Continued on page 74
1/4 A Gas Model
by Bob Stalick

mini ROD

1/4 x 1/2 x 19 1/2 Balsa
1/16 x 1 Platform

Front View of Body

Fabric Reinforcement (shaded areas)

Triangles Show Rib Spacing for Sheet Wing and Stab

Dihedral Detail (Same for Either Wing)

Built-Up Wing (Left Half Shown)

Notch for Ribs

1/16 Sh. Stab (dotted outline)

Cover This Wing with Silkspan or Jap Tissue Paper

1/8 Sh. Gusset

Spar Splice

Cover This Wing with Silkspan or Jap Tissue Paper

W-1

W-1B

W-2

W-3

W-4

S-1

S-1

Fin 1/16 Sh.

No Tip Rib

1/8 Sh. Tip Rib
Industrial scale models play star role in study of airport problems with new jets

Left: A 1/100th-scale model of Boeing 747 Jumbo Jet soon to be flying is typical of widespread use of miniatures to help shape the Sky Harbors of the future. Everything in this photo is to a common scale. Facilities and methods for loading and off-loading passengers and cargo are meticulously studied and, in this case, have even resulted in some changes in the aircraft itself. This photo barely implies the scope of this model-study program, aspects being quite complicated.

...on the international scene

AMA-Navy sponsorship of youth continues in 1969

Larry Chidgey, 11-year-old winner of Regional Model Airplane Meet (Pensacola, Fla.,) sponsored last year by HIAA, AMA, and Navy, won paid trip to Olathe Nats. Nation-wide program, to repeat in 1969, steps up youth support.

Hawker Siddeley delivers 55-year-old airspeed indicator to Sopwith Pup owner

Left: When Dick King, right, needed an authentic 1913 airspeed indicator for the Sopwith Pup he had rebuilt, Hawker Siddeley test pilot Desmond Fenrose hand-carried it to him on delivery trip of DH 125 business jet. Fenrose also is an antique-aircraft buff. Having built more than 100,000 aircraft, Hawker Siddeley glowingly stated ... we back them up, even if we have to do some digging in history to help an operator.” King is an expert photographer and his Pup appeared on May 1967 cover.
Czech Aero 145 twin-engined ambulance plane makes unique scale subject

Above and right: From Czechoslovakian contributor Otakar Seifek come these two fascinating photographs of an Aero 145, a twin-engined ambulance plane, modeled faithfully by R. Felice of that country. It was built to a scale of approximately 1 to 6. Along with other prize scale models, it was seen at the European Control-line Scale Criterium last summer in Czechoslovakia. Were it not for the people in the background, it would be difficult indeed to determine this was a model and not the real aircraft. Wing-tip lights, swiveling tail-wheel strut, and markings reveal painstaking construction in an aircraft which also must be suitably flyable. Close-up on the right, which shows interior seating and the scale stretcher—even the stretcher belts look real—suggests what it takes to win in international competition. And the standards grow tougher each year.

Japanese seaplanes show useful water-rudder technique

As many a new hydro fan is finding out, a water rudder is a valuable addition which makes for positive steering when positioning the aircraft before takeoffs and after landings. These two photographs from Japanese correspondent Ritsui Honda, taken during last summer's big water meet at Osaka, show two interesting systems. In the photo above, the steerable nose-wheel fixture is connected to two water rudders at the rear tip of each float, by means of ordinary pushrods. At left, one water rudder is operated directly from air-rudder servos within the fuselage.
Author holds original 35-powered radio-controlled Nobler which was converted from control-line kit without refinements. It proved feasibility of developing design for contest performance.

With 515-sq.-in. wing area, 5-lb. weight, and well-muffled RC40 engine, Nobler is a lively flyer. Wing is permanently mounted to fuselage, flaps are coupled to elevator function for smoothness.

R/C Nobler

Conversion of a great control-line stunter makes for a new kind of precision flying.

ED SWEENEY

For years R/C enthusiasts have thought that a converted control-line model would be a fine radio model. They are right. Some recommended using flaps coupled with the elevator function as in control-line flying, on a conventional model, and they are right. Fulfilling these conditions, the R/C Nobler has all the great characteristics of its line-bound ancestor.

Using only a 40 R/C engine (about as much power as the non-throttled 35 control-line engine), with a wider, slightly longer fuselage, and the control-line flap area split for independent ailerons and flaps, it has a constant-speed, true neutral stability, and unsurpassed smoothness in flight.

Design changes from the control-line Nobler kit were made only to accommodate equipment installation, a throttled engine, clunk-type fuel tank, and new fuselage structure with extra tail length.

Relatively uniform flying speed is an important factor in the success of a control-line stunt model. In CL flying, control is direct through the wires, so that an always predictable, constant response is available for accurate maneuvers. The same is true of radio flying. In Noblers, the airfoil regulates the air speed through maneuvers between 55 and 50 mph. Although the weight of the model is a factor in controlling speed, both the control-line and radio versions fly at nearly the same speed. This R/C Nobler weighs about 5 lbs.

Smoothness is the ability of the plane to slice through maneuvers gracefully. Noblers and other control-line models with coupled flaps and elevator fly smoother.

Deep fuselage with mid-wing location affords excellent knife-edge flight and steady windy-weather flying. Distinctive lines evident here with plume of trailing white smoke.
This will gain points at a contest.

A highly maneuverable aircraft with gentle control responses and limited flying speeds. Also gives relaxed, enjoyable sport flying.

than their counterparts without flaps. Why are they smoother? The required angular rotation of the plane to accomplish a given radius of pitch response is significantly reduced because the relative lift of the wing is variable during the pitch change. While any lift increase increases drag, changing the lift characteristics of the airfoil of the wing is less drag-inducing than just pitch rotation and, hence, the plane does not slow down as much, or rotate as much, in performing. For example, a loop or a sharp turn. However, use of too much flap deflection will cause too much drag and the opposite effect will result. The advantages of coupled flaps is a smoother flight path. This will gain points at a contest.

Another important characteristic of the Nobler is its true neutral stability. The model has no dihedral, no incidence, no thrust offset, and a perfectly symmetrical airfoil. The natural aerodynamic traits, in addition to the above factors, produce a model which will remain in almost any attitude it is put into. For example, one can establish a 20-degree bank turn with a touch of up trim and leave the plane alone. It will not spiral into a dive or roll out, but will keep circling until you fly it to another position. True neutral stability requires much less effort by the pilot to set up and perform the stunt maneuvers.

Maneuverability also is helped by the smoothness and constant flying speed of the Nobler. It performs all of the FAI and AMA Class-C and free-style stunts. Its roll response is excellent at all speeds. We found that it tends to yaw into turns slightly with the direction of applied roll — this is a distinct benefit in achieving axial rolls and easier landings. Four-, eight- and sixteen-point rolls require almost no down elevation during inverted portions, and top rudder is not really necessary either. Knife-edge flight is a ball; one can literally cross the entire field with the wings perpendicular — make a quarter roll from level flight and apply full top rudder. The square cornered --- easy. When one sharply deflects the elevators (and flaps), the plane will make an equally sharp response without losing much air speed. Corners of the top-hat and square vertical are clearly defined.

The airplane also spins well. Rotation is fairly slow and recovery is instant. It helps to add aileron in the direction of the spin to get the rotation started. Snap-rolls come off with no strain and they are also reasonably easy in rotation. The clue to spins and snaps in the Nobler is having a big sharply deflected rudder to offset the stability effects of the flaps at up-elevator command.

Lorings and takeoffs are unlike any other R-C model. Takeoff speeds only a small, graceful rotation when flying speed is gained. Yank it off, and it jumps into the air, fully under control, no wing-dropping, no spin danger, no dangerous mushing. Because of the relative wash-out effect of the wing tips when the flaps are deflected in up-elevator command, the plane will never unexpectedly drop a wing tip on any flying speed, even during a stall. Because of this characteristic, landings are best made with up-elevator trim. Throttle back to just above idle, apply up-trim and let the model drift and land in a level flight altitude — hands off! We mean with the hands off the control sticks! Wing tips are fully stable, and its altitude is fine for landing exactly on the main wheels. The plane will not gallop or wander during the approach. This kind of landing is safe for beginners too. You experts, can drag it. Remember, the Nobler will stall cleanly power off, but with just a little added power it won't stall.

Fuselage: The structure is designed with two ideas in mind. First, it must be capable of withstanding all bad landings and near crashes in spite of the forces applied through the wings, which is permanently mounted in place. Second, it must be self-aligning during construction. These goals are accomplished when gluing the nose unit to the fuselage sides. The overall structure was designed by an aeronautical engineer. You will never break it unless everything is totally smashed!

The two basic fuselage construction stages are:

First stage: The motor mounts are located in the firewall and forward bulkhead with rubberbands. Screw in place the tank compartment hatch. Mount the --- gear, and drill holes for the fuel tank outlets. Trim the motor mounts to fit the engine crankcase, drill the mounting holes, and bolt the engine in place. The fuselage doublers, triangular strips, rear doubler, and tail spacer are mounted on the fuselage sides with contact cement.

Second stage: Disassemble the motor mount unit and reassemble with epoxy glue, leaving off the tank and --- gear.

First stage of fuselage construction gets engine unit aligned, drilled, and bolted as sub-assembly before epoxying together.

Carefully worked-out assembly procedure and structure gives quick construction, correct alignment, and real crash resistance.

Enclosed but well-ventilated engine, a contoured fuselage, gives most reliable engine performance. Note gear mounting, but bolt the engine in place again. Don't let the tank compartment hatch be glued down. With lots of epoxy glue, mount the fuselage side assemblies to the motor unit, aligning the firewall and bulkhead with the top of the sides, and the maple mounts flush with the forward edge of the sides. Tape or rubber band this together. Place
Double top and bottom 1/16" sheeting to here

Solid soft balsa tips

ve ply belicrank>

Soli soft
balsa Vietwire

Tips aileron

pushrod

"a7a2-a1-776) iraling edge Allerons - 2/%6*nara, straight-grain balsa

Du-Brd nylon

mechanical hinges

ued 'throughout

W186" ply facing eee 

Sketch showing

match construction (not to scale)

Rear face of hatch construction {not to scale)

spinner

Wt oie Section through front of fuselage

va" ply F-2 vé@-ply

v8" ply landing geor

) Top Fite | orp

| 3 nuts doubler —

a

F2 FS r

. t

24/28 spinner

16%bly facing ae SapsL = V2" neraw ; 7

ROR Nia cee Rony: V6" ply fuséloge doubler V8" sheet sides !

Securely in piece |

No thrust offsets

Limit size at engine to 45 cu in

Additional power is not required

10-6 wide blade prop is recommended

Flying weight should be 8 pounds I P-51 canopy 3/8" base

Cross -hatching indicates outline of 1/16" ply fuselage doubler

Hatch, wing, and rear taildeck planking omitted in top view for clarity Additional power 1s not required ;

10-6 wide blade prop Is recommended ere Flying weight shouls be 8 pounds I P-51 canopy 3/8" base

Cross -hatching indicates outline of 1/16" ply fuselage doubler

Hatch, wing, and rear taildeck planking omitted in top view for clarity Additional power 1s not required ;
All gaps between control surfaces must be bridged with tape or a strip of Super MonoKote, except the rudder which is a tight fit. Any loose material on lower surfaces with control in full-up position.

Note: It is extremely important to epoxy the wing and stabilizer securely in place in the fuselage.

Full size plans available — see page 60.
A NEW SLANT ON AN OLD CONTROVERSY

The Day the Red Baron Died

Baron Manfred von Richthofen was World War I's Great

by his 80 victories. What sort of a man was he?
How good a pilot? And just how did he meet his end?

WILLIAM J. O'DWYER
Major, USAF Reserve
All photos: Camera Press

At 10:45 a.m. on the misty morning of April 21, 1918, Baron Manfred von Richthofen's all-red Fokker triplane landed for the last time. The plane bumped, skidded, and abruptly halted in a shell hole. The wheels crumpled. His hand still clutched the stick. There, north of Paris in the Somme Valley, along the Western Front of World War I, the final act of Baron von Richthofen's life was played out. His curtain-call bow was taken at the edge of the British lines.

A trickle of blood ran down his limp jaw. His head was bent, his goggles smashed. The Red Baron, at 25 years of age, Germany's "Ace of Aces" was dead! A single machine gun bullet had pierced his right side, careened obliquely through his chest next to his heart, and exited his left breast.

Clayton Knight, one of "that" war's renowned pilots, a world-famed combat artist-illustrator, who flew deHavillands out of a field near Ypres and who illustrated Floyd Gibbons' book "The Red Knight of Germany" in 1916, spoke to me about that moment of 50 years ago. In his Redding, Connecticut home, cluttered with a perpetual flow of air combat scenes from his easel, his memory was crisp and vivid.

"A sigh of relief passed through the lips of every pilot — all along the Front — who ever dared to go aloft to meet von Richthofen and his Flying Circus, Germany's top Killer Squadron. With the Baron's death, the Allies' main psychological dread of the German air arm was broken!"

The Baron's deadly talons had effectively ruled the air alleyway from Ypres to Amiens. His twin Spandau machine guns were a special invitation to Valhalla. He gave no quarter. He asked none in return. Eighty who sealed this fact became his victims. They were blasted out of the sky. He blazed his name into the pages of history.

Yet, for all this slaughter he commanded respect on both sides of the line. Respect came in boasts from his nation's top Generals who said, "Richthofen is worth two divisions of men in the trenches." While he lived, respect among his enemy was spoiled out as fear. At his death it was redefined in the form of a toast.

Lt. Rye-Davids stood with his glass held high. It was at a banquet held in his honor. He had just shot down Werner Vass who had accumulated a total of 48 victories.

"Anybody would have been proud to shake his hand had he fallen into captivity..."
Richthofen, center, and pilots of his pursuit flight, the Richthofen Squadron. The others from left to right: Festner, Schäfer, his brother Lothar, and Kurt Wulf. The dog Moritz belong to the Baron. Richthofen carefully analyzed configurations and traits of all enemy aircraft types.
Manfred von Richthofen is dead. He was a brave man, a clean fighter, a tocrat! May he rest in peace." s-David's fellow pilots hailed Richt- hofen in that toast, to the man.

Who was this unique enemy pilot who inspired such legend and who gained the undying respect of his adversaries?

He was born in 1892 to the noble Prus- sian aristocratic family of Major Albrecht von Richthofen. His mother was the daughter of the famous von Schmalenbach, and socialite in the highest circles of society. Honor and deep sense of profound su- periority were instilled from his birth.

His transfer was granted! From a brief and uneventful service as bombardier/ observer in an early vintage Albatros where his bullets had riddled the Fokker in Germany, visited Oberleutenant Auffarth's family (he was credited with my victory — his 27th) and verified the fact that he, too, had gone into a German hospital on that October 5th, 1918!

The Baron never fought as a jackal. He met his enemy face to face, outflew him, sought and destroyed the stragglers, then drove them into the ground in deliberate tests of his skill.

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As a gesture he gave the Baron a beer tankard. It triggered Richt- hofen's imagination. Some luck did come his way as hot lead coursed through his sleeves, his mittens and his planes and his boots. From those close calls with death he knew that the upper hand was held by fate.

His eleventh, one of his most significant
victims, was reduced to the symbol of a small silver cup. He was Major Hawker, ace of the RAF, who possessed the coveted Victoria Cross, England's highest award, along with the DSO.

Richthofen met Hawker's deHavilland II with his Albatros D-1 at 10,000 feet over the Front. Hawker tried every trick in the book. The fight was drawn deep into German territory as they roared on in tight circles to get on each other's tail. Neither could beat the other. Hawker knew his gas was running low and that the fight must come to an end. The Baron, had known this time would come. When Hawker broke up and raced toward his lines, Richthofen clung to his tail. They raced over the ground no more than a hundred feet in the air. "He tried to escape," the Baron recalled, "by flying a zig-zag course. That was my favorable moment. My opponent fell with a bullet through his head."

He retrieved Hawker's twin Lewis machine guns. "They were hung over the entry to my dwelling," Richthofen wrote.

By January 4, 1917 Baron von Richthofen bagged his 16th plane. It was the first of other Sopwith Pups to fall to his guns. It brought him his long-sought medal of honor, the Ordre Pour le Merite, his nation's top award. He won it right after Boelke had given him charge of a small burst of special hunters. As a commander, his final form began to take shape as a superb pilot, strategist and leader.

"I found myself beyond range to effectively hit my enemy," he told his men, "but a short burst would prevent many the fasten from flying a straight line. As they zig-zagged to dodge the bullets from a single one of my guns, I drew my machine closer to their's." Then with his victim only five to some 30 yards away, he blasted the deceived enemy out of the air. Battles that began two miles up often ended just above the trees. His all-red aircraft became known as "le petit rouge" to those who watched him fly by.

He defeated his enemy in part through the red colors he displayed. Each man who saw him knew they faced the Baron. He used this psychology to the end. Others in his squadron and even certain others in his command tried his tactics, but the all-red was reserved for the Baron alone.

Flying out of Douai at Jagstaffel No. 11, his record continued to surge up. With the memory of the loss of Immelmann, inventor of the sudden reverse turn, and Boelke his old Commander, Richthofen pounded home the rules he had been taught. He was relentless in his demands for superior skill and cautious strategy. He severely criticized anyone who came home with bullet holes in their tails. Those who failed to heed were transferred. He insisted they fly in packs. "Height is your greatest advantage when you dive down from out of the rays of the sun!" His eager followers watched as his 21st victim spun toward the ground. By the end of "Bloody April" in 1917 he racked up his 28th victim. Summoned by the Kaiser, hailed during his forced leave, girls flung flowers at his feet and thrust love letters into his hands. He had no time for nonsense. His was a determined obligation to help his nation win the war. During his leave, he hid embarrassment at the spring of 1917 among the trees while he hunted in the Kaiser's forest. All across Germany the young boys had claimed him as their hero.

In his book he wrote how it felt to have your brother fly by your side. Lothar Richthofen drank in every careful bit of Manfred's advice. "It is a great feeling to return from battle with your brother. He would rock his wings and wave. Together we had conquered the enemy!"

Continued on page 66
The Dingus

‘Wild Bill’ designed this fine-flying delta for non-scale Carrier events. But it is a real fun ship despite its novelty.

