

Here's the famous Indianapolis twin-rudder radio control job that's won top honors in many meets

By E. R. FOXWORTHY

Hoosier Hot-Shot

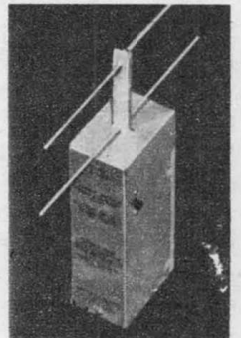
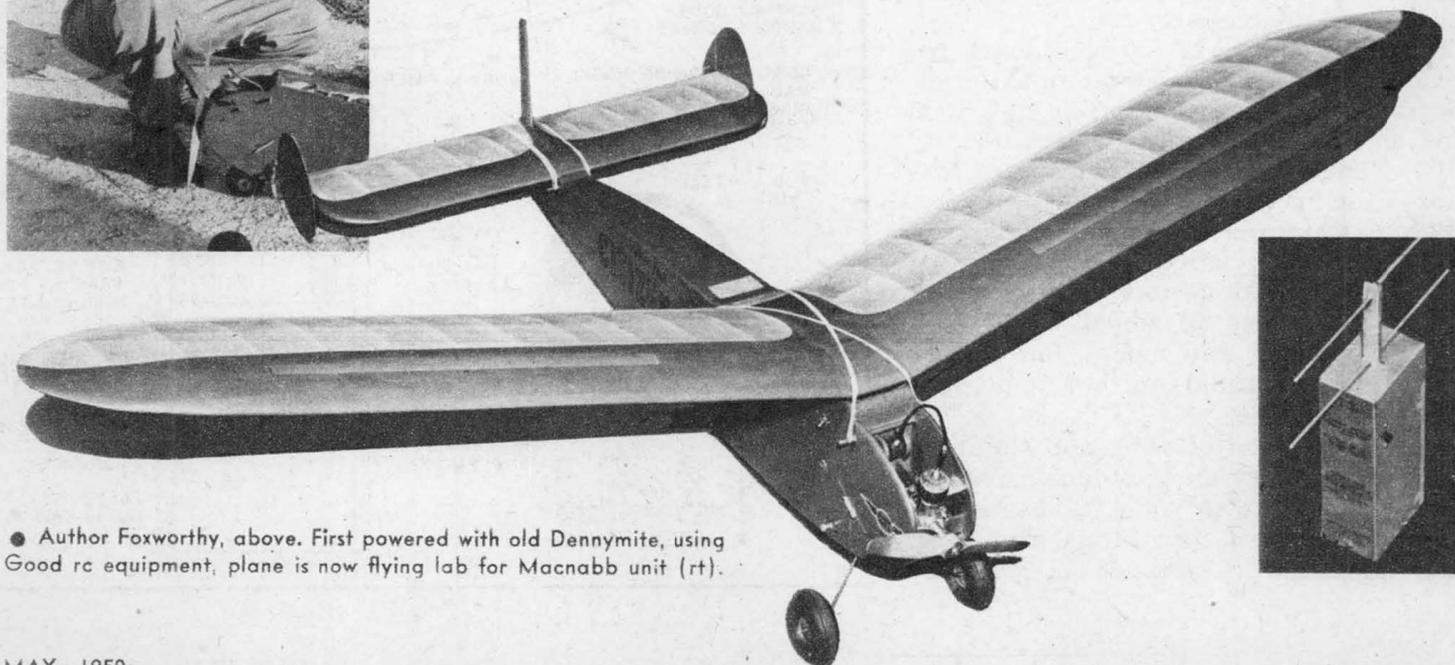
THE history of the average radio control model has been one spiral dive after another. It seems that the design of the average free flight model is not successful for radio control use. We have all seen a first-class free flight job spiral dive from a bad launch or a gust that disturbed its normal flight path; the movement of the rudder by radio is in effect the same.

The design work on the Hoosier Hot-Shot

was done by Kenny Ernst of Indianapolis, one of the old-timers with 20 years of proven design experience.