WILLIAM NETZEBAND

The Dingus was designed so I could compete with a delta-wing airplane in the SCCA Non-Scale Carrier events. The Southern California rules were adjusted to allow the Sterling Skyshark, so minimum wing area was established at 200 sq. in. This also allows the flyers to get a “feel” closer to Scale Class I, rather than nursing around a 300 or 400 sq. in. butterfly at low speed.

I didn’t depart from the norm, just to be different: the delta will fly slower than a conventional airplane in a safer manner. The delta is stable at angles of attack up to 45 degrees, because it develops high energy vortex flow after reaching conventional stall angles. During vortex flow conditions, the drag is very high allowing the engine to be run from one-half throttle to almost full open. Therefore, slight engine offset becomes effective in maintaining line tension and control force, and the engine thrust is now large enough to be useful.

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Slow flight under 20 mph is just as solid as full speed. The problem of using a stable CG (center of gravity) location and being able to hold the nose high at slow speeds was solved by designing a relatively huge, slotted elevator. The slot allows high-pressure air from the bottom wing surface to flow over the elevator, keeping it working all the time.

Fact is, the Dingus is the only competition airplane I own that is any fun to fly. Everything else is bred to such a fine peak that one doesn’t just go out to fly them.

The Dingus, on mild fuel, is a kick just to horse around and is tough enough to play with. Comes contest day, bolt on a 9-8 Rev-Up prop and tune the needle for K&B speed fuel and you’re to competition peak. We built our throttle to make the K&B 40 Front Rotor operate on draw fuel feed, since SCCA rules ban pressure fuel systems. We used an old, out-of-production Dynamic AM-3 intake throttle, coupled to an exhaust slide, which gives a very broad-range throttle (16,500 to 2,000 rpm).

The same effect can be obtained with the K&B RC-40 engine with an exhaust slide.

These views of Wild Bill’s latest creature illustrate what it takes to get high- and low-speed performance for Carrier flying out of a small-area delta. Modified K&B 40 takes care of high-speed flight, powerful slotted elevator controls high-angle-of-attack, slow-flight and landings. Speed range is 18-30 mph. Although competition designed, it is preferred family sport plane — fun, durable, different, and flashy.
added. To install, you must rotate the exhaust stack 180 degrees and turn the intake throttle around so the actuator is on the same side as the exhaust. This allows you to reach the throttle mechanism from the bellcrank with the least possible trouble. A simple coupling between the exhaust slide and the intake rotor arm will give you a very responsive throttle system, which will go to low speed position by pushing forward. This is conventional for the J. Roberts control (now Sturdi-Bilt).

If you're not interested in competition, any H-C type engine can be adapted to pull. In fact, the Dingus is probably more of a fun machine than a contest ship. Beneath that high subsonic exterior beats the heart of a pussy cat. She loves kids (to play with, not to eat!). While she's not a beginner's construction project, she's certainly a good trainer, maybe a club project: If one gets dizzly, simply cut back the throttle and fly slow for a while. Competition performance? Hits 92 mph off-the-deck and 80 mph low speed. With cinch landings, the scores come out like over 80.

Construction: Please spend some time studying the plans. Most of the facts are there. The wing and most of the fuselage is completed while pinned down on the work surface. This will give you a warp-free wing, not likely to change as the finish dries.

Trace the 1.5 ply bellcrank plate, cut it out and install two 4-40 blind nuts for the bellcrank. Cut a slot to clear the B-C pivot pin and pre-install the bellcrank to make sure there is no drag or binding. Install leadouts and both pushrods on the bellcrank and mount B-C temporarily. Consult the drawings. The elevator pushrod is two pieces joined by a 3/32 diameter piece of brass tubing. The servo arm is cut short enough (.5") to drop through the bottom skin cutout after you remove the wing from the board. Be careful that the stub is shaped correctly. The only tricky part is getting the holes through the leading edge at the correct angles and heights. This are curved on top so fit under the top sheeting. Use a drill in all of the ribs. To get 2 ounces of tip weight, we filled the last panel with melted Cerrobend. This material melts in boiling water and won't burn the wood. You can also use sheet lead or lead wool.

After you cement the basic wing structure, install the bellcrank and finish the top plumbing. Next pieces are on the top fuselage, top mount and the mount spacers. Take care to assure that the mounts are exactly parallel before the cement sets. The 3-degree wedges should be cut as a matched set and carefully installed to present a perfectly aligned surface for the engine beams. This front end is stiff enough to warp the engine mount with an undesired loss in power. Let this assembly cure overnight. Shape the elevator and put together the tip plates. One thing funny, don't make two left or right plates.

After you pick up the wing-fuselage assembly, shape the leading edge as shown and sand the glue joints smooth. Pre-shape the top leading edge, place the wing onto the basic "U" shape. The legs should be 91/2 long. To get nice sharp bends with the 4 dia. wire, try this annealing procedure: Heat the wire to be bent in a flame such as a gas kitchen stove until it dull-red glow, just visible in average light. Allow this to cool slowly in the open air. Don't quench it.

After you make your bends, reheat it to a dull-red again, but do not anneal it in water. The 3/8 degree bends at the wing surface and at the wheel bearing can be made with a lot of muscle and a little care using annealing time.

Install the landing gear before proceeding any further. Make the final bends now and check alignment. The ground attitude may seem a little steep, but this is necessary for quick takeoffs and good three-point landings.

Glue on the engine wedges on both sides of the engine mount and the engine bolt holes. Install the blind nuts. Now you can cement and clamp the filler block and tip doublers. Proceeding rapidly forever, you must not glue on the 3/8 lower block yet.

Assemble the shaped elevators over the plans with the 3/16 tip bearing and 3/16 dia. tip bearing wires. Check the fuselage fit for the center bearing against the location of the tip-plate bearings. Glue the elevators to the tip plates: glue the tip plates at once. This installs the elevator. Check the alignment of the bearings so that the elevator has no binds. Glue on the final 1/8 trick.

Install the elevator control horn, being sure to lock the mounting nuts against loosening. Bend the other half of the pushrod to the right to give the elevator a slight washout at the 3/8 dia. tip bearing wires. Check the fuselage fit for the center bearing against the location of the tip-plate bearings. Glue the elevators to the tip plates at once. This installs the elevator. Check the alignment of the bearings so that the elevator has no binds. Glue on the final 1/8 trick.

Install the elevator control horn, being sure to lock the mounting nuts against loosening. Bend the other half of the pushrod to the right to give the elevator a slight washout at the 3/8 dia. tip bearing wires. Check the fuselage fit for the center bearing against the location of the tip-plate bearings. Glue the elevators to the tip plates at once. This installs the elevator. Check the alignment of the bearings so that the elevator has no binds. Glue on the final 1/8 trick.

Before finishing, do the necessary wire bending and fiddling necessary to get the throttle working and the landing gear right. Assemble the shaped elevators over the plans with the 3/16 tip bearing and 3/16 dia. tip bearing wires. Check the fuselage fit for the center bearing against the location of the tip-plate bearings. Glue the elevators to the tip plates at once. This installs the elevator. Check the alignment of the bearings so that the elevator has no binds. Glue on the final 1/8 trick.

Before going to the field, add enough lead to the rear end to balance the Dingus as shown on the plans. Check your controls, clean the flight lines and be sure that the engine throttles reliably before taking off.

Slow-flying goes something like this: Throttle down until she's flying around 30 mph and getting sluggish on control; pop up elevator. If the elevator comes up and she starts to settle, add engine power smoothly until the settling stops. Add more up elevator and maintain power. Even the up elevator is on, height is controlled by the throttle and speed is controlled by the elevator. Now you practice.

After you gain confidence, try a flashy approach to low speed. While in full-throttle flight, go at an 80-degree loop; just after you cross the top of the circle ahead downwind, chop the throttle closed and cut full throttle down until you're well clear of the 80-degree loop.

Continued on page 64

Dingus at 19 mph. According to author, deltas can fly more slowly because of high drag at high angle of attack, permitting high-power setting with offset thrust to keep lines tight.
Jerry Nelson on R/C

A different type of scale event?
Some practical suggestions and a bit on safety.

Different idea for scale rules. Scale model competitions should be encouraged. Present rules leave a lot to be desired to promote the event. More requirements should be established to provide realism, both in flight and in a static condition. What we need are practical scale models and not the kind that are flown only at the Nats.

A revised procedure in judging and flying is required. Scale models should be judged in the manner as in the Formula I motor racing. The year racers are judged. The basic plan form is inspected and given a value, then the model is observed from a short distance for detail in finish. A numerical value is determined for this portion of the judging.

Then the most important value is determined and that is the complexity of the model. The model as a whole should be evaluated. The more complex subjects should be determined in relation to the other models present. The most complex model is at one end of the group and the simple model at the other end. The other models will fall in place between these two.

For example: Let us assume there are the general type of models such as P-51's, Piper Cubs, Spitfires, PT-19's, Stearmans, etc. All are good-flying, stable, simple, straightforward designs. There are also the more complex ships such as B-25, B-17, Fokker Triplane, Gee Bee racer, a jet fighter, etc. No doubt about it, the guy with the B-17 deserves more credit than the Piper Cub.

It is possible to have exactly 100% scale in a Piper Cub, but to have even 100% scale in a B-17 cockpit is impossible. With this system, the complicated design would receive a K factor. A factor of 2 for the B-17 and a factor of 1 for the Piper Cub would be in order. This factor would then be multiplied to the accumulated scale and flying points.

Flying of the model should be judged differently too. The model should perform in a scale-like manner. If the judges have never seen the prototype fly, then the modeler should provide the judges with basic performance data on the real aircraft. Then the judges could determine what scale-like is. So, if this B-17 flies like a pylon racer, then it should receive less points than the scale-flying Piper Cub.

A different type of scale event? Tow hook location = the glider is critical. Tow hook location will determine on our rules.

The letter I received was from Betty Steam of the Birds club in Long Beach. Her main concern was the dropping of the new/expert category in Class C. The contest board has voted on this question and the new/expert category will be retained.

Safetly pointer: During the development of our fiberglass KAGE glider I became aware of a potential problem with the resin used. Not the Hobiopyx type, but of some of the commercial grades of epoxy resin. The danger is that the curing agent can catalyze the resin very toxic to your lungs. Sickness can result. So if you are planning to experiment with the commercial epoxy resins, beware of direct skin contact. Try to obtain all possible information on the toxicity of the resin.

New items from the west coast: Fliteglass Laminates of Santa Cruz is now delivering excellent fiberglass parts. This ship has about a 100" span. When finished, it looks like the real thing. Performance-wise it is a top contender. Price is $99.35 for a finished fiberglass fuselage and parts to build a wood wing and tail assembly.

American Aircraft Modeler 29
Focke Wulf 190 airframe adapted well to the use of more powerful in-line engine. Wing span was increased, nose and tail lengthened, rudder area made larger. Model is modification of existing kits.

**Professor Tank’s Ta 152C-1**

Transform the Focke Wulf 190D into a Ta 152C-1 fighter with a plastic-surgery nose-job.

**JOHN N. TOWNSLEY**

FOLLOWING the operational success of the FW 190D (the long-nose 190), Professor Dipl. Ing. Kurt Tank, designer of the Focke Wulf 190 series, decided to use a new series of fighters to be designated “Ta 152,” although they would retain the basic FW 190 airframe and therefore would differ too drastically from the FW 190’s. Professor Tank was primarily responsible for the design of the new fighters and was permitted to use the prefix “Ta” to apply to them—a distinction rarely accorded.

The first of the new series, the Ta 152A, had wings of slightly greater area; revised plan-form was used and motor cowling lines were cleaned up to give a smooth fuselage line, and the fin area was increased 5.9%. The most important internal change introduced on the Ta 152 was the substitution of hydraulic, instead of electrical, actuation for the undercarriage and flaps. The Ta 152A did not go into production and after this design was abandoned, the “B” sub-type evolved from the original design. This aircraft was not produced in quantity, but it was the first of the series to mount the new Jumo 213E motor with a two-stage supercharger which gave it a top speed of 360 mph at 30,000 ft.

Classed as a medium-altitude fighter, the “C” was the first of the Ta fighters to be produced in any quantity. The C-version was equipped with a Daimler-Benz DB 603L motor. The fuel capacity increased to 213 gallons by modifying the wing structure to carry extra fuel tanks. Using methanol-water (MW 90) power boost, the Ta 152C fighter had a top speed of 457 mph at 35,000 ft.

The wingspan of the Ta 152C-1 was 36 ft, 1" and the overall length, 35 ft, 5 1/2".

The D-9’s were first used in the late months of 1943 and in the Normandy invasion in 1944. Reports received from the Allied fighter pilots of a new type of FW 190, with a longer nose and a more prominent air screw spinner. This variant appeared as irregular intervals alongside the common radial-motored FW 190’s.

The model for this month’s article is constructed from a 1/72nd scale Airfix Focke Wulf FW 190D kit, Model Series No. 6. Lindberg also manufactures an excellent 1/72nd scale Focke Wulf FW 190D-9, which can be converted to the Ta 152C-1. (Additional description is given later in article."

For the conversion process, several thicknesses of styrene are needed: .010, .020, .040, and .060.

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Section the fuselage at and add length is made with pieces of sheet styrene plastic. File any gaps, contour with body putty, and file to final shape.

At this stage all the spray painting and camouflage markings are applied. All other parts are brush painted before mounting. Note the headrest and supercharger air intake typical of this fighter.

American Aircraft Modeler 31
WILLIAM HANNAN

ON October 4-5 a significant aviation symposium was held in Southern California. It was sponsored by the American Aviation Historical Society, The American Institute of Aeronautics and Astronautics, The Cross & Cockade Society of World War I Aeronautical Historians, and the International Plastic Modelers Society. Assisting as participants were the American Fighter Pilots Association and the Northrop Institute of Technology Aviation History Library.

A committee from these organizations had selected key figures in the aerospace industry to be honored for their outstanding contributions to aviation progress, and it was decided to award a series of plaques and mementos, including models of planes which were closely identified with the award recipients. For example, a model of the F4F-3 was scheduled to be presented to Admiral John S. Thach, USN (Retired), The Hobby Industry Association of America volunteered to provide presentation plaques, and to assist in the preparation of the plastic model aircraft awards. The models were constructed by members of the Los Angeles Chapter of the IPMS.

To help publicize the symposium, the HIAA set up a simulated model-aircraft production line at the Northrop Institute of Technology. This assembly line demonstrated the techniques used to produce the presentation models, and received television coverage.

Nearly everyone at the Symposium traced their interest in aviation to model building. For instance, Major Richard G. Schaller, explained his Air Force career grew from an early interest in model planes. Fondly recalling Wiley Post’s Winnie Mae and a stick-and-tissue Aeronea floatplane, as well as solid models, he said, "I was too poor to afford gas engines."

One of Schaller’s first jobs was with Beechcraft, where his model building background helped greatly. Later, he worked at McDonnell Aircraft. When Schaller enlisted, he became a mechanic, working on many types of aircraft, including the rare Bell Airacuda. Later, he became a pilot, served in both WW II and Vietnam. Currently, he is Chief of the Audio-Visual Branch of the Air Force.

Another who credited model building with influencing his choice of the aviation industry for employment is Bill Jones, an illustrator for McDonnell-Douglas Corp. Among his contributions to the Symposium was a series of scale illustrations depicting current fighter aircraft markings. He built airplane models at a tender age, mostly solids. Bill is an active member of the IPMS, AAHS, and the Cross & Cockade Society.

Lloyd Gross is an aerodynamicist at the Northrop Corp. and a member of the IPMS, AIAA, AAHS, and the Cross & Cockade Society. He builds models mostly for relaxation. Lloyd tried both flying and solid models, but switched to plastics because he felt they offered the most satisfaction for the smallest time investment.

Also present during the Northrop gathering was Lt. Col. William J. Horvat, USAF (Retired), Col. Horvat is an avid enthusiast, editor of the AAHS journal, and author of the recently released book, “Above the Pacific.” He explained that the AAHS is currently conducting a membership drive, and that model builders are invited to investigate the advantages of joining. Full details are available from the AAHS Secretary, P. O. Box 45-435, Los Angeles, Calif. 90045.

The symposium began on Friday evening, October 4, at the Hacienda Hotel, in El Segundo.

Segundo, Calif. The festivities began with a banquet, guests including a virtual "Who's who" of American Aviation: Among them, Jimmy Mattern, veteran aviator; Vance Breese, famous test pilot; Martin Jensen, who placed 2nd in the 1927 Dole race to Hawaii; Ed Weiser, prominent racing pilot, and many more. Since the theme of the meeting was fighter-plane development, fighter pilots were in abundance, including veterans of World War I, World War II, the Korean Campaign, and Vietnam. The Master of Ceremonies was a "Lumber Driver" (bomber pilot), Col. Beirne Lay, USAF (Retired).

Col. Lay commanded the 487th Bomb Group during WW II, until he was shot down in 1944. He holds the Distinguished Flying Cross, Air Medal, and Purple Heart. He is probably more well known to aviation enthusiasts as the author of: I Wanted Wings, 12 O'Clock High, Above and Beyond, Strategic Air Command, and The Gallant Hours. He has been nominated for two Academy Awards for screen writing.

The Keynote Address was delivered by Brigadier General Robin Olds, USAF. Here is a man who really fulfilled his early ambitions. Not only did he become a famous fighter pilot, but he also married a movie star (Ella Raines)! Olds was born in 1922 in Hawaii. He was literally raised at various military airfields. His earliest memories include the sound of Army P-1's warming up at Langley Field. His first boyhood heroes included Jimmy Mattern, and "G-8 and his Battle Aces." G-8 was, of course, the aerial James Bond of early pulp novels.

Among the visitors to the Olds' home were such stalwarts as Billy Mitchell, Ernst Udet, Roscoe Turner, Paul Mantz, Elliot White Springs, and Eddie Rickenbacker. Small wonder that Robin Olds was tranced with the idea of becoming a pilot! After completing high school, Olds attended West Point, and while there became an All-American football tackle.

After receiving his pilot's training during WW II, he was assigned to the European Theatre of Operations, and flew 107 combat missions in P-51 and P-38 fighter aircraft. During the war he served as flight commander, operations officer, and squadron commander. In March, 1945, Olds became Commander of the 434th Fighter Squadron which was stationed in England. More recently, General Olds served as Commander of the III Tactical Fighter Wing in Vietnam, where he flew an F-4 Phantom II. He flew 100 combat missions over North Vietnam, and was credited with destroying four MIGs. Among his military decorations are the Air Force Cross, Silver Star with Three Oak Leaf Clusters, Legion of Merit, Distinguished Flying Cross with Four Oak Leaf Clusters, Air Medal with 37 Oak Leaf Clusters, Air Force Commendation Medal, British Distinguished Flying Cross, and French Croix de Guerre.