This model is unusual in appearance, in that it uses three-quarter span slots and twin rudders. The rudders were employed for two reasons: one to have a practical method of lowering the CLA, the other to get the movable surfaces out of the prop blast.

The average radio model builder has always been cursed by one big trouble in trimming the conventional rudder—with power on, he would get too much turn; with power off, his turn would be too little. The Hot-Shot has a tight turning radius; the differ-



● Author Foxworthy, above. First powered with old Dennyrite, using Good rc equipment, plane is now flying lab for Macnabb unit (rt).

HOOSIER HOT-SHOT

ence between power on and power off circles would have to be measured in inches.

The three-quarter span slots were used for two reasons: one to give a greater lift, the second and most important to control the air flow over the panels during a turn. The rest of the design revolves around C. H. Grant's theory of low CLA, high CG, and high thrust line.

An important factor overestimated by many radio control builders is power. We all know that today's free flight models are overpowered. Most beginners in radio control have the mistaken belief it takes more engine than needed for the average free flight to fly a radio job. This is a big mistake. We have successfully flown a five-pound radio job with an Ohlsson 23. To give you an idea of what power is needed, we are using a 14/8 pitch prop on our ship, turning the engine at 3000 rpm. It is our belief that any reliable .29 to .36 engine will fly the model well.

The construction on the Hoosier Hot-Shot is very simple and light, but strong enough for radio control. The fuselage is built in conventional manner.

Make nose side plates first from 1/4" sheet medium hard balsa, shaped as shown on the plans. Take one shaped nose piece and lay out the fuselage side, using medium hard 1/4" square balsa. Lay other side directly over top of first to assure they will be the same.

Cut main engine bulkhead from 1/8" plywood, spacing engine barrier holes for engine you wish to use. If you *must* have power, a tank-mount Ohlsson 60 can be easily installed.

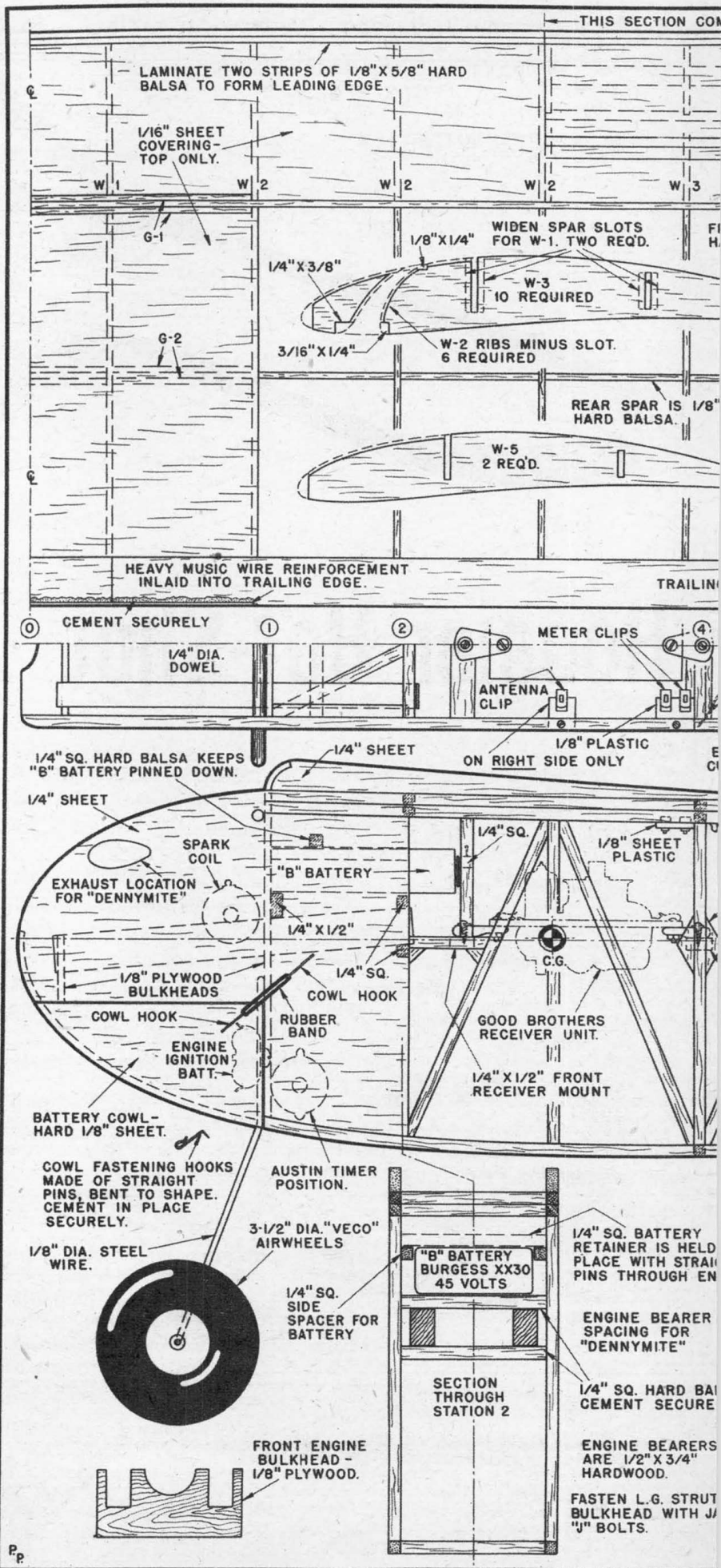
Take up the two sides. Glue the front bulkhead in place and fasten the rear of the fuselage together, placing the tail piece between each side as shown on plans.