Presently, General Olds is Commandant of Cadets at the U.S. Air Force Academy, where he is in charge of about 3400 Cadets. Olds was quick to assure the veteran fighter pilots in the audience that the youthful pilots of today are worthy successors to the "old-timers."

After the banquet, the audience proceeded to an adjacent room which contained displays of aircraft models, paintings, and other aviation memorabilia. The models were provided by the IPMS, and represented the history of fighter aircraft from the beginning of World War I through the present.

On Saturday morning, the symposium continued with a series of lectures on the progress in fighter plane design through the ages. The lectures included a discussion of the progress in fighter plane design through the years. The World War I period was ably covered by Captain Frank T. Courtney, former Royal Flying Corps pilot. Courtney learned to fly in 1914 and flew Morane-Saulnier monoplanes in France. He also had the somewhat dubious honor of being shot down by Max Immelmann, who was

Air Force Major Richard Schaller admires Navy Phantom model by Pete Beragnini, an Institute student. Major Schaller traces his aviation career back to modelling before the use of gas engines.

One of the most experienced test pilots in the world, Vance Breese described experiences flying the first North American Mustang P-51, Bell Airacobra P-39, Lockheed Lightening P-38 and Bell P-40.
Try Rocketry

Starter kits are available from several manufacturers. They offer the best introduction to Model Rocketry.

HARRY E. HARPS

HAVE you ever had the urge to try model rockets? To see how they are built, launched and flown? We did. Here was something to do, and it obviously demanded skill. But then the scene would fade away. NARAM-10, the annual championship meet for rocketry, pushed us over the edge.

Watching the activity, the different classes and types of rockets launched and sensing the competitiveness, we couldn't help but compare this kind of meet with the more familiar free-flight model-airplane contest. They are very much the same.

There are the rules that must be followed; there are the talented and skilled builders and those not-so-skilled. Everyone has his share of wild and erratic, out-of-control flights. Great flights leave the spectators gasping. The wind must be fought and the trees wrestled — if you want your model back. To be successful in either field, model airplanes or rockets, aerodynamics must be respected. And make no mistake, model rocketeers are not refugees from the Fourth of July.

Displays by model rocket manufacturers and the items on sale at the Range Store were impressive and the quantity bewildering. You can start most anywhere and go in any direction. "Where's the best place to start?" is the question.

Realizing that an introduction to model rocketry might be a problem, the larger manufacturers of rocket kits and accessories sell packages called "Starter Kits." These are complete! For example, a starter kit will not only include parts for a model rocket but also a couple of engines and the components needed to assemble an electric launching device. If you have no finishing materials — dope, paint, brushes, sandpaper, glue or even an X-acto knife — then starter kits that include these items are available, too. All of these larger, model rocket firms advertise with A.A.M.

We obtained Estes Industries' Starter Outfit, catalog no. 671-DSK-65. At $6.50 postpaid, it contains a rocket kit (Astrom Alpha), a launcher kit, four batteries and two engines. A Deluxe Starter Special for $7.75 (cat. no. 671-DSK-77) includes all of the above plus building and finishing supplies.

Most of the parts of the Alpha are of a paper composition. The body tube is ready-formed of spiral-wound paper. Card-stock rings center the engine tube in the body. Paper reinforcing is used at all strain points. In this way, a very high degree of stiffness is obtained with low weight and small size. Balsa is used only for the nose cone and fins.

Kit design appeared to be efficient yet simple. Parts fell together easily — there aren't many — and they generally served more than one purpose in the design. As with any kit, its pays to take care, do a good job, etc. But it doesn't take much time, either. Instructions couldn't be more complete. Exploded views and diagrams aid in every step.

First impression of the Electro-Launch kit was that it will survive many a launching. It will handle, as is, rockets weighing up to 8 ozs. However, models require that the base be weighted down with bricks or a square of plywood. And it's not recommended that rockets over a pound in weight be used on this launcher. The base holds up to eight D-cell batteries; use only photo-flash types. Four cells (came with the kit) supply six volts. For longer life or greater usage — by a club, maybe — install eight cells and get 12 volts. The launch-controller switch even has a continuity light and a safety interlock.

The instruction pattern followed that of the electronic kit manufacturers. Each
Engine holder is glued-up from paper tube and strap, metal strip and cardboard rings.

Cut fins from balsa. Furnished template gives location of fins and the launch lug.

Shroud lines fasten to the plastic recovery parachute with adhesive-backed patches.

numbered step was taken in turn and then checked off. As with the model kit, the parts fit well and no trouble arose.

There's no doubt that the engineering of these rocketry kits was thorough. The designers were not going to let you, the builder, goof. So, no cloudy areas, where a misunderstanding might occur, were left behind. In fact, the starter package even furnished template, giving location of fins and the launch lug.

LEADER ADMINISTRATIVE COUNCIL VOTED OFFICIAL

One of the important items passed by the Board of Trustees at NARAM-10 (NAR Aeromodelling Meet 68) was the official recognition of LAC, the Leader Administrative Council, as part of the NAR organization structure. By now, most NAR members are aware of the excellent contribution made by LAC during 1967-68, their first year. One of their committees has been appointed to draft appropriate by-law amendments to an official constitution ratified by the membership at the meet.

Other news from LAC is their endeavor to publish a much needed, updated booklet entitled "The NAR Section Guide." At this printing, LAC had drafted third chapter section newsletters, model rocket workshop lectures, displays and demonstrations, and publicity for local sections and clubs. Your helpful contributions, comments, etc. on these chapters should be sent to Elaine Sadowski of 1824 Wharton St., Pittsburgh, Pa.

NAR TECHNICAL SERVICES — YOUR BEST SOURCE

Unsure of model rocketry, its advantages, how to set up a launching area, constructing models or holding contests? NAR TS is still the rocketeer's best source of this kind of information. Send for our blank from NARTS, Slot & Wing Hobbies—Dept. F, 61866, stating your name and NAR # on the return address.

Some items in addition to the $1.50 official Saturn plans recently offered by NARTS includes: "The Handbook of Model Rocketry" for paperbound edition, enclosed; information, rates, member jacket patches, lapel pins, section guides, technical reports and scale model rocket plans. All items may only be purchased by active NAR members.

LITTLE PACKET TELLS ALL

One of the more interesting items to recently come across was a little packet of information and forms from the YMCA Space Pioneers Section of NAR normally presented to new members upon joining. Part of it included materials regularly mailed to current members.

What impressed was the fact that after the new member fills out his NAR application and keeps the other part of the NAR pamphlet, then gets his dues, Space Pioneers hand him: 1) current fall, winter, spring or summer schedule of meetings and launching; 2) a guide to local and mail order model rocket firms and hobby stores; 3) list of basic model rocket kits suggested for trainees; 4) information questionnaire on the new member for background and future publicity; and 5) printed rules taken from the NAR 1967 Sporting Code for their next scheduled competition.

Of course, many NAR sections, a local newsletter often the basic purpose. Other suggestions solicited.

METRO DENVER ROCKET ASSN. ‘ACTIVE’

In September MR's editor was contacted by MDRA group which has for several years enjoyed keen interest which kept membership up, competition keen, parents and officials happy. The group, launching from the original NAR range (60) in an area called "Denver, their president; Jim Delano, secretary; Bill Cooney, treasurer: Gene Killian, v.p.: Vic Cross, photog., and others including parents explained they desired NAR charter and seemed the only answer if their association would survive.

Larry Lewis, NAR #7127, addressed the group, pointing up the benefits of NAR membership and especially how important it should be to claim and with pride maintain the "birthplace of our aerospace hobby.'

Press, radio-TV stations covered the contest, gave it their best, talked to officials and NAR members. Visitors to the range included an official of the famous "Denver Rocketeers" team who the next week contacted MDRA's president on the possibility of sponsoring the association. Mel again contacted NAR which provided many suggestions on ways the famous sports team could effectively sponsor the MDRA.

Have you contacted all MR clubs in your area?

PUBLICITY (VALUE OF) OFTEN UNDERESTIMATED

During Sept.-Oct., a number of sections mailed copies of articles and photos from local newspapers which portrayed activities of the members. A splendid example came from the Glen Ellyn Rocket Society Section near Chicago, which released details in advance of their Third Annual Public Demonstration held in a large park over the Labor Day weekend.

The advance publicity successfully alerted the media, which further announced the event, then appeared on the-scene with pencil, pad, mike and cameras to record the action. Local U.S. Army displayed a full-size Nike missile.

The Chicago Tribune reported the annual event would have payload, duration and egg-laying categories, flown according to the NAR code. It also described the GERS section and gave recognition to the parents and sponsors involved. Later coverage after the event featured photos of range activities, which were invaluable material for recruiting and historical purposes.

Now, here are some tips how your section can do the same.
Getting Started in R/C
Suggestions for choosing multi equipment.

HOWARD MC ENTEE

THIS series has been aimed specifically at the newcomer to radio control, and since the majority of newcomers wish to get their start in this fascinating R/C field at a rather reasonable cost, we've stuck mainly to rather simple equipment. But we must agree that some newcomers have the wherewithal to go right into R/C with more expensive apparatus. And even those who don't, might want to know a bit about the terminology of same.

A letter in a recent issue points this up; a reader asks, "What in the world is the difference between multi, proportional, multi proportional and digital proportional?" Let's see if we can clear up this matter for all those with similar doubts.

First, in most scientific fields, the matter of terminology is paramount. Terms in the R/C field can be most confusing, for the same term can mean several different things in same cases. No wonder some of us are confused! Fifteen years ago or so, there wasn't much doubt; the vast majority of planes (aside from those of a few R/C pioneers) were rudder-only... period. And most equipment was what is generally termed "single channel." But the latter term itself is confusing — let's dig into it.

Up until perhaps five years ago, reed apparatus was the thing for planes with more than one control — and it is still manufactured and in considerable use, though not too much in the competition field. When tuned reed apparatus began to undergo widespread development and expansion, the "channel" concept and terminology came into general use.

Shortly before reed equipment became widely popular, the apparatus utilized in planes with just rudder control generally required transmission of a single tone to trigger the rudder movement regardless of what means were used mechanistically to move that rudder. This equipment came to be called "single channel." Thus we had widespread use of single-channel transmitter and receivers. Planes fitted with the latter were termed single-channel planes (they often still are today). One of the early systems that allowed more or less independent control of rudder and elevator required the transmission of three different tones between ground and plane. What was more natural than to call this a "3-channel" system, meaning three tones? The concept was stuck from then on. The earliest, widely popular, reed equipment required five tones, hence it was "five channel."

Unfortunately, there was a fly in the ointment; for these five-channel systems couldn't handle five controls in the plane. Reed servos required a tone to move them and it is still manufactured and in considerable use, though not too much in the competition field. When tuned reed apparatus began to undergo widespread development and expansion, the "channel" concept and terminology came into general use.

MULTIPLE AND PULSED TONES

Reds, non-proportional.
Two through 12 tones used, offering 1 to 6 functions.

Analog proportional.
One or two tones used, giving up to 4 channels with pulse servos.

Two to four tones with various decodings, offering up to 6 channels with feedback servos.

PULSED CARRIER (no tones)

Digital proportional systems.
Three through 8 channels with failsafe and lock-out circuitry initially. Later systems eliminated the failsafe; still later systems also eliminated the lock-out feature as the transmitter-receiver combinations become more reliable. Still up to eight channels. (This means eight functions are offered.) Four-servo, four-function systems mm built units for all-ruder-elevator-motor and control.

February 1969
Technical Notes

Simpro improvement: Usable in every Simpro control system, the simple changes shown here offer positive advantages, require no parts changes or additions. Looking at sketch A, we see a rudder servo driven by a pair of transistors, and powered by the usual two batteries at far right. The Simpro relay is hooked in series with a pair of parallel capacitors (two normally used to attain the desired total capacity with units of standard value). This Simpro circuit goes right across the rudder relay. It would be the same if the rudder servo were driven from a relay instead of from transistors. This works fine, but it has been found that the elevator neutral will shift as the battery voltage drops. This usually happens after several flights.

Also, purists complain that the two electrolytic capacitors may be harmed by the fact that they receive reverse polarity half the time (too far this has never proven to be a problem). But a simple change takes care of both. In B, the capacitors run to plus and minus respectively. They are then properly polarized, but more important, the elevator neutral drift disappears. Trick is from Don Dickerson, who states they are not exactly sure why the change makes such an improvement — but it really does. Incidentally, in sketch A, note that it makes no difference in operation whether the capacitors are hooked to left side of servo motor, and the relay to the right, or vice versa; but in B, connections must be exactly as indicated.

Protector that receiver: Heath Company R/C enthusiast Bill Hannah finds that due to glowering mag reports and ads of material called G-Pad, many modelers have been wrapping receivers in sheeting and stuffing them in fuselage. Bill notes that any receiver installed this way will very shortly be shaken to bits. G-Pad is not intended as a vibration isolator, although it is fine for taking shock.

Wrap your receiver in soft foam rubber, pack it in fuselage with a sheet of G-Pad in front of it. Foam rubber keeps vibration from reaching set. G-Pad soaks up shock of a crash (put it all around receiver if there is room in fuse — but wrap the receiver first in soft foam).

Heath has found that complaints of short range with their R/C systems have been caused by poor wiring arrangements. Antenna should be isolated as far as possible from other wiring, also from battery pack and servos. It has been able to triple range of installations, simply by separating wiring this way. It favors mounting three side by side in fuselage, switch left fuse side, receiver forward of servos, and all wiring between these parts neatly packed between receiver and servos.

Battery pack is usually mounted forward of receiver, with leads to switch down left fuselage wall. Antenna should be routed up and out of fuselage near possible to receiver, and as far from servos as practicable. All these comments pertain to any installation, of course, and especially to digital outfits.

Homemade horn: Simple, light installation suggested by Tom Sanders (83 E. Shore Blvd., Timberlake, Ohio, 44094) is ideal for small planes, costs practically nothing. To prevent possible radio noise from a metal-to-metal joint, Tom applies a length of shrink tubing over the paperclip wire, before he winds the two-turn loop for the pushrod. Tubing is heated to shrink it on the clip wire. Loops are made using another piece of wire held in vise as a mandrel, then extra length at bottom of loops is clipped off. Push the wire end through the rudder wood after bending to desired shape and length, sew on a few thread stitches, and cement securely.

Low-cost monitor: Noting that commercially available 27 MHz band monitors are all super-regens and thus useless to tell if there is a signal on your particular spot frequency (they only show there's one somewhere in the general frequency area), Dr. Walter Fischer (225 S. Gilbert, Suite 3, Anaheim, Calif. 92804) suggests a good possibility in the superhet line, a tiny hotacker by Radio Shack (2727 W. 7th St., Ft. Worth, Tex. 76110: also their 200 retail stores around country). It's their Micro-

American Aircraft Modeler
Tow Master winch by F.A.I. Model Supply works fine for R/C gliders but larger reel needed to store our heavier and longer towline. Mac's modification uses Aerosol can lid "Mistifier" a 60-powered semi-built balsa kit by GRO Industries of Montvale, N. J. Interesting long, large rudder.

Scene at West Coast Champs 1968 scale judging, Piper Pacer, WW I, WW II, Coin fighters, bipes, and racers.

sonic CB receiver #21-109: costs $7.95 plus 29¢ for 9V battery. It comes with a CB channel-11 crystal, and earphone, measures 3½ x 2½ x 1½. Crystals are easily changeable, and cost $3.99 from same source (it's not certain they stock R/C rocks, however).

Regular R/C receiver crystals will fit the set; don't forget that such a crystal must be 455 KHz different than your transmitting spot frequency—usually on the low side; check crystal in your receiver to make sure.

The Microsonic utilizes its earphone cord for an antenna (a 16" telescopic whip is furnished for greater pickup) and volume control.

If you operate on several different frequencies, Dr. Fischer suggests painting the respective monitor crystals in the appropriate flag colors for easy identification. He notes that a weak hum will indicate a transmitter on an adjacent frequency to the one you are monitoring, while a moderate hum shows a signal on your exact spot; this will increase considerably if another transmitter is turned on. Eleven dollars or so for this monitor and appropriate crystal seems a cheap enough price to pay, to protect the $200-400 you may have invested in your plane!

Compact towline winch: With more R/C gliders flying, more modelers who don't have nearby slope-soaring sites are resorting to the high-start system of getting their planes airborne. It is possible to roll out your own winch and have it ready when your plane is just about to...
Insulated unequal-length starting cables avoid dangerous shorts! McEntee safety tip.

Tom Sanders home-made adjustable control horn is cheap wire piece with twirl at end.

gliders up to several hundred feet altitude. The rubber cord used for high-start is often of long length and can be wound around hand and elbow, as you would wind up a clothesline. But the nylon line which runs from rubber to plane is much longer, takes much more time to wind, can get into a horrible tangle if you stand at all careless. Searching for a compact and light winch to accommodate.

The rubber cord used for high-start is often of long length and can be wound around hand and elbow, as you would wind up a clothesline. But the nylon line which runs from rubber to plane is much longer, takes much more time to wind, can get into a horrible tangle if you stand there in the wrong position. It's made entirely from nylon, is very light in weight and smooth in operation. Main mods were to increase capacity of the reel; we use 125-lb. test twisted nylon cord, which is roughly 3/8" dia., and about 170' of this would go on the original reel. The rubber cord used for high-start very heavy gliders) the reel will have to be a bit longer wait between turns.

The brass spacer tube is 1/8" O.D., should be just a trifle shorter, outer real hub-to-hub distance, so the nut will put a bit of tension on the two halves. With all this bearing overhang, an onboard bearing is mandatory. It's made from a length of Reynolds 436 x 1/16" aluminum strip stocked by many hardware stores. Bend as shown, and run the strip full handle length, to stiffen the frame.

Two bolts hold it to handle, a hole as reel axle support. The original cord guide on the reel is removed, and a new one made from 1/4" music wire. Make the closed portion a bit narrower than reel inner width, to keep the cord from slipping over the reel edges. Bind wire parts with fine copper wire and solder; make sure all guide inner edges are smooth.

Since making the winch, we have found other "Crew" can tops that are of different color. But every spray can has one, you can doubtless find one that will fit, possibly with a little work on the reel halves. Metal could do just as well, and even cardboard tubing should be fine. With smaller cord than noted above (which is strong enough for high-start very heavy gliders) the real would hold many more feet, particularly cord of the monofilament variety.

Non-shortering starter leads: Most modelers have seen how wires get red hot and insulation melts when starter battery leads are shorted. Rechargeable cells give less voltage. The small gear of the reel also incorporates the shaft, and is extended as shown. The brass spacer tube is 1/8" O.D., should be just a trifle shorter, outer real hub-to-hub distance, so the nut will put a bit of tension on the two halves. With all this bearing overhang, an onboard bearing is mandatory. It's made from a length of Reynolds 436 x 1/16" aluminum strip stocked by many hardware stores. Bend as shown, and run the strip full handle length, to stiffen the frame.

The wire itself is ordinary household twin-lead lamp cord. When you yank the clips off the engine head, the wire tends to straighten out, and the unequal ends are seldom anywhere near each other. The plastic insulators cover all but the tips of the clips, to prevent shorts on nearby metal. Lugs could be used at right-hand side, fastened under battery screw terminals, if preferred.

Grassroots

Safety tip: From Hangar Talk, newsletter of Garden Grove RCC (Calif.), a suggestion. Don't turn your transmitter off after you have brought your plane down to a good landing, but some distance away, and upon the assumption that the engine has stopped. This has been done at their field, when plane ran off runway into some light weeds; asked to see plane suddenly roar to life and rise from ground! Engine had just been idling quietly, flyer couldn't hear it, thought it had stopped. Stray signals advanced throttle and ... an expensive free-flight plane arose suddenly! Continued on page 80

three. So maybe this makes for a bit longer wait between flights but at least, when you do fly, it will be with reasonable assurance against mid-air collisions, which seem to be increasing rapidly. In most cases, the pit areas are on one side of the runway, and local rules call for pilots to stand on that same side when flying — not from the center of the runway, not from the opposite side. The dangers of standing on the runway seem too obvious to discuss here.

Why not on the other side? Simply because few flyers have good enough depth perception to avoid doing their stunts and low passes directly over the pit area. Most anyone who takes up R/C expects to become a reasonably competent flyer eventually — whether he has aspirations toward contest flying or not. But a flyer is not competent until he can handle his plane well, regardless of wind direction or where he stands relative to the runway. If he can do this, he will not try to stand on the "wrong" side of the runway!

Most flyers delight in making high-speed low-altitude passes along the field. How many look first to see if anyone is on the field, or if a plane is taking off or coming in to land? Don't forget, there are almost always engines running nearby; you can't always hear a plane taxiing, or the warning shouts of other modelers. Best solution — don't make your passes over the field at all, but beyond it where there is much less collision danger, and where you will cause much less damage if you get a sudden serious glitch (this applies only to the other guy, never to you, of course!) or you yourself goof.

We hear much about the dangers of Goodyear pylon racing, and despite disclaimers from advocates of this sort of competitor, we feel the danger potential is very real. But to their credit the Goodyear gang harps on safety and practices it. They realize their planes are lethal and govern their races accordingly. Also, the Goodyear competition flyers for the most part are a very experienced group. Unfortunately, the same can't be said of the vast majority of sport and stunt flyers.

Flying safety is a subject we can't possibly cover in this small column, and it's growing in importance as planes get faster, and more and more take to the air. Actually, a great many of the countless facets of safety are just plain common sense. Common sense enough to know that nothing is infallible — not the airplane you've lavished so much care on, not your very expensive radio equipment, not the nut holding the control stick in place. Auto drivers tell us to "drive defensively" — always expect something to go wrong, or some idiot to make a stupid move. Considering the lethal bombs we fly today, should we do any less when we are at the model plane field?
TRY YOUR DEALER FIRST

Here Are Some of Our Aces

**BENTERT ACTUATORS**

Smallest, lightest magnetic actuators made. This German import is precision crafted. Small model weighs 7 gr. and has 50 ma drain on 3 v. Large model weighs 15 gr. and has 80 ma drain on 3 v. Single coil, magnetic return. By buying the package you save almost $20.00. Batteries furnished are the GE 560 mah Powerpacs, self-sealing vented cells for flights of approximately one hour per charge.

**GG PACKAGE #2**

The Ace GG Package #2 is the lightest and most reliable Galloping Ghost unit on the market today. Thoroughly flight proven the package uses Don Dickerson’s See Saw Switcher which is unique in that it develops full power with only 2.4 volts. The See Saw Switcher was expressly designed for use with the Ace Commander DE Superhet which is winning critical acclaim from R/C fans all over the world.

Add this, the updated Jansson transmitter which has been revised to provide clean RF output and you have a truly outstanding package. The airborne pack has the Switcher, charging jack, motor switch and motor mounted on an epoxy PC panel measuring 2½ x 4½”. The receiver and battery are carefully assembled in this board by craftsmen. This allows best weight distribution. The total airborne weight is 10½ ounces, yet the GG #2 works for engines up to .19 and has been successfully used with larger aircraft.

**Batteries**

Batteries furnished are the GE 560 mah self-sealing vented cells for flights of approximately one hour per charge. By buying the package you save almost $20.00 over the individual component costs—AND you get the assurance of a matched and tested rig that will give you hours of pleasure and will impress your friends. No. 1003—Ace GG Package #2 $109.95 (Special frequency desired. #1 27 MHz, except 27.255.)

**CEC**

Accessories Components Equipment

Whether it’s Tufline fuel tubing, or a 3/32 x 24” machine screw, or switch and motor units from major manufacturers, the chances are good that Ace has it in stock! Our most comprehensive lines of Accessories, Components or Equipment are available anywhere. Our own designer-approved radio kits are added to by lines from E. Bonner, Lanier, Midwest, Bee Line, SFL, Covernt, Ken, Rockwell, Su-Pre-Matic, Sterling, Mooney, and many others.

**NEW!**

**DICKERSON—TESTOR CONVERSION KIT**

The Dickerson conversion kit for the Skyhawk receiver utilizes some of the components and switches described above. The package includes a board to convert signals for a Rand LRI kit. The receiver is a PC board for housing switches, LR1, switch, and charging jack on a 2½ x 4½” deck. Transmitter battery is included. Transmitter battery is included. All components of the LRI kit are provided. The LRI kit has been revised to provide clean RF output and is easy to install. The receiver is an updated Jansson transmitter which has been revised to provide clean RF output and is easy to install. The receiver is an updated Jansson transmitter which has been revised to provide clean RF output and is easy to install.

**RECEIVER CONVERSION KIT**

The Dickerson conversion kit for the Skyhawk receiver utilizes some of the components and switches described above. The package includes a board to convert signals for a Rand LRI kit. The receiver is a PC board for housing switches, LR1, switch, and charging jack on a 2½ x 4½” deck. Transmitter battery is included. All components of the LRI kit are provided. The LRI kit has been revised to provide clean RF output and is easy to install. The receiver is an updated Jansson transmitter which has been revised to provide clean RF output and is easy to install.

**TRANSMITTER CONVERSION KIT**

While foregoing may be used with any GG transmitter, this kit makes the conversion of the Testor Simpulsor TX into a two stick GG transmitter easy and simple. Only hand tools are required. Basic kit contains all parts, brackets, etc. In extra assembly (PSSP push switches for motor control) basic kit $11.50. No. 28K75—Dickerson Skyhawk Rx Conversion kit $11.50. No. 30K2—SPSP push switch for motor control (2 required) each, $.45

**TESTOR RX CONVERSION PCB BASE**

Printed Circuit board for plane and receiver conversion is available separately, $2.50. No. 28K75—Dickerson-Testor Rx Board, $3.25.

**COMING SOON!**

The Versaprint system to be featured in America Modeler will be available on a parts package and component basis. Watch our ads and new letters for availability.

**NOW MORE-CRAFT GOODIES**

And there are more of them! From Fair-ups to T pins; from 4 and 6 pin connectors to finest grade hook-up wire in ten different color packs; from breakdown motor mounts, to trim tab units, wing mounts, control horns to almost any other accessory not available from other sources. These are More-Craft Goodies—Now produced at Higginsville.

**NEW!**
The Commander Pulse Transmitter is designed expressly for magnetic actuators. Unlike most RC units, which are difficult to convert for Rudder Only, this unit makes easy control with magnetic actuator possible by a wide variation of 95 to even 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. Pulse section uses stable juncti.on. Has an electronic tuning adjustment to fit your installation in the airplane. Once set, does not require readjustment or constant trim adjustments.

No. 12K1—Commander R/O Pulse Transmitter $39.95
(Specify frequency: 26.995, 27.045, 27.095, 27.145 or 27.195)

This is the first superhet receiver to be produced by Ace R/C! And it is a first in many respects: Small—measures only 1½ by 1¾ by 2³/₄ deep. Uses large B battery of NiCad which is good for 12 hours. Has base loaded antenna which collapses to 9 inches. Balanced for easy-to-fly flight. Spring loaded stick is internally mounted.

No. 11K1—Commander Pulse Transmitter $39.95
(Specify frequency: 26.995, 27.045, 27.095, 27.145 or 27.195)

No. 34K22—Ace Vari-Charger Kit

No. 10G15—Commander R/O Baby pack...

No. 10G16—Commander R/O Standard

No. 10G17—Commander R/O Stomper pack

Ace Dual Vari-Charger. Combines features of both above chargers in one. BOTH ranges are metered; BOTH adjustable. Assembled. $17.95

Ace, HD Charger—powerhouse for large nickel cads. Up to 1 amp. Internal adjust with meter and ventilated case. Assembled. $13.95

Vogt Tee Dee Throttle Restrictor—Tame for with small R/C $2.00

.2 oz Superegel Receiver Kit—smallest commercial unit available. Micro mini components. Complete Kit! $12.95

NEW!

Ace Virgin Vinyl Binder. For the pro... $6.95

NEW HANDBOOK ANALOG FOR THE Fun Flyer and Tinkerer

Our Handbook-Catalog is bigger and better than ever. R/C specialist in equipment for the Beginner, Sunday Fun Flyer. More items for the do-it-yourselfer, more products from most major manufacturers. In addition there are exclusive centers—made like the enlarged HANDBOOK section. Last year was.exclusive "bible for R/C" a MUST for R/C editors. Price is just $1.00 Post-Paid. This is completely refundable on your first order.

No. 22K17—Transmitter Signal Strength Meter Kit

The S/S Meter $4.95

Ace Dual Vari-Charger. Combines features of both above chargers in one. BOTH ranges are metered; BOTH adjustable. Assembled. $17.95

Ace, HD Charger—powerhouse for large nickel cads. Up to 1 amp. Internal adjust with meter and ventilated case. Assembled. $13.95

Vogt Tee Dee Throttle Restrictor—Tame for small R/C jobs. $2.00

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Vogt Tee Dee Throttle Restrictor—Tame for small R/C jobs. $2.00

NEW!
Jerry Johnson THE MOTOR MAN ETA Engines. Eta Instruments, manufacturer of ETA Racing Engines (England), has appointed Jerry Johnson THE MOTOR MAN the exclusive U.S. Importer/Distributor. Their line of limited production, high performance engines is well known. Initially, distribution will involve the ETA .29 glow and the ETA Mx H diesel. Both have dual Hoffman ball bearings and hard chrome cylinders. Later, the ETA 29 R/C and ETA .40 Regular and R/C will be introduced. Johnson also carries the Taipan line of engines (Australia). Complete stocks are always on hand. Write: JERRY JOHNSON THE MOTOR MAN, Box 863, Woodland Hills, Calif. 91364.

Sterling Models/Profile Mustang. Count on Sterling for something unusual. This time it's a multi R/C in profile form. On top of that—it's almost ready-to-fly and it should be a perfect R/C trainer. The pre-assembled fuselage needs only the one-piece balsa tail surfaces. Molded foam wing panels are factory finished. Assemble in minutes. Plastic skin on wing requires no finish. A multitude of Nylon horns, push rods, wing screws and other hardware is included. Where does the radio gear go? In the wing—check Howard McEntee's New R/C in this issue. Kit price is $34.95.

Sterling is also producing a Polypropylene hinge material called Poly Hinge for use on control surfaces. It gives you a free movement with little bulk and a countess number of flexes. Poly Hinge will go in each kit as standard equipment. Write: STERLING MODELS, Belfield & Wister St., Philadelphia, Pa. 19144.

Monogram Models/Pylon Racer Kit. From the National Championship Air Races Monogram brings a kit of two, plastic scale racers. Bounding the pylon (included in kit) is the popular P-51 Mustang that has set cross-country records at speeds to 470 mph. The PBF Beatroot was in 1964 at over 355 mph. Both are in kit PA27 at a price of $1.59.

Another pair of aircraft are available from Monogram, this time in a single kit. These AH-1G Huey Cobra helicopters operate in pairs and have seen action in Vietnam. Each kit, PA191, at $1.50 contains enough parts for two choppers and a two-man crew in each. Rocket pods, turrets and decals. A clear stand allows you to mount them in flight formation. Info on above kits from: MONOGRAM MODELS, INC., 8801 Waukegan Road, Morton Grove, Ill. 60053.

Top Flite Models/Dauntless Kit. The first time in AMA competition history, a model received a perfect score of 450 points in Static judging of scale aircraft at the '68 Nats at Olathe. The model, Dave Platt's R/C Dauntless, was a replica of a Navy craft on display at the Smithsonian. Platt is presently the chief design-engineer at Top Flite. Judges agreed that his model was flawless in every detail from the retractable landing gear and arresting hook to the rivets, instrument panel, scuff marks and oil streaks. The Dauntless was built as a prototype for a multi-channel R/C kit soon to be introduced by Top Flite. Mike Schlesinger, Top Flite President, expects to market the kit with the same attention to detail as the original model. Kit will contain everything from arrestor hook, retractable gear, scale wheels and bomb release to detailed instructions for rivet making and finishing procedure. Mike says, "the new Dauntless R/C will be in a class by itself." Write: TOP FLITE MODELS, INC., 2653 S. Wabash Ave., Chicago, Ill. 60616.

L. M. Cox Mfg./TRC Fuel. Cox calls this the "coolest" in model aviation fuels. Specialty formulated to cool the operation of R/C engines that have been muffed or cowled. It protects engine parts. Use it wherever you fly if the temperature is high! Also the same Nitro content is retained as that in Cox's "Blue Can" fuel. As Cox claims, "Not magic—just a truly fine fuel." In gallon cans only, at $7.49 each. Write: L. M. COX MFG., P.O. Box 478, Santa Ana, Calif. 92702.

Dremel Mfg. Co./Router-Shaper Unit. Here's the newest accessory for Dremel's Constant-Torque Moto-Tools. Use it like a conventional router, but there's a difference. This one is lighter and easier to handle. Body is of Delrin plastic and the fence, guide bars and control fittings are steel and aluminum. Depth-of-cut is precisely controlled. And the Moto-Tool may be readily removed for other jobs. Router-Shaper sells for $39.95; Constant-Torque Moto-Tools from $22.95. Write: DREMEL MFG. CO., Racine, Wisc. 53401.
OUT OF THE PAST—INTO YOUR FUTURE!

NEW SEMI-SCALE R/C KITS FROM AIRTROL!

Fly well with any kind of radio gear from single channel to full proportional equipment. Kits feature vacuum-formed high-impact fuselages...molded foam wings and stabilizers. Pre-cut parts. Need no finishing. Cement included in all kits. Less than 3 hours assembly time per kit. Immediate delivery.

Airtrol ALBATROS Kit #AB-1
A beautiful model of one of the first successful, highly maneuverable combat scout planes of World War I. 44" wing span for .099 to .15 engines. Weight: 32 ozs. (less engine and equipment)

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Airtrol MORANE-SAULNIER Kit #MS-1
Another World War I planer...first to shoot through its propeller. 47" wing span. For .10 to .15 engines. Weight: 22 ozs. (less engine and equipment)

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Airtrol MESSERSCHMITT Kit #ME-109
A faithful kit of the last deadly fighting machine of World War II. 44" wing span. For .10 to .15 engines. Weight: 22 ozs. (less engine and equipment)

$15.95

Airtrol CESSNA Kit #150K
Extremely smooth handling...easy to assemble and fly. Ideal for the beginner. 44" wing span. For .099 to .15 engines. Weight: 24 ozs. (less engine and equipment)

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AND HERE'S THE R/C GEAR TO FLY THEM!

AIRTROL DL-100 Latest price "Get-mong Ghost" on the market. Ideal for the beginner. Simplest and smoothest pitch actuator. 3 functions: rudder, elevator, and motor control. 27 mc from Superhet receiver. No wiring necessary. Simply plug into switch harness 56" center banded antenna. Wt (airborne equip.) 6 ozs

$9.95

AIRTROL B-11 Non-fading, single channel, pitch control. Fin function—rudder only. Designed for aircraft up through .15 to .20 mc Superhet receiver. 56" center banded antenna. Complete with batteries Wt (airborne equip.) 6 ozs

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If your dealer cannot supply you—send for FREE literature and prices.

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American Aircraft Modeler 42A
Curtiss F9C-2
Sparrow Hawk, 438-hp. Wright R-975E3 9-cyl. engine

"Men on the Flying Trapeze" insignia carried on all six F9C-2 aircraft. Here drawn double size.

Modified Clark YH airfoil
Each aircraft was given a distinctive color on engine cowl, wheel spats, fuselage band, and Section Leader’s "V" for identification during landing maneuvers. No. 9058 had royal red, 9057 white, 9058 true blue, 9059 black, 9060 willow green, and 9061 lemon yellow.
NOW BUILD THE MIRAGE
AND THE LIGHTNING
AND THE HELLCAT
AND THE F111
AND THE SM 79
AND THE TIN GOOSE

And keep on going.
On and on.
The 1:72 way. The MPC way.
Six new planes for a line of kits that's
growing as fast as the Mirage flies.
And here's why you should go MPC non-stop.
First, it's 1:72 scale all the way.
That makes a collection out of collecting.
Next, the MPC quality. All the exacting
detail is there, all the authenticity.
That's where a good finished model starts.
Now take value! Like a buck each for the F111,
Ford Trimotor and SM 79. Do a little comparison
shopping to get the full impact of these prices.
Same goes for the Hellcat, Mirage, and Electric
Lightning at seventy pennies.
And consider the fact that MPC also
includes both the authentic markings . . .
plus a wild, wild set of customizing decal.
And a modular display stand. And extra
customizing parts in the seventy centers.
When you consider everything,
you have to consider MPC,
the new name of the game in plane kits.
Williams Bros./Le Rhone Cylinders. Granger Williams reports that the demand for their “Wasp Jr.” and “J-5 Whirlwind” scale cylinders prompted the production of the Le Rhone. A famous engine of WW I, it was used in Sopwiths, Nieuports and Moranes. Surplus units found service by barnstormers. As the previous two replicas, the Le Rhone is molded, in 1, 1.125, and 2 inch scale, of a high-impact styrene. Prices are 65c, 85c and 98c. With each cylinder are detailed instructions for assembly on a crankcase mockup. Write: WILLIAMS BROS., 6719 Salt Lake, Bell, Calif. 90201.