After the front and rear of the fuselage have dried, fill in the rest of the cross-members in conventional manner. The top cross-members in the radio compartment are all double-strength.

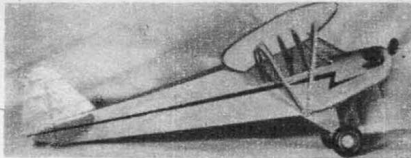
The under-cowl is of 1/8" sheet balsa, removable for access to the ignition batteries. The landing gear is bent from 1/8" steel wire and fastened to firewall with "J" bolts. The ignition system is mounted forward of the main bulkhead.

Before installing the engine, it is suggested that the engine compartment be heavily coated with lacquer or dope to prevent its becoming oil soiled. This is a good practice on any model, but doubly important on the radio control ship because of long engine runs.

The construction of wing and stabilizer is self-explanatory on the plans. The escapement is bolted to 1/4" x 3/4" balsa strip and glued to the center of the stabilizer. (It is important *(Continued on page 82)*)

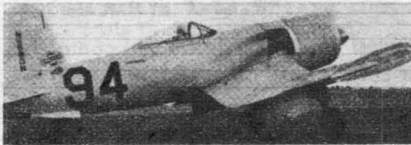


NEW 52" PIPER CUB GAS MODEL
Largest Prefabricated Scale Model Made



52" Span. Length 35". Weight 14 oz.
Features: ready cut sheet balsa body sides and wing ribs, 2 1/2" rubber air wheels. Model uses "B" or "C" type motor—free flight or U-Control. \$7.95
A husky model, easy to build. Set.....

VOUGHT F2G GAS MODEL



41" span. U Control B or C Motor. Scale model of 1949 Thompson Trophy winner. Set has 2 1/2" scale rubber (tired alum, disk wheels) 4 1/4" aluminum cowling, body planking, moulded, clear plexiglas cockpit enclosure, plastic spinner, etc. This is one of the finest equipped models in the world. Const. \$6.75 set

U.S.S. FLETCHER DESTROYER
World's Finest Destroyer Model



24" long. Modern destroyer. Set has smooth finished hull, paints, cast rowboats, davits, searchlights, turned brass, rail stanchions, 65 metal parts. Wood filler, glue, drawing, and all parts. Const. \$12.00 set

BOEING F4B4 NAVY FIGHTER



22 1/2" span. 3/4" scale. Rubber driven. A very exact model of the famous Navy Pursuit. All \$3.50 parts printed on balsa. Dry set. Const. set.