Edmund Scientific Co./New Catalog 2691. A compendium calculated to coerce the reader into creating clever and crazy things. Whatever your hobby bag, you’ll find items of interest in this 148 page catalog. All of them are unusual and generally hard-to-find. And the catalog is good for reference too. It’s free. Just send your name and address to: EDMUND SCIENTIFIC CO., 380 Edscorp Bldg., Barrington, N.J. 08007.

Wing Mfg./F4F Wildcat. Two Superfab R/C scale kits by Wing are now on the market. Scale for each is 1” to the ft. No shortcuts have been taken; scale is faithful. Whatever your hobby bag, you’ll find items of interest in this 148 page catalog. All of them are unusual and generally hard-to-find. And the catalog is good for reference too. It’s free. Just send your name and address to: EDMUND SCIENTIFIC CO., 380 Edscorp Bldg., Barrington, N.J. 08007.

Tatone Products/New Peace Pipes. Long-necked and extended Peace Pipes are Tatone’s answer to the wide fuselage and large cowling problem. Trying to fit a muffler around a bulky fuselage and onto an engine can be difficult, if not impossible. But as you can see from the picture, the new types of mufflers have a one-inch extension to give ample clearance. Mufflers are cast in aluminum and come in three sizes: .9-19; 29-40 and 45-65. Price is $5.95 each. Keep quiet! Write: TATONE PRODUCTS, Mission St., San Francisco, Calif. 94112.

Rand Mfg. Co./Stick Assembly. A new design in R/C stick assemblies, this one is compact and mounts from behind the panel so screws are visible on the Tx front. Stick movement is two axis, operating two pots. Centering is positive (can convert to non-centering for motor control) and the modeler can change the feel plus adjust the stick’s length. Trim levers (mechanical) change pot position not the stick’s. In kit form, less pots, price is $19.95. Assembled and with 5K pots the price is $13.95.

Conducted by Harry E. Harps
All balsa simplicity with easy-to-follow details produce an attractive and fine flying profile scale model. The real craft is a popular air show performer famous for its aerobatics.

HOW long has it been since you've attended an air show? Chances are good that the next one you'll see will feature a Citabria or two. This fine product of the Champion Aircraft Company, of Osceola, Wis., is gaining much attention for its aerobatic capabilities. It was my pleasure, recently, to witness a Citabria being put through its paces by an outstanding pilot, Mr. Mike Dewey, who teaches aerobatic flying at Santa Paula, Calif. Also present, was famous Bucker Jungmann pilot, Mira Slovak, who has bestowed compliments upon the good handling qualities of the Citabria. This is high praise indeed!

Our little model can be quickly and inexpensively fabricated, and it is great fun to fly. Average hand-launched flight times have been 30 seconds, with an occasional 40 seconds in good air. For best performance, build it light!

Construction: Trace the outlines of the main fuselage section onto a sheet of heavy tracing paper, which will serve as a template. Transfer the outlines onto a light, but stiff sheet of warp-free 1/8" thick sheet balsa, with the aid of a soft pencil, or ball-point pen. After cutting this part to shape, pin it in place over the fuselage drawing, and add the cabin struts, as indicated. Allow the assembly to dry thoroughly before removing it from the board.

Next, taper the rear of the fuselage (as viewed from the top): for a smooth transition to the thickness of the rudder, as well as to reduce weight. Glue on the 1/8" thick block sides, and after they are dry, sand them to a smooth contour. The corners of the fuselage may be rounded slightly, except for the wing and tail mounting. Drill a 1/8" diameter hole in the nose to accept the aluminum tubing prop shaft bearing. Roughen the surface of the tubing, and glue it into place. Force a straight pin into the underside of the fuselage, as shown on the drawing, to serve as a rubber-band retainer.

The cabin sides are covered with thin celluloid or even cellophane. The windshield is cut from thin celluloid, and bent to shape. A template is given to assist you with this, but it is best to cut your windshield slightly oversize, and trim it to an exact fit.

Wings: Medium soft 1/8" sheet balsa is used for the wing panels. After cutting them to outline, add the 1/16" square leading edge reinforcements, and weight them down to prevent warping during drying. The two root wing ribs are made from hard 1/8" thick sheet balsa, while the outboard ribs need only be 1/16" thick. Prepare these ribs by rubbing glue into the top surface of each one. This pregluing will increase their strength, as well as easing assembly. I usually install the ribs one at a time, and hold them by hand until they are dry—which only takes a few minutes, or you may use masking tape to do the job. The root ribs should be angled slightly, so that the correct dihedral angle can be achieved.

After the wing panels have dried, give them a good overall sanding, and radius the leading edges. The wing struts are made from medium-hard 3/16" x 1/8" strips, sanded to a streamlined cross section.

Tailplanes: The tailplanes require no special attention, other than selection of extra light balsa, from which to make them.

Landing Gear: The wheel pants are built up from 1/4" sheet balsa cores, with 1/16" sheet balsa sides. The main landing gear unit is made from 3/16" diameter music wire, as are the wheel pant retainers, and the tail wheel support. The wheel pant retaining wires may be attached to the main landing gear unit with epoxy, solder, or even thread binding and model cement. The 3/16" diameter wheels that were used on our model came from an old plastic kit, as did the tail wheel, but they could just as well be made from wood. The pants serve to retain the main wheels, while a drop of cement will secure the tail wheel. The LG fairings are made from 1/16" sheet balsa.

Decor: The easiest time to decorate any model is prior to assembly, while the parts may be laid flat upon the work.

Continued on page 73
NOW IN BOOK FORM!

Howard McEntee's

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YOU said it!

Swell wheels

I have been experimenting with ways to make wheels and have ______ up with light, good-looking ______ for indoor vintage-type models, such as your Sommer Monoplane, featured a couple of years ago in A.A.M. (I found it a dream to build and fly.)

But getting back to the wheels, you take a small plastic pill bottle of appropriate size and cut off the bottom. Then file or sand the bottom to the required thickness, then glue a thin piece of plastic on the open edge. This makes a hollow wheel. Now, slip on your rubber tires. Heat a wire and push it through the center of the wheel and you have a handsome pair of wheels.

I am 13 years old and sometimes find it expensive to have to buy things like wheels. I thought perhaps some other boy might be interested in how to make cheap, good-looking wheels.

David Johnston, Scarborough, Ontario, Canada

Indoor fun, too

After seeing the “Manhattan Formula” article in the April ______ issue, I have become very interested in indoor modeling. I have just finished constructing the “Easy B.” the indoor model found in the October ______ I am very pleased with the results.

I would like to find out more about indoor modeling and also if there is any club or organization in my area. Please advise me as to the above request and also please tell me where I can secure a copy of the publication “Indoor News and Views.”

Thank you for any help you can give me.

Jeff Koch, Corona del Mar, Calif.

“Indoor News and Views” may be contacted at Box 545, Richardson, Tex., 75081. That’s the place to find out about anything having to do with indoor. For official contest matters, rules, etc., the Academy of Model Aeronautics, 1239 Vermont Ave. N.W., Washington, D.C., 20005 is the place.

Will try, sir

You have the best magazine on the newsstands today. Just the right amount of R/C, C/L, and F/F.

Keep up the good work.


Three years ago, a balanced model magazine was—would you believe it?—square. More modelers follow A.A.M. now than any other such magazine in the world. All hobbyists are interested in reading about all kinds of models—and in plans.

John C. Fett, Manistee, Mich.

Townsley a hit

I consider Townsley's article in Nov. '68, the best yet. Let's have more of this type.

John C. Fett, Manistee, Mich.

Plastic model devotees have noted the switch in John Townsley's approach. John's never satisfied with himself—which pleases us all.

Ed.

Conducted by Sally Barry
USA’s Richmond Tops All in Indoor World Championship

by Clarence Mather

"Terrific!" is the best way to describe the 1968 World Indoor Championship. This included the planning and execution of the contest by the Italians, the flying site, the contestants, and the camaraderie of the modelers. The twenty-four contestants representing nine countries made this the biggest Indoor Champs yet!

The models survived the trip with only minimal damage, due to sturdy boxes, well-packed parts and generally careful handling by airline handlers. They all were very cooperative to our needs. At Rohrbach’s king-size box containing ten (10) models received especially tender care when it was rumored among the baggage people that it contained a special radar set! The modelers were in considerably worse condition than the models since we had no problems.

The models arrived in Rome on Monday night and we were looking forward to the Sports Palace. It is a beautiful building! The Sports Palace is at the extreme south edge of Rome and was built for the 1960 Olympics. It is a circular building with two tiers of seats surrounding a floor diameter of 164 feet (50 meters). A domed roof arches up from the highest row of seats to a peak of about 115 feet. The roof consists of fluted concrete beams and glass. It does not catch models.

In Florence we stopped at the home of Egizio Corezza and were greeted warmly and hospitably by Egizio and his gracious wife. Egizio’s models showed a very high degree of construction skill that we were to find the rule rather than the exception among European models.

We arrived in Rome on Monday night and were our first look at the Sports Palace. It is a beautiful building! The Sports Palace is at the extreme south edge of Rome and was built for the 1960 Olympics. It is a circular building with two tiers of seats surrounding a floor diameter of 164 feet (50 meters). A domed roof arches up from the highest row of seats to a peak of about 115 feet. The roof consists of fluted concrete beams and glass. It does not catch models.

After several hours of recuperation in Frankfurt we crammed the mountain of baggage and boxes into a VW Microbus and continued on our way. After testing our models for many hours over the next few days we had an opportunity to meet persons we knew only as names from these papers.

On arrival we were met by a driver who took us to the home of Egizio Corezza and were greeted warmly and hospitably by Egizio and his gracious wife. Egizio’s models showed a very high degree of construction skill that we were to find the rule rather than the exception among European models.

The models were flown in the Rome Sports Palace, site of the 1960 Olympics. Richmond’s two-flight total of 69 min, 58 sec., beat nearest contender by 28 seconds.

This Is Last Issue for 1968 AMA Members

Only those who renew memberships on time will receive continuing issues of American Aircraft Modeler, without interruption. Furthermore, those who renew membership by Jan. 15 will receive the March issue. This is why it’s necessary to get membership processing initiated as soon as possible — it’s too costly and complicated to do anything else. If you haven’t signed up for 1969 AMA membership yet, do it now in order to get the most for your dues money.

The March issue is mailed in early January but it’s December when copies have to be ordered and the first mailing tape of addresses made up. A second mailing tape is made in late January to get magazines to those who signed between Dec. 31 and Jan. 15 — provided HQ guessed right in estimating how many copies to order for Intercom. After Jan. 15 there’s no choice but to forget about the March issue and move on to April.

This is why it’s necessary to get membership processing initiated as soon as possible — it’s too costly and complicated to do anything else. If you haven’t signed up for 1969 AMA membership yet, do it now in order to get the most for your dues money.
Richmond did not climb as high—yet did turn or. That made it easier to see the model. Richmond did 28:37, Mather 27:30. Those were the longest flights of round one. Since I was leading, I immediately suggested that we end the contest right then! The suggestion received little support from the others.

Italy did 32:01 and Koller of Austria did 30:01 for high times on Saturday.

On Thursday we had our first chance at evening flying. The powerful lights warmed up the air somewhat, and it was...
there are many pleasant memories that make it all worthwhile. The associations with the members of our team and all the other flyers were great. It was a pleasure to fly in such a well-organized and well-conducted contest. The tours of the historical sites and beauty of Rome and Tivoli that were arranged by the contest committee were outstanding experiences. The hospitality of the Italian folk and the serving of wines were flying climaxes to the whole affair.

We who were lucky enough to participate would like to offer thanks to a number of people. To the Italians for conducting such an excellent contest, rosettes like Joe Muller for keeping indoor alive, to Bud Tenny for the NIMAS newsletter that has done so much to keep indoor growing in popularity, and to Bud Romak for doing a fine job as team manager and who supplied us with snazzy turtle-neck sweaters.

Ed. note: Our thanks to the National Indoor Model Airplane Society for permission to reprint this article which first appeared in Indoor News and Views, the voice of the NIMAS, Bud Tenny, editor. Information about membership in the society available from Box 395, Richardson, Tex. 75081.

Romak Report

Ed. note: In continuation of the truly outstanding job Bud Romak did as team manager, including successful solicitation of monies to aid the team, his post championship report has much interesting information which we excerpt as follows. Our thanks to him, also, for securing the photos which appear here.

Hungary had one model proxy-flown. The reason for this was that Mr. Varszegi had become very ill, and at the last moment it was decided that Mr. Rec would fly his model. Mr. Rec did a fine job of flying, as the results show; he was high for the Hungarian team.

The first rounds were from 5:00 p.m. to 8:00 p.m., with a break for dinner which was served at the flying site. The second rounds were from 9:00 p.m. to 12:00 midnight.

Balloon steering was almost nil, but pole steering was in evidence throughout the meet. The American team was not quite as proficient as the other teams with the stick or pole steering. Fortunately, they did not have too much steering of this type as their official flights, but they did some practicing during their test flying.

At round three all teams waited for others to start flying, but soon chaos set in. Team managers could decide on which team member would fly first, second, or third. This worked out fine — there were no more delayed flights.

All in all, this was truly a great World Championship. The times have improved over the past two years where there now is talk of 40-minute flights.

HQ note: The U.S. team was selected via a 1967 program directed by the Academy of Aeronautics under the volunteer leadership of Bud Tenny (Texas). Entry fees from the program and additional contributions solicited by Team Manager Bud Romak provided a basic fund which paid for team travel within the U.S. to and from the east coast. AMA general treasury funds paid for the World Championship entry fees of $450 + $100 plus basic team travel expenses in Europe (an additional $180). This AMA support is typical of that provided to all U.S. teams (two per year) and in accordance with official policy which budgets 10% of AMA dues income for FAI activity expenses. Each AMA member, therefore, directly and automatically supports the participation of the U.S. in international aeromodeling competitions and meetings.

Nassau RC Regs May Point to Future

As drivers of "horseless Licenses" had imposed upon them licensing and operating regulations when they increased in numbers, the flyers of RC models may be required to observe what similar they fly in heavy populated areas, or if the number wanting to fly in a given location becomes very large. No flat prediction of this is being made, but the licensing and operating regulations set forth by the New York Nassau County Division of Recreation and Parks for RC models at its Mitchell Field may provide a glimpse of the future.

At Mitchell Field, a county facility allowing RC model flying, only flyers with the county permit may allowed to pilot a model. There are two types: Learner's Permit and Senior Permit.

The County Learner's Permit is issued to anyone who applies for it if he has the AMA and FCC licenses. Learners must fly under the supervision of a Senior Permit holder. Senior Permits are issued after the Learner is tested by a Certified Examiner for pilot performance in accomplishing six specified flight procedures.

All RC flyers, Learner and Senior Permit holders alike, are required to abide by certain ground and flying regulations. These were installed for safety and common courtesy, with infr action resulting in dismissal from the site and revocation of the permit.

Examples of the regulations: Flying permitted only from 10 am until dusk. Determination of flight schedules by arrival and readiness. Display of frequency flags. Tuning of radio equipment 15 min. max.

RC Related to Aerospace

Early this year Dr. W. A. "Walt" Good presented a report on radio-controlled airplane technology to the SAE Committee A-18 for Aerospace Vehicle Flight Control Systems. This was a function of his position with the Applied Physics Laboratory of The Johns Hopkins University.

The report, giving a brief story of the RC model and introducing the concept of the digital servo, was presented to the group which consisted of 70 flight control engineers for aircraft, missiles and space vehicles. They represented most of the major companies and laboratories in the country.

"Two things were apparent after the talk," Good told us. "One was that the digital servo concept, as used by the RC modeler, is new to the aerospace industry. At last we've found something concrete in model innovation which has not been done already in aerospace industry!"

"The second thing of note," Good went on, "was the large number of ex-modelers in this group of engineers. I called for a showing of hands of those who had built model planes as time in their careers. The response was 85 out of 70 people! I was expecting maybe fifty percent—not ninety plus! These engineers are the ones who design the automatic and manual flight controls for the nation's aircraft such as the Boeing 707, B-70 supersonic bomber, the C5-A troop transport, the Boeing 747, and many others."
New RC Rules
Approved for 1969

Pattern Events

AMA's RC Contest Board revised the
Class A and B maneuver patterns to put a
more clearly defined difficulty gap between
the three classes. And the take-off maneuver
will be exactly the same in all pattern
classes; the FAI type, without Proto Taxi. However, the contestant must dem-
strate ground control without the risk
of nosing over. Requiring this capability
is expected to encourage contestants to
taxi off the runway at the end of his flight.

Landing Perfection for 1969 requires pi-
lots in all three classes to bring their planes
to a complete stop at the end of the landing
run—the flight is over at that point when
the pilot announces "Flight Complete." He then is expected to immediately taxi back to the starting box.

New Class A maneuver schedule:
1. Takeoff
2. Straight Flight Out
3. Procedure Turn
4. Straight Flight Back
5. Touch and Go
6. Three Rolls
7. Three Inside Loops
8. Three Turn Spin
9. FAI Rolling Circle
10. FAI Horizontal Eight
11. Three Outside Loops
12. Slow Roll
13. Reverse Cuban 8
14. Traffic Pattern Approach
15. Landing Perfection
16. Spot Landing
17. Traffic Pattern Approach
18. FAI Top Hat
19. FAI Rolling Circle
20. FAI Double Roll Turn
21. FAI Vertical Eight
22. FAI Double Immelman
23. Three Inside Loops
24. Three Outside Loops
25. Inverted Spin
26. Slow Roll
27. Tail Slide
28. Reverse Cuban Eight
29. Two Point Roll
30. Knife Edge Flight
31. Reverse Cuban 8
32. Loop With 1½ Snap
33. Inverted Reverse Cuban Eight
34. 180-Degree Turn Loop
35. Loop With Rolls
36. Followed by:
37. Traffic Pattern Approach

Four maneuvers are added: Three Rolls, Immelman, Three Loops, and Stall Turn. A
total time of 8 minutes is allowed to com-
plete the pattern, including two minutes for
engine starting.

New Class B maneuver schedule:
1. Takeoff
2. Straight Flight Out
3. Procedure Turn
4. Straight Flight Back
5. Touch and Go
6. Three Rolls
7. Three Inside Loops
8. Three Turn Spin
9. FAI Rolling Circle
10. FAI Horizontal Eight
11. Takeoff
12. Reverse Cuban 8
13. Traffic Pattern Approach
14. Landing Perfection
15. Slow Roll
16. Takeoff
17. Traffic Pattern Approach
18. FAI Top Hat
19. FAI Rolling Circle
20. FAI Double Roll Turn
21. FAI Vertical Eight
22. FAI Double Immelman
23. Three Inside Loops
24. Three Outside Loops
25. Inverted Spin
26. Slow Roll
27. Tail Slide
28. Reverse Cuban Eight
29. Two Point Roll
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35. Loop With Rolls
36. Followed by:
37. Traffic Pattern Approach

There are two official classes of racing
for 1969, with new names. The 1968 "Good-
year" = 450 sq. inch scale-class is essen-
tially the same for 1969, under the title of
Formula I. The former "800" class, which
was provisional for 1968 is official for '69,
as Formula II, with detailed revisions to the
former rules.

Formula I has new engine and carburetor
descriptions; engine must be a production
type, assembled from factory available pro-
duction parts; carburetor must be a work-
ing RC throttle type, with single barrel,
from factory available production parts.
Formula II is similar to I except that the
minimum wing area is greater (600 sq."
vs 450) and there is no scale handicap
point system. There are, however, mini-
mum fuselage size requirements (1" high,
3½" wide). Other formula II details:
only wooden 2 blade fixed pitch propellers
allowed.

Two FAI maneuvers, previously unused, have been added—the Vertical Eight and
Double Immelman Turn. Both of these ma-
nuvers are described in the 1968 Rule Book, pages 52 and 53. The other five ma-
nuvers added to the Class C "Grab Bag,"
entirely new to AMA Pattern Flying, are:
Cobra Roll, Four Leaf Clover, Inverted
Reverse Cuban Eight, 180-Degree Turn,
Loop with Rolls.

Fylon Racing

There are two official classes of racing
for 1969, with new names. The 1968 "Good-
year" = 450 sq. inch scale-class is essen-
tially the same for 1969, under the title of
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point system. There are, however, mini-
mum fuselage size requirements (1" high,
3½" wide). Other formula II details:
only wooden 2 blade fixed pitch propellers
allowed.

As per rule para. 22.3.4, the AMA prop nut okay for scale types, prototypes require rounded 2½ min. dia. prop spinner; engine must be cowled except the cylinder head (may be exposed and cowled may be cutaway to clear the exhaust; wing thickness along span must be proportional to chord (1½ min. max), wing thickness for monoplane, 180 degrees of biplane; min. wingspan is 50" for monoplane, 30" for bi-
plane (smaller wing of biplane must be at

Drawings courtesy Model Airplane News
least 2/3 the area of larger wing and the smaller wing min. root thickness is 5/16”. The pylon race course layout has been modified to permit cornering within 900 feet of the #3 pylon if the spectator line is on the #1 or #3 pylon side of the course; otherwise the previous 300-foot limit still applies.

Other Rules Actions
A proposal to limit RC operations to 500 feet, except for special situations, was rejected; no change was made to the current basis for obtaining AAA rating for RC meets: Class I and II “supplementary” rules were dropped for “69, due to comparative lack of activity involving them, in contrast to the obvious success of Class A and B rules.

The above information was excerpted from reports by Bill Northrop, AMA’s RC Contest Board chairman.

Record Roundup
The following new FAI World Records should be added to the full listing which appeared in October for an up-to-date picture. The listings indicate an increase in activity are tentative.

No. 4, FF Rubber Speed: Noujny (USSR) 72.8 mph.
No. 8, FF Piston Speed: Alexandre Noujny (USSR) 89.47 mph. (Beats record of 80.63 mph held by U.S. since 1949.)
No. 16, FF Helicopter Piston Speed: Alexandre Volchansky (USSR) 62.1 mph.
No. 31, RC Piston Distance, Closed Course: B. Kunce (USA) 210 mi. (Corrects previous error in distance flown.)
No. 33, RC Glider Height: Ray Smith (USA) 4908 feet.
No. 29, RC Glider Duration: Vladimir Stefan (Czech) 15 h 2 m 25 s.
No. 31, RC Glider Distance Closed Course: N. Malikov (USSR) 1019 miles.
No. 48, RC Piston Seaplane Duration: R. Gunning (USA) 10 1/2 hrs.
No. 51, RC Piston Seaplane Speed: Tom Rankin (USA) 83.79 mph.

New National Records
The following new national AMA records will update the full listing for indoor models published in November and the full listing for outdoor models published last month.

Outdoor Free Flight
Unlim. Rubber Jr. W. Vanderbeek 2190.0
Unlim. Rubber Op. J. Bilgri 2537.0
Unlim. Proto Jr. E. Stadtler 189.00
A-1 Towlne Sr. G. Myers 15:14.0
A-2 Towlne Jr. B. Gibbs 19:21.0
A-2 Towlne Sr. G. Myers 19:27.0
Ornithopter Jr. R. Postage 3:21.0
A-1 Towline Sr. G. Myers 17:14.0
A-2 Towline Jr. B. Gibbs 19:21.0

Control Line
C Speed Sr. J. McKnight 181.92
C Speed Op. Recolle to Fryo 198.60
Jet Speed Sr. J. Olson 196.60
Naval Carrier I J. J. Gerber 468.00
Naval Carrier II E. G. Gross 538.20
Naval Carrier I J. J. Gerber 468.00
Naval Carrier II E. G. Gross 538.20

Indoor, AMA Ceiling Cat. I
D Stick Op. H. Crane 17:45.8
B Cabin Op. T. Vail 7:33.0
C Cabin Op. H. Crane 9:42.4

New NAA Magazine at Discount to AMAers
A first-issue aviation collectors item, featuring 4-color illustrated coverage of the National Model Airplane Championships, is now available to all modeling enthusiasts across the country. The magazine is an annual edition, produced by the National Aeronautic Association, in the typographic size and approximate dimensions of National Geographic magazine. The name is Aviation Graphic, and it was produced in cooperation with all the divisions of NAA, including the Academy of Model Aeronautics.

Magazine content, besides modeling, includes soaring, ballooning, parachuting, general aviation, air racing, aerospace, and many other subjects. A special section lists all world records, with aeromodeling a major segment. There are lots of photos—all in color—among the 100 pages. And it’s all feature material as there is no commercial advertising. There never has been an equivalent publication on the market.

Never before has model aviation been so favorably presented—as a fully equal partner with all other aspects of aviation. The color photo treatment is exceptional, more than fifteen, covering a wide range—indoor, RC pylon, outdoor free flight (including old-timers), control line. Because of the outstanding presentation, the magazine can be an excellent PR vehicle for clubs to use in promoting local civic understanding and appreciation of modeling as a respectable adult and youth activity.

The newsstand price is $5.00, but AMA members may obtain one or more copies ($1.00 each, clubs should consider group orders) at only $1.00 each. Send check or money order, with name, address and AMA number, to: National Aeronautic Association, 806 15th Street N.W., Washington, D.C. 20005.

NAA membership is also available at half price to AMA members—$5.00 instead of the usual $10.00. Benefits include a discount on rental cars (just one such rental may save enough to pay for the membership), discount on AMA magazines and books, AMA news (featuring full-scale world record and general aviation information), a vote in AMA affairs, special life insurance rates. Note also that membership is for a full 12-month period regardless of time of joining. Be sure to include AMA number when applying.

Special Dues Rate for Special Cases
The normal adult dues for AMA members is $10. However, a special rate is now in effect for either of two situations: 1. those who are currently subscribers to American Aircraft Modeler magazine; 2. additional adults in families already having one adult AMA member. In both cases, one copy of the magazine is already being provided. The saving from not supplying the extra magazine is, therefore, available to reduce the cost of membership which is priced, for these special cases only, at $6.

Those who fit in either category may obtain the special rate by returning check or money order along with a current address label from the magazine. In the family member case, only those residing at the same address are eligible—the address label should be the one for the adult in the family who is already an AMA member.
Once Over

March 1 and 2 are the dates set for the very popular Toledo RC Conference. This will be the 18th running of the event sponsored by the Weak Signals RC Club. In addition to speaking on RC subjects, flying demonstrations (weather permitting), RC movies, trading post, and RC atomic picnics, the Conference is practical to those in the RC industry. Additional details may be obtained from the Weak Signals RC Club, P. O. Box 3772, Sta. Wernert, Toledo, Ohio 43619.

Winners of other unofficial events held in conjunction with the event previously reported follow. They were sponsored and organized by the National Free Flight Society, Paycheck: Jon Davis (Jr.), Mike Richard's (Jr.), and Harry Murphy (Open). Clipper Carge: Bobby Hayes (Jr.), Howard Hill (Open). Coupe d'Hiver: Gerry Gergnathy (Jr.), Bill Vanderbeek (Sr.), Carl Perkins (Open).

The U.S. team for the 1969 RC World Championship (Phil Kraft, Jim Kirkland, Jim Whitely) is fortunate in having as its manager John Patton, Frederick, Md. Patton, team selection program administrator, and a candidate for AMA president, attended the international meeting in 1968, providing him with firsthand knowledge of the importance placed on various aspects of maneuvers by international judges. Patton is in steady communication with team members.

The Free Flight Contest Board, Joe Boyle, chairman, ruled earlier in 1968 that a single flight (or set of flights) could result in national AMA records for more than one class if the model's specifications and the timing conditions met the rules for more than one class. This ruling is particularly applicable to indoor models, although it is equally applicable to outdoor models. For instance an FAI Stick model might also comply with the rules for AMA Class A Stick; if so and if the flight was a good one, one flight could break both records. Responsibility for approving multiple records rests with the flyer.

"I do hereby release Elmer Kirschenman and any of his agents or employes from any liability, from any and all claims, deman- dants, actions, or cause of actions on account of death or injury sustained during the course of my property known as Gardner Field, and hold him harmless for any action that may be brought at a subsequent date by any of his heirs, executors or administrators." This form is required to be signed and dated by entrants at Taft sponsored by the South ern California Ignition Flyers. Bruce Chandler, club president, writes that "This keeps the field!"

Thunks are in order to Midwest Products Co. and to Sullivan Products. Midwest supplied the FAI fuel, and Sullivan provided the model fuel, both used in FAI-class events at the '68 Nats. The Wichita RC Contest Board agreed and approved a similar proposal at its Nats meeting.

Snap One for Us

Do you want to know what other model builders are doing? Do they want to know what you are doing, too. 'That's one of the reasons we are asking readers of this section to submit photographs for possible publication. Don't let special requirements scare you, there are none. However, black-and-white prints are desired — but these can be of drugstore print size and quality, so long as they are contrasty. No special camera is needed — some of the best pictures have come from Brownies!

As to picture content, a variety of multi-models are desired, pictures of modelers with models under construction, pictures of activities at flying sites, pictures of new model design or construction features, models, construction tools and techniques, interesting views of everyday models with their builders, pictures of club activities, etc. Preferably they should be of happenings. And pictures of all kinds of subjects: wanted: control line, radio control, free flight gas, free flight rubber, indoor, gliders, scale, etc.

At present AMA has no budget for paying for use of these pictures, but full credit to the photographer is assured for all that are used. On the back of each photo submitter in an envelope should be listed the name and address of the photographer; the name, city and state of the person pictured; the name, city and state of the designer of the model pictured; data about the model pictured (engine, prop, RC gear, etc.); description of the activity taking place, etc.
1968 AMA ELECTION RESULTS

John Patton, Frederick, Md., is the new president of AMA for 1969-70. He received the most votes (36% of those cast), with John Pond of San Francisco, Calif., second (31%), John Clemens of Dallas, Tex., third (26%), and Maurice Woods of Oklahoma City, Okla., fourth (7%). The election was conducted by mail with all ballots required to be postmarked no later than Nov. 15, 1968.

Five regional vice-presidents were also elected for 1969-70: Art Schroeder, Glen Ridge, N.J., District II (New York, New Jersey); Cliff Telford, Bethesda, Md., District IV (Delaware, Maryland, D.C., Virginia, North Carolina); Gosta Johnson, Chicago, Ill., District VI (Missouri, Illinois, Indiana, Kentucky); Bill Lank, Dallas, Tex., District VIII (New Mexico, Texas, Oklahoma, Arkansas, Louisiana); Vic Cunnyingham, Sr., Baldwin Park, Calif. (Utah, California, Nevada, Arizona, Hawaii).

The tabulation of votes is as follows:

For President

<table>
<thead>
<tr>
<th>District</th>
<th>Patton</th>
<th>Pond</th>
<th>Clemens</th>
<th>Woods*</th>
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<td>1801</td>
<td>1523</td>
<td>1271</td>
<td>329</td>
</tr>
</tbody>
</table>

* Write-in. 20 other miscellaneous Pres. write-in votes also recorded.

For Vice-Presidents

District II:
Art Schroeder, Glen Ridge, N.J...410
Bill Boss, Laurelton, N.Y.......258

District IV:
Cliff Telford, Bethesda, Md......249
*D. Orr, Hampton, Va............44

District VI:
Gosta Johnson, Chicago, Ill......306
Carl Fries, Crestwood, Mo........189

District VIII:
Bill Lank, Dallas, Tex............288
Ralph Tenny, Richardson, Tex.......189
*Jerry Kleinburg, San Antonio, Tex......65

District X:
Vic Cunnyingham, Baldwin Pk., Calif.......577
Ed Shipe, Livermore, Calif.......376

*Write-in. 14 other miscellaneous V.P. write-in votes also recorded.

A total of 4,944 votes were cast--19% of the AMA membership participated.
A surprise presentation of AMA's Distinguished Service Award to Glen Sigrist during one of its meetings. The award was for production of AMA Cub (and Delta Dart, AMA Racer) kits used in special Napa promotion of a sacrifice to normal business activity. Shown making the presentation is Jaycee Chapter President Roger Watson, right. With Glen is his wife, Hazel.

The Montezuma (Iowa) Junior Chamber of Commerce lent AMA a hand last October when it made a surprise presentation of AMA's Distinguished Service Award to Glen Sigrist during one of its meetings. The award was for production of AMA Cub (and Delta Dart, AMA Racer) kits used in a special Napa promotion of a sacrifice to normal business activity. Shown making the presentation is Jaycee Chapter President Roger Watson, right. With Glen is his wife, Hazel.

'69 FF Rules Combine Indoor Sizes, Restrict Tuned Pipes

Major changes to AMA indoor rubber-powered model rules will come into effect Jan. 1, 1969. These new indoor rules, together with other new free flight rules which follow, were enacted by the 1968 Free Flight Contest Board (Joseph V. Boyle, Jr., chairman).

Indoor Rubber classes for 1969 have been established as follows:

- **R.O. G. Stick** — 30 sq. in. max. (no change)
- H.L. Paper Stick — 100 sq. in. max.
- H.L. Stick — 300 sq. in. max.
- R.O. G. Cabin — 150 sq. in. max.
- F.A. I. Indoor — no change
- Autogiro — no change
- Onithopter — no change
- Helicopter — no change

This means that grouping according to wing size within a class has been eliminated as more classes A, B, C or D) and minimum size restrictions have been lifted; also, rise-off-water has been eliminated. (R.O. W. Cabin category eliminated; Class B R.O. G. cabin eliminated as separate size class, but still eligible for competition in Cabin class; B and C H.L. Stick eliminated as separate size classes, but eligible for competition in Sticker class.)

This change is not expected to have any practical effect on competitions, which generally had combined classes anyway. But it will change the national record listing substantially; where a category had been limited to one size class, the initial 1969 record holder will be the one who had the highest flight record irrespective of size class. Official flight definition for indoor rubber models has been changed so that an official flight is recorded each time a model is launched in the presence of a called timer. Even in the event of a mischapp minor mishap, the flight time from launch until the model is caught or touches the floor is recorded as an official flight; however, should the contestant elect to relaunch without rewinding, a new official flight may be started — with the original start being recorded as an "attempt." (Previous 60-sec. and obstruction rules for unofficial flights have been eliminated.) Six "attempts" are allowed to make three official flights.

**Free Flight Gas**

Effective in 1969, a tuned pipe is prohibited for an engine of an AMA category free flight gas model. Use of the tuned pipe exhaust may be continued with F.A.I. rule category models, such as F.A. I. Power.

**F.A.I. Category Models**

Applicable to Wakefield Rubber, Nordic Glider and F.A.I. Power models, the Contest Board has ruled that Contest Directors of such events flown under AMA sanction may, for competitions only, limit the number of official flights to five or to three. The CB indicates that the F.A.I. rules pertaining to two attempts per flight should be maintained as should all the other F.A.I. rules governing the model and its flight. National AMA records for F.A.I. rule category models are maintained only on the official 7-flight basis.

**Executive Council Late-year Actions**

**CONTEST CALENDAR**

Official Sanctioned Contests of the Academy of Model Aeronautics

<table>
<thead>
<tr>
<th>Date</th>
<th>Location</th>
<th>Event</th>
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<tbody>
<tr>
<td>Dec. 14-16</td>
<td>Tulsa, Okla.</td>
<td>T.O.D. Indoor FP Pressed</td>
</tr>
<tr>
<td>Feb. 24-26</td>
<td>Fort Lauderdale, Fla.</td>
<td>AAA Year-end Special for FP &amp; CL, H. H. Air Terminal, 802 N. 29th Ave., Fort Lauderdale, Fla. 33314. Sponsor: Fort Lauderdale Gas Model Club.</td>
</tr>
<tr>
<td>Mar. 3-5</td>
<td>Tampa, Fla.</td>
<td>AAA March Indoor Contest: Tampa Indoor Contest, 106-09 Main St., Tampa, Fla. 33605. Sponsor: Tampa Gas Model Club.</td>
</tr>
</tbody>
</table>

No applications for sanctioned contests in January had been received at press time.

The simplest things, sometimes overlooked, are frequently the most effective and in more ways than one. Consider the relative locations of RC pit and flight areas, for instance.

Following a discussion of flying field safety and the need for it in the Log Book, publication of the AMA Chartered Cedar Rapids (Iowa) Skyhawks, John Middleton, club president, said: "Our main problem this year will be in educating the spectators without causing ill will. Naturally, they want to get close to see what we are doing and how the planes operate. Well, Jack Finn suggested one very good way to control the bystanders, to give them a closer "look-see" and in addition, obtain a mixed bonus of protection for our own skins. It is very simple — just locate the pit area next to the fence on the south end of the flying site.

"Only the flyers with their starting cells, squirt bottle primers and transmitters would be on the strip. All of the rest of the gear, and those waiting their turn to fly, would be in the pit area. Frequency flag posting would also be there to remind those nearby their systems of the active frequencies. The contact with the public from this vantage point would be ideal. Those not flying can be the ambassadors of the club by explaining what the flyer is attempting to do... while he is doing it... without disrupting his concentration.

What could be more simple... and were safe?"

Simple Safety — Good PR

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TRANSPARENT SUPER MONOKOTE

GIVES YOUR MODEL A GLOWING BRILLIANCE!
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GIVES BETTER IN-FLIGHT VISIBILITY!

Dave Linstrum, VTO Editor, MODEL AIRPLANE NEWS.

"New transparent MonoKote is extremely unique as it shows through, highlighting the beauty of the structure in the sunlight and makes the model have greater in-flight visibility so timer sees model longer as it drifts downwind."

PERFECT FOR COVERING FREE FLIGHT R/C GLIDERS

Transparent Super MonoKote is lighter in weight than the opaque type Super MonoKote, yet is just as strong. Because it's so much more puncture and tear resistant than silk or tissue and dope finishes, models covered with Transparent Super MonoKote better withstands crash landings and puncture from sharp objects. Super MonoKote does not dry out or become brittle with age. It's also the ideal covering for under camber.

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Quick and Easy to Apply Requires no pre-covering Exceptionally strong Highly puncture resistant Moisture proof...stain proof...fade proof Odorless...eliminates dangerous fumes Light...weighs far less than an equivalent silk or tissue and dope finish.

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"New Transparent MonoKote is unsurpassed for ease of covering and in-flight visibility. In addition, it has an aesthetic quality that will be appreciated by any modeler. Tested, approved and recommended by R/C Modeler Magazine."

Dale Willoughby

New transparent SUPER MONOKOTE is an ideal covering for R/C gliders because of its light weight, and non-warping properties. It waterproofs wing, stab and/or rudder. Wings covered more than four months ago still remain drum-tight. I find it very easy to apply, even on compound curves.

American Aircraft Modeler 57
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R/C Nobler
Continued from page 19

this assembly over the top view of the fuselage on a very flat table and make sure the fuselage sides are perpendicular. Your fuselage will be perfectly aligned when the epoxy hardens. You can also check the alignment further by touching the tails of the sides together and seeing that nothing is distorted compared to the top view. However, let the epoxy set with the tail minus engine and wings, With the two basic stages complete and the epoxy hard, glue in place the rear plywood bulkhead and balsa bulkheads, and finally glue the tails together. Check the final alignment over the top view of the plans, then glue on the bottom 1/4" sheet and top 1/4 sq. stringer.

Trim the nose bottom block to fit in place and also cut out a small section behind the firewall to allow for the nose wheel strut and spring coil. Epoxy the block in place using many rubber bands to hold it firmly to the fuselage and the sides. Fill in the joint between the bottom block and the engine compartment sides with tapering scraps of 3/8 balsa. Make up the hatch with 3/8 balsa, trim the nose to fit and lay it on the fuselage. The exterior side of the sheet will help in bending the balsa to fit the curvature. Epoxy in place the plywood rudder platform.

Make up the hatch with 3/8 balsa. Temporarily cement this in place snugly between the block and the rear plywood bulkhead.

With the spinner mounted on the engine shaft, start curving the nose to fit the comb-
and it's almost ready-to-fly!

PROFILE R/C MUSTANG

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wing span: 55" length: 43" engines: .45 & up

A cinch to assemble! Flies like a dream! The most rugged R/C model of them all!
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#021, R/C Nobler—Ed Sweeney's conversion of a famous C/L stunt ship results in a highly maneuverable, yet a neutrally stable, R/C model. Even looks the same too, and it takes only .40 for all AMA/FAI stunt models. Price—$2.00.

#019, Curtiss-Wright Jr.—Robert Hawkins transformed this open cockpit, pusher aircraft of the thirties into a single-channel model. Build it and take your first step into R/C scale. Span is 44". Use 049-051's. Price—$2.00.

#013, Cutie Coupe — Coupe d'Hiver FF by Dave Linsrum. Quick and easy to build with all-sheet balsa surfaces, box fuselage and ready-curved folding prop. It could be your first, rubber-powered-competition model. Price—$1.50.

#118, FAI Pussy Cat — no automatic devices on this FAI FF. Earl Thompson combined a high thrustline, rear-mounted fin and clean lines to successfully hurdle the climb/transit gap. A hot .15 engine is a must! Price—$2.50.

#118, Corrigan — James Wilson's cute, clever and unique V/A C/L stunt model. A canard, it flies tail first! Stable like the big stunt ships, it has that "flying on rails" feeling. Easy to build with a 23" span. Price—$1.50.

#118, Duglas—"Wild Bill" Netzband's C/L delta is fast and yet a slouch on landings; ideal for non-scale carrier events. Built for competition—it is fun to fly, a good trainer and durable. Use .40 R/C engine. Price—$1.50.

#018, Skyraider—Howard Mottin's Navy Carrier model is a high speed, high weight design. Extra features: its flyability with 40's or 80's and the ease of construction. It's your best route to the trophy table. Price—$2.00.

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ter, than any plane you have flown before. Here are a few hints to look for and allow for on those first flights. First, allow a slight amount of up-trim at the transmitter. This will help maintain level flight without back pressure on the stick; remember, the plane has no built-in incidence. Shortly after takeoff and climb, throttle back— please. Now trim the ailerons, if necessary, and fly the plane around to get used to it.

The plane does not need all the power of the 40 for fun flying, and you do not need much power on the first flight. Before beginning your first landing practice and study the model's behavior at slow flight with plenty of altitude. You will notice that a definite stall will develop. The model will drop its nose straight ahead and you will always have aileron control to lift a wing back. To make that first landing, give some additional up-trim on the transmitter and throttle back. The model will settle in nose level, slow, and very steady. Just steer it to your landing area while being very slightly. You are down safe and easy.

You will find that with experience, landings in still air at less than 20 mph are easy. This plane never drops a wing in landing configuration, because of the wash-out effect of the wings tips with the downward deflection of the flaps. Spot landing is too easy; you just fly to the spot with the plane level and stable, with none of that nose-high wobbling around.

The R/C Nobler will probably be kitted by Top Flite Models, Inc. To build the R/C Nobler right away, author suggests working from a control-line Nobler kit.

**Fighter-Pilot Jamboree**

Continued from page 33

flying a Fokker Eindecker at the time. Courtenay brought forth some "new" information relative to the development of synchronized machine guns. Readers of American Aircraft Modeler may have seen the several Letters to the Editor regarding this.

It has long been accepted that the first aircraft to feature a machine gun which fired through the propeller was a Morane-Saulnier flown by Roland Garros. This machine is known to have fallen into German hands and was turned over to Anthony Fokker, who, in the brief span of 48 hours, returned with a completely developed mechanical gun synchronization system to be fitted to Fokker aircraft. Now it seems that this much-publicized bit of history lacked one important detail: According to Courtenay, the Morane-Saulnier which was captured by the Germans was, in fact, equipped with a quite sophisticated machine gun synchronizer which had been disconnected. The metal propeller blades had been fitted merely as a back-up safety precaution to protect the propeller, in the event of synchronization malfunction. Thus, this inert but operational device, which had been developed by Morane-Saulnier well in advance of Garros' unfortu-nate mishap, was available and important. After WW I, Courtenay became a test pilot, and flew a great variety of aircraft. Including some of the later aircraft. Courtenay even designed a few of his own. The plane was a Morane-Saulnier well in advance of Garros' unfortunate mishap. In 1918, he came to the U.S. and worked for various aviation firms. Most recently he...
participated in the development of the Atlas missile and associated hardware.

The next speaker was Vance Breese, who is one of the most experienced test pilots in the world. Breese learned to fly at the age of 13, in the year 1916. He was forced to wait until the conclusion of WW I before beginning his active aviation career, which includes air-mail flying, barnstorming, aircraft manufacturing and consulting, as well as test flying. Breese is probably best known for his testing of WWII fighters, including the P-51 Mustang, Bell P-38 Airacobra, and Lockheed P-38 Lightning.

Breese was hired by Lockheed to analyze problems encountered in their P-38 shortly before WW II. An indication of his value as a test pilot may be garnered from the size of the fee which he was paid: $900 per hour, plus $50,000 upon successful completion of the tests. And this was back in 1941! Of extreme interest to flying model builders was the fact that one of the main changes required to correct the P-38's instability problem was a 2-degree resetting of the stabilizer incidence.

Among other interesting airplanes tested by Breese were the Brewster XFA-1, XFA-2, Vought F4U, Seversky P-35, Goodyear FG-1, and the Bell P-40. Breese still serves the aviation industry as a consultant.

Following a break for lunch, the symposium was resumed with a panel discussion, presented by The American Fighter Pilots Association. This was moderated by Col. Walker Mahu, USAFR, and the panelists included Adm. John S. Thatch, USAF Retired; Maj. Gen. Marion E. Carl, USMC; Judge Charles N. Older; Col. Robert L. Baseler, USAF Retired; and James L. H. Peck.

The afternoon presentation consisted of Fighter Airplane Technology, 1939-1946, delivered by Dr. Ernest N. Sechler, for the AIAA. Dr. Sechler is professor of Aeronautics and Executive Officer of the Graduate Aeronautical Laboratories, California Institute of Technology, at Pasadena.

Final speech was by LCDR. Daniel G. Macintyre, USNR, who spoke on the subject The Evolution of the Modern Fighter Airplane. Macintyre is a veteran of 208 missions in the Southwest Asia combat area, and his flying experience includes flights in such diverse aircraft as the P-51, F-86, F-89, F-11 and the current F-4B and F-15. He was project officer for the F-15, and now serves as a consultant to the North American Rockwell Corp.

Model Rocketeer

Continued from page 35

1) One to two weeks in advance of an event, if your section has no public relations officer, simply type the five W's (who, what, when, where, why or how), with enough space to type the information answers to each. Add your name, address, telephone number, and position for the editor or station manager. He will use it as space and time allows.

2) The same day (or next), do the same with the results of the event, providing full names, addresses, parents, guests and civic officials present.

NAR-CIVIL AIR PATROL PROJECT

For sometime (several years!), the national headquarters of CAP has been genuinely interested in the application of model rocketry into its aero-safety education program for male and female cadets aged 10-21. During the mid 1960's through 1966, contact was continued until CAP drafted a manual outlining a complete program incorporating the NAR Sporting Code.

On Nov. 1, 1967, Mr. G. Harry Stine, NAR's
Liaison Committee chairman appointed USAF Sgt. Larry Loos, NAR #7127, to work directly with CAP on the project. Larry, a member of CAP for 13 years whose experience was mostly cadet training, etc., had just returned from his post as NAR District Director for U.S. Forces, Europe.

During 1968 he conducted an intensive study into every feasibility of making the program work in local communities. Test workshops, launches and activities were held through the cooperation of Colorado Wing CAP Hqs., the Colorado Springs CAP Composite Squadron, Estes Industries, Flight Systems, Inc., and several persons who also were NAR-CAP members.

Larry reported at year's end that he will recommend to CAP that: 1) Cadets who qualify should enter a basic, intermediate or advanced MR class meeting separate from CAP; 2) competition be held through NAR and that CAP unit teams which earn points on the same basis as NAR members, select their best cadets to join NAR and compete in NARAM events.

SECTION CALENDAR OF EVENTS — 1969

March—4th Annual Pittsburgh Spring Convention.
June 14-15 WAMARVA-1 meet (contact Dick Sipes).
Flying sessions for the Space Pioneers are: March 20, April 13 & 27, May 11 & 25, June 8 & 22, July 13 & 27, and August 10. Range located at Waveny Park, New Canaan, Conn.

**Getting Started in R/C**

Continued from page 36

... ways to operate two, even three, escape movements from a single channel (this is a single tone, remember, and somewhat similar systems are still available today). The escape movements are triggered by sending the proper sequence of tone pulses, and in some cases the pulse timing is most important. Such systems today generally use motor-driven servos, which are more powerful, often more compact, and eliminate the troublesome rubber bands. And the makers of such servos call them “single-channel servos” — we just can’t seem to get away from this term!

The simpler pulse proportional systems can also allow two or three controls on a single channel — signifying a single tone, remember. We can have proportional rudder and elevator, plus trimmable throttle, from such systems. All this can be handled by a single servo — it’s what we term Galloping Ghost. And it is done by varying the length and rapidity with which we send the pulses of that one tone (throttle movement is usually worked by short periods of no tone at all, or a steady unpulsed tone). Utilizing the same pulse sequence, but with separate servos in the model, we have a more complex but much more versatile proportional system — though many still consider it to be single channel. We’d much rather think of it as “three-control, single tone, pulse proportional,” but that’s too unwieldy a designation. And anyhow, it’s doubtful if the best established term, channel, is going to be suddenly dropped, after so many years of constant use!

Now going back to that reader from whom we quoted, the term “multi” came into use to designate any system that couldn’t be considered single channel. The latter utilized only one tone, so multi systems were considered to be any that used more than one. In older days, this virtually...

American Aircraft Modeler 63
always meant multi reed systems, but a few early prop systems that required two or
more ailerons were also considered multi.

Let's close the session this month with the thought that model control systems should be thought of — and hopefully designed — by the number of controls they will handle in a model. Single control is generally just rudder only. Two-control could be rudder and throttle, or rudder and ailerons. To our way of thinking, such a designation system clears up much of the ambiguity that has arisen from that much-outmoded, old term — channel.

The Dingus

Continued from page 28
up elevator. As she rotates the nose up and
starts falling, start opening the throttle,
adjusting the power to drop into low-speed
attitude. The downwind quarter is a
specialty maneuver which will dazzle
the spectators or jar the timers. You
should ever get tired of flying her, you'll
always know when she's in trouble, every-
single time. She'll start falling, you'll
at least know to stick with her and not
waste her. Dingus' are always mean multi reed systems, but a few early prop systems that required two or
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waste her. Dingus' are always mean multi reed systems, but a few early prop systems that required two or
more ailerons were also considered multi.

Let's close the session this month with the thought that model control systems should be thought of — and hopefully designed — by the number of controls they will handle in a model. Single control is generally just rudder only. Two-control could be rudder and throttle, or rudder and ailerons. To our way of thinking, such a designation system clears up much of the ambiguity that has arisen from that much-outmoded, old term — channel.

The Dingus

Continued from page 28
up elevator. As she rotates the nose up and
starts falling, start opening the throttle,
adjusting the power to drop into low-speed
attitude. The downwind quarter is a
specialty maneuver which will dazzle
the spectators or jar the timers. You
should ever get tired of flying her, you'll
always know when she's in trouble, every-
single time. She'll start falling, you'll
at least know to stick with her and not
waste her. Dingus' are always mean multi reed systems, but a few early prop systems that required two or
more ailerons were also considered multi.
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The Red Baron
Continued from page 25

When Lothar was wounded after being shot down, he sat by his side. He tried to comfort his mother's worry. He wrote home faithfully all during the war. From these letters historians have gleaned the portrait of a devoted son and brother.

On occasions, his fellow pilots were critical of his drive to be the top Ace, and his noticeable disdain to relinquish that title. They openly chastised him when, during battle, he fired from right on top of his opponent's rudder. "You might have crushed the rudder, Rittmeister (Captain), they cautioned. "We were worried!" He replied, "Yes, I know..."

His charmed life was not to last forever. Though his skills had risen, the odds had the odds. On July 6, 1917 with more than 56 planes to his credit, the Baron was shot down. He had a deep scalp wound that removed a good portion of bone from his head. He fell victim to a commonly shared superstition about personal photos taken before a battle. He reacted each time a new victim went down in flames. He remarked openly to his men how they had burned curiously. Yet his score went on. By early April, he recorded his 80th victory.

On the morning of 21 April, Baron von Richthofen who found it difficult to smile about or relax his strict bearing as a military leader, leaned over and petted his dog next to his plane. Against his wishes, his photo was taken. It was taken once more as he roared down the field with his squadron to patrol the Front lines. It was the last photo taken of him alive.

At 7000 feet over the Somme Valley, Richthofen left his pack. He saw Lt. May dive blacked out. His Albatros D-V plunged to safety of his lines. May had been shot down, his Albatros D-V plunged to safety of his lines. May had been...
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February 1969
All of us must take our hats off to those men who flew those frail, wired-together, machines. They all lent a full, undying commitment to the art of aviation, and their legacy lives on in the spirit of those who follow.

Observations of Richthofen's death: when it occurred, why, maximum time prior to death in which he could have been shot are among the questions surrounding his demise. Latest evaluations made by Richard Robinson, head of cardiovascular department at Yale-New Haven Hospital and Dr. Don Powell, in charge of the heart clinic at Yale, have provided new insights into the man who fell from the skies.

While I re-read a number of excellent reference texts in order to write the Red Baron Story for American Aircraft Modeler, each one left history with the question, "Who shot down Richthofen?" Though regrets were often expressed that no autopsy was made to determine irreconcilable evidence from medical factors, it was openly apparent that no one had ever delved into this intrigue from the viewpoint of clinical analysis since 1918 to this present day. If it did occur, it was never explored in writings, or exposed.

I decided to visit the heart clinic at Yale-New Haven Hospital to see if we could determine the existence of Richthofen's ability to pinpoint when Richthofen may have died — in the air.
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Q. (To Dr. Don Powell) "Would anyone, no matter how intensely pre-occupied with concentrated effort, be able to absorb a hit from a .30-caliber machine-gun bullet and continue his or her former pursuits without showing it had created a violent nervous reaction? A severe trauma of the body's nervous system? Or not notice he or she had been hit?"

Ans. No could get hit in the chest cavity and continue without noticeable difficulty immediately upon time of impact. There would be violent reaction to such a wound. No individual's concentration could eliminate, psychologically, the fact they were physically, mortally wounded. Elapsed time from moment of hit to total unconsciousness would appear to be no more than two or three minutes. Only a small portion of that time would allow a continuation of the individual's pre-hit actions. Even so, there would be a severe noticeable moment of reaction.

Dr. Powell then referred me to Dr. Richard Robinson on the fifth floor who heads the Cardio-vascular Department.
Q. (To Dr. Richard Rubinstein). Now that you have told of the evidence as stated in Nowarra and Brown's book and contained in the book written by Fl....

A. There was a pronounced reaction, to its former attitude, but the lungs would become flooded with blood and it would die in twenty minutes. The lungs would become flooded with blood and it would die in twenty minutes. The fact blood was seen trickling out the corner of his mouth is full evidence such a sequence took place, and especially as he had no doubt whatsoever that the bullet hit him in the chest cavity assures an immediate reaction to the nervous system. His brain would begin to starve of being hit? Would it be hit in the chest cavity assures an immediate reaction to the nervous system. His brain would begin to starve, thereby allowing him to act normally or retain full consciousness to fly, I have some time as a student pilot. I know the sense of the control stick...
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Clayton Knight repeated this testimony twice, pointedly asked him if he could accurately recall Brown’s exact description. He said, “Yes, I just told you.” Clayton then reenacted Brown’s movements with his hands and again pointed to the back just before the neck. It came out of his chest near the heart, (He again pointed to his chest.)

Q. How far ahead of the actual crash moment do you feel he was hit with the bullet?
A. Almost immediately prior to his plunge to earth. Perhaps just prior to when the plane was seen to leave its normal pursuit of Lt. May.

Q. Would this almost automatically force him to have jerked the throttle backward without actual desire to do so?
A. No, I do not. He would have landed much sooner had this been true. I do not believe it was possible for him to have flown to Vaux under those conditions. He would have rapidly gone into the state of unconsciousness or semi-consciousness to the point control of his craft would have been impossible.

Q. Do you feel Richthofen could have been hit prior to Vaux near Sailly-le-Sac by Brown?
A. No. Almost immediately prior to his plunge to earth. Perhaps just prior to when the plane was seen to leave its normal pursuit of Lt. May.

Q. Does the Australian machine gunner’s testimony correspond to what you feel took place?
A. It would appear this is so, from both the clinical analysis and from matching it with the reaction norms of a pilot as he uses his body to fly a plane.
Caricature Citabria

Continued from page 45

bench. With this particular model, you have a real chance to express your creativity! Although the standard factory trim is interesting, why not brighten up your Citabria with "air show" colors? Stripes, stars, or even checkers can be used to give a really effective color scheme. You might even wish to use the old stunt pilots' trick of putting your name right side up on one side of the fuselage, and upside down on the other. Our little bird has bright red tissue paper stripes, a flat black upper section, and a silver prop with a gold spinner. The various wing rib lines, aileron separations, etc., were drawn on with a Pentel marking pen. The remainder of the aircraft was left natural balsa, in the interest of saving weight. (The original weighed approximately 13 oz. without rubber band motor.)

Assembly: Install the wings, being careful to check for the correct incidence and dihedral angles. Pregluing is recommended here, for additional strength. When the wings are dry, the struts may be added. By starting out with struts that are a shade too long, you trim them by trial and error to an exact fit. Also, the struts can be used to rectify any slight twists that may have occurred in the wing panels during construction. Sighting the top of both wings will disclose any misalignments. You might notice that we have elected to omit the jury struts from our model. Somehow, they just didn't look right.

Install the tailplanes, paying particular attention to obtaining the correct incidence and dihedral angles.
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Mini-Rod

Continued from page 13

Size indicated and splice edge-to-edge the two pieces used to form each side. Mark and size of the 1/4 balsa strip pylon braces and glue into place. Glue on the other pylon side to complete the structure. Don't glue the pylons to the fuselage yet.

3) Fuselage: The fuselage is simply a piece of 1/4 x 1/2 balsa cut to length and tapered at the rear as indicated. Notice the front has an additional piece of 1/4 x 1/2 attention to correct alignment. The tailplane rigging is made from black silk thread.

Attach the landing gear wire and glue it in place. A small strip of silk soaked in glue is applied over the top of the fuselage, and pressed down firmly.

Next, the landing gear fairings may be added. Note that the fairings are not glued to the fuselage, in order that the landing gear may flex rearward during landings. Finally, attach the wheels and the tail wheel assembly.

Propeller: The prop is obtained from a North Pacific "Astro Gnat," which certainly must represent one of the biggest dime's worth available in today's hobby shops. Be sure to take time out to fly the Astro Gnat for a while, just for kicks. It will give you a real appreciation for the efficiency of its tiny free-wheeling prop.

Remember to add a couple of washers on the prop shaft bearing, when switching the prop to your Citabria. The prop spinner may be carved from balsa, or it may be molded from plastic.

Flying: We'll trust that you have already attended to any warps encountered during the construction phase. Add modeling clay, as required, to achieve balance approximately at the point shown on the drawing. A test glide will establish the need for more or less. A bit of rudder or wing trailing edge bending should enable you to obtain a fairly straight-ahead glide path. Next, try 40 or 50 hand-wound turns of the prop. If satisfactory results are obtained, start adding more turns with the aid of a mechanical winder. It is easiest to stretch-wind this model from the rear, while an assistant hangs onto the prop.

R.G.O.'s are a cinch for this ship, but if you are flying from rough ground, it is suggested that you remove the wheel pants to prevent tripping. Additional details on the full-scale Citabria may be found in the July 1966 issue of Air Progress, and the April, 1956 issue of Flying.
Add the balsa glued to the top. Add the 1/8 x 1 x 1 plywood firewall, after you have fitted your engine, drilled mounting holes and glued the blind nuts into place. Add the balsa filler blocks to the sides of the fuselage behind the firewall. Sand a groove into the left side block so an eye-dropper fuel tank can be installed.

Right here, a note would be in order to explain how the eye-dropper installation works. You will need to drill a 1/16" hole in the fuel tank of the Pee Wee (make sure you clean out the metal filings from the tank), attach a length of small diameter fuel-line to the fuel nipple on the needle valve in the Pee Wee tank. Attach the other end to the eye-dropper. You can, in this simple installation, visually check the amount of fuel remaining and have a simple and effective fuel timer. Fix the eye-dropper to the fuselage by looping a rubber band around the fuselage and fastening it on each end of the dropper.

Of course you can just estimate the amount of fuel remaining in the Pee Wee tank and hope that the model doesn't get too light on what you think you've got left - this is what I did on the first flight of the model in the pictures. Eight minutes later - no! I didn't light the D.T. (de-thermalizer) fuse - it came down, thanks to cool air, at a good hiking distance downhill.

Glue the rudder onto the fuselage as indicated on the plans, notice the cutout at the trailing edge. This serves as a stop for the pop-up action of the stab when de-thermalized, Glue on the stab platform.

After all component parts are completed, trim with colored tissue and give the whole structure three coats of clear dope with the engine, prop, stab. Fasten the wing to the pylon with a couple of rubber bands and you are ready for test gliding.

Test gliding and flying. Pin or tape the pylon into position and test glide. Move the pylon forward or back until a glide is obtained. The stab should be able to sink into a right glide pattern.

Additional glide turn can be achieved by rocking the stabilizer platform so that the right stab tip, when viewed from the rear, is higher than the right tip. If the model tends to loop, add a small amount of down-thrust engine (tilted down) by inserting washers behind the two top bolts between the tank mount and the firewall.

After you have had a few successful flights, you may wish to build the optional built-up wing as shown on the plans. This wing is identical in size and shape to the balsa wing, but it has the additional advantage of a more efficient airfoil and light-
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**MATERIALS LIST**

2 — 1/2 x 3 x 36" balsa sheets for stab, fin, wing ribs and sheeting and plastic sides
1 — 1/2 x 3 x 36" balsa sheet for wing leading edge and ribs
1 — 1/4 sq. x 36" balsa strip for pylons and wing hold-down
1 — 1/8 x 1/2 x 36" balsa strip for fuse
1 — 1/4 x 1/2 x 36" balsa sheet for fuselage
1 — 1/4 x 36" balsa trailing edge for wing
1 — 1/4 x 36" balsa strip for wing leading edge
2 — 1/2 blind mounting nuts for engine mount
2 — 1/2 x 1/4 x 1/2" mounting bolts
3 — paper clips for misc. hooks
2 — eye dropper
1 — sheet of plastic or fabric
Miscellaneous: gauze or other joint-reinforcing fabric; glue; pins; dopes and brushes for finishing.

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**Professor Tank's TA 152C-1**

Continued from page 31

The drawing of the Ta 152C-1, which accompanies the article, is in 1/72nd scale; the Komet plan included is not in 1/72nd scale. Regarding the Komet, I decided to include it because it utilizes almost the same colors as the Ta 152, and I find it advantageous to build more than one model at a time which use the same colors. There are two excellent Komet kits on the market — the Lindberg 1/72nd kit and the Hawk 1/4 kit. The same methods can be applied to the painting of the Komet. There is a detailed color scheme in the April '67
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In this issue, instructions are given for painting the Komet in the "Bomber Combo" article, pg. 28.

Instruction for conversion parts: Cement fuselage halves together and when dry, sand smooth. Then saw fuselage into three sections. Trace either end of sawed portion of forward section from .040 styrene, two pieces are required. Cement in place as per photo.

Repeat separation and fabrication processes for rear section, using photo as guide. Three pieces of .040 styrene are required. Cement them together when processed and, when dry, cement in place between the two rear sections.

When both inserts are dry, use a small, flat jeweler's file and fair in smoothly. The two insertions indicated above will make the model the length required for the Ta 152C-1.

If you decide to have the canopy in open position, now is the time to make necessary provisions. Use fine jeweler's saw blade and remove solid portion of canopy. File parallel and flat, so that both sides will be even and canopy will rest evenly when later cemented.

To easily enlarge wingspan, cut wings at wing roots, trace around wing on .060 styrene and insert between wing and fuselage. While this is drying, you can add .010 styrene to the vertical stabilizer.

Check plan for correct shape of stabilizer.

Canopy in kit cannot be used as it is not correct for the Ta 152C-1, but there are a number of ways out of the dilemma. You can make a wood pattern and use a heated piece of .020 thermoplastic to stretch on mold. A vacu-form unit can be used to advantage if available. Or, you may use my method which was to use a fine jeweler's saw blade or Zona saw to cut an Airfix ME canopy apart lengthwise. File the...
parts to shape as per drawing in article and cement the two canopy halves together. I found that by using Pactra's clear enamel I could get a good bond and the cement-line is not too evident. If you are using a Lindberg D-9 kit, you will have to make all the fuselage longer. Check drawing measurements and proceed as for lengthening the Airfix FW 190 kit. I discovered that the Lindberg kit requires only one saw cut near the rear section, almost in the same spot as shown in photo. Only two pieces of styrene are necessary to give correct fuselage length. Check plan.

If you are using my method, cement canopy onto sawed-off cockpit fairing and set aside to dry, then make armored headrest from a ¼" round piece of leftover scrap plastic on "tree" from old kit. See photo. Saw off a flat area about ⅛" long and taper from rear to front, so that in cross-section the armor plate will be half-round when viewed head-on. Cut armor to length shown on drawing. Primer the parts to shape as per drawing for cementing edges of canopy fairing. Stripe edge of canopy with dark green, using your smallest spray. Tape windscreen and cement in place. Canopy was used on my model. Paint or, prop black and spinner as shown on drawing. Paint wheel centers dark gray or, prop black and spinner as shown on drawing. Paint wheel centers dark gray and treads "fire color." After paint is dry on parts, apply tape windscreen and cement in place except for the clear canopy which you will have to tape and mask off. The cockpit fairing will also receive a coat of primer.

Blades and spinner = propeller in kit are too small for a Ta 152C-1, so I used Revell's JU 88 propeller. Spray-propeller and wheels with primer coat and allow to dry thoroughly.

The bomb also is from the JU 88 kit and is given a primer coat. While parts are drying, you may make the bomb rack using another kit. Paint the bomb rack black and spinner as shown on drawing. Check photos and drawing and cut to shape. Cement pieces together, and when dry, spray it using all other small parts (tail, wheels, etc.) with primer.

Camouflage pattern: Spray entire plane light blue, except canopy and canopy fairing. Mask off all which are to remain light blue, then spray with dark green. After dark green is dry, mask off area which is to remain dark green and spray with black-green.

On piece of scrap plastic, paper, or cardboard, practice making small dots. These must be small and possible, step down your spray and the smallest opening allowing a spray to come through. Practice on your scrap with the dark green paint, checking the photos and drawing for test spray pattern. When you can spray your dots easily and to your satisfaction, take the plunge and apply your mottle pattern to model as shown on drawing. You will have to make your camouflage model a lighter shade than that appearing on the photographed model. It is necessary for you to spray mine a little darker for photographic purposes. The best mottle pattern has a hazy appearance and is not too dark, as it is possible to block-in to the point where the color will be almost solid. If this happens, clean your gun thoroughly with thinner. It is always necessary when changing paint colors, and use some shade of blue which was sprayed on undersurfaces. Practice again in random pattern, then respray over dark area, sprinkling dots gingerly to tone the dark areas down.

Detailing small parts: Paint propeller blades and spinner flat black as on model, or, prop black and spinner as shown on drawing. Paint wheel centers dark gray and treads "fire color." After paint is dry on parts, apply tape windscreen and cement in place except for the clear canopy which you will have to tape and mask off. The cockpit fairing will also receive a coat of primer.
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American Aircraft Modeler 79
Radio Control World

Continued from page 39

Illegal flyers note: Many modelers depend upon their homeowners insurance for protection in their model plane flying. Prop Busters newsletter PropBusters R.C.C., Rapid City S.D. (the author of this newsletter) reports that local insurance probably does not cover illegal operation. If you do not have a valid FCC license, you are flying illegally, and may be unable to use your insurance. For instance, according to a recent attorney's opinion quoted in above newsletter. Presumably the same holds true for AMA insurance. Eight dollars for a five-year FCC license seems cheap enough to obtain coverage should you need it. The overage will be


terrible to certain you can collect on your policy, if the need arises.

Active contest: Though they were organized only last August, the members of River City Radio Control (R.C.C.) have had radio, television and newspaper publicity. They have run a fun-flyer for all comers and have printed pilot issue of a proposed newsletter. Corr. Sec. Harold Varelas (R.C.C., Oakwood Park, Clear Lake, Iowa) says they believe the public is just as interested as the flyers.

They rent a quarter of a 21-acre farm, moving to a different quarter each year. Harold invites other R.C.C. and clubs to get in touch, as RCRC wants to build up an active mailing list.

Competition

| R/C World Championships: Our R/C Stunt Team, consisting of Phil Kraft, Jim Kirkland, Jim Whiteley, & Ken Borror, who directed the team selection process and was R/C Pattern Event Director, has been appointed Team Manager for our 1969 FAI R/C efforts.

While R/C Scale has not yet been accepted as a FAI official event, a trial event will be held at the World Championships (to be held in area of Bremen, Germany) and it has been felt that the U.S. should try to enter a team. Since R/C Scale isn't an accepted World Championship event yet, the normal AMA team selection process doesn't apply. For this reason the Team Manager will select the team and if the need arises, any ACS member can be added.

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Toledo '69 coming up: Advance word from Ken Borror of the sponsoring Weak Signals Club brings word that the 15th Toledo R/C Conference will be held on March 1 and 2, 1969, at the civic center (Lucas Co. Recreation Hall, Maumee, Ohio). Friday at the R/C Club will be open to the public but only starting at 9 a.m. General admission doesn't start until Saturday morning at 9. All features that have been popular in the past will be generally repeated, with added displays, for the expected increased attendance. As in past, Headquarters motel will be the Howard Johnson Motor Lodge, 12305 S. Reynolds Rd., Mentor. Most reservations should be sent to the Toledo Weak Signals R/C Club (Box 5772, Sta. Werert, Toledo, Ohio). NERC hydro meet: Though this large area group has run some 15 well-attended annual meets for stunt, pylon and scale planes, it has in recent years been considered a rather leisurely event! How- ever, Harold invites other R.C.C. and clubs to get in touch, as RCRC wants to build up an active mailing list.

1st R.C.LA, Tournament of Masters: Following notes were taken from the WORK-SHEET of Western Ohio Radio Kontrol Soc. (By Editor Ron Van Putte, Dayton, Ohio). This was the first meet to be sponsored by the Radio Control League of America, and this year was open only to finalists at the Olath Nats: 14 of them competed on Sept. 21-22 in the Z of C, which was hosted by the Dayton R.C. Club. Many fly-ers came determined to beat Phil Kraft, which they hadn't been able to accomplish at Olath. Phil sort of flew the meet away, since he competed with both the T. of C and the Plane Class. He was in the running, judging from results. Nine rounds were flown, and winners were judged on their two best flights. Top winners were:


This meet was sponsored each fall by the R.C.L.A.; on appropriate years the meet

than just modelers... they are artists! As such, they can be expected to be somewhat temperamental and fussy, but someday perhaps we'll have a Nats where the Scale event makes the large majority of 'em happy!
Eastern States Championships: Sponsored by Central Jersey RCC at Sky Manor Air- port, Pittstown, N.J. this Oct. 6th season closer in the Northeast was literally swamped with entries. By actual count, there were 58, very possibly more than at any other R/C meet in the country, aside from the Nats. As a result, four flight circles were in use all day long. Every flyer in every event got a prize, no matter where he ended up. Contestants begged the sponsors to run a two-day meet in 1969—but all hands, from CD Leon Shulman on down—are not sure they could last through two days of such hard work. In any case, anticipating a repeat large entry in '69, it is possible the location will be shifted from Sky Manor to some spot allowing much more space, both on the ground and in the air; Lakehurst Naval Air Station is one possibility.

DC/RC 1969 R/C Symposium: The DC/RC's 12th Annual R/C Technical Symposium is scheduled for May, 1969, at the Johns Hopkins University, Applied Physics Laboratory near Washington, D.C. Planning for the Symposium has already begun with the Technical Papers Committee requesting potential paper presenters to send an abstract or a brief summary of their proposal to Walt Good (1222 Parkwood Dr., Bethesda, Md. 20014). That deadline, December 26, 1968, is past, however you might give them a try. If you have a topic which you think would be appropriate to the Symposium but know of no presenter, please send it in to the Technical Papers Committee so they can find some one.

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