REPUBLIC P47D GAS MODEL



35 3/4" span. 7/8" scale. Length 30 1/2". One-piece moulded, clear plexiglas cockpit enclosure. 2 1/2" scale alum, disk rubber wheels. Body planking full size plans. Uses B or C motor. \$5.95 Set

CURTISS P40F GAS MODEL



48" Span. Free flight or U Control
Improved with new 2 1/2" alum, spinner and 3" Veco alum, disk semi-pneumatic rubber wheels. Planked type body, parts printed on balsa, and all \$9.00 parts. Set.....

NEW 1950 CATALOG, 7" x 10", LARGE PHOTOS, 10c COIN
ADD 25c POSTAGE EACH SET

MINIATURE AIRCRAFT CORP.

83 DANIEL LOW TERRACE, STATEN ISLAND 1, N. Y.

MAECO TANKS — NEW PRICES!

MAECO TANKS are well known for their high quality workmanship and durability. To date not one failure has been reported although over 50,000 have been used.

MAECO introduced the original acrobatic tank. MAECO keeps on developing new tanks for new needs. It has never copied. Always first with new ideas.

NEW MAECO TANK



NEW PRICES

SUPER	85c
STANDARD	75c
UTILITY C. 69c B. 65c	
SPECIAL— 1 oz.	69c

SEE YOUR DEALER

You now have choice of tanks by the dozen. Compare and examine others against MAECO TANKS. At the new competitive prices, it is quality against quality, and you are the sole judge.

NEW CLEAR TANKS



Designed for 30 sec. engine run but your eyes decide when to release the model. Transparent but hot fuel proof plastic. Three sizes.
#5 for .045... 35c
#9 for .07-.09... 35c
#19 for .19... 50c

Model Aircraft Control Co. Model Aero Engineering
Box 333 Sta. D New York 3, N. Y. Box 536 Reseda, Calif.

the finest fuels ever formulated!

Ranger Products, fuel specialists since 1935



RED DEVIL GLOW
A superior fuel for quick starting, cool running.
Pint Cans.....60c
Quart Cans.....\$1.10
SKY RANGER GLOW
Tops for contest flying. Powerful, high speed. No finer fuel made.
Pint Cans80c
DYNA GLOW
A "must" for trophy winning. Methanol base—Grade AA Castor Oil.
Pint Cans.....75c
INFANT GLOW
Gives the small engines the power

of a "60."
Half-pint Cans.....40c
SKY RANGER SPECIAL
A gas blended fuel for breaking in new engines.
Pint Cans.....45c
SKY RANGER DIESEL
Conforms to all popular engine formulas.
Pint Cans.....85c
GENUINE DRONE DIESEL
1 Quart Cans.....\$1.00
SKY RANGER GAS
Made from the finest Gas blend. Ready to use, lubricates as it powers.
Pint Cans.....35c

RANGER PRODUCTS 417—45th St., Bklyn. 20, N. Y.

Hot-Shot

that all measurements on the escapement be followed closely to arrive at the proper rudder movement.) The fill-in work around the escapement can be done to suit the individual builder.

The rudders are made of 3/16" sheet balsa sanded to shape. The rudder hinges are made of bent pins as shown in the sketch on drawings. Using diagonal pliers, cut the head off one straight pin, form a loop at the end of this pin, leaving it partly "open." Bend another pin near the head. Slip loop over bent pin and tighten loop. Hinge should swivel freely, without excessive "play." The location of the rudder horns is very important as it establishes the amount of control movement.

When making the control system, it is essential that the fits at all connections be free but not sloppy.

The escapement rubber is enclosed in the center mast which is dowel-pinned to the stabilizer top for easy removal. This mast is a simple streamlined shape built up of balsa. The top plug in the mast is removable to install rubber. The stabilizer should be keyed to the fuselage after all adjustments are made to assure the same setting on all flights.

The fuselage is covered with silk to prevent damage from weeds and stubble. The wing and stabilizer are covered with bamboo paper. All surfaces are given from six to eight medium coats of dope.

Radio installation: This is the most important phase of the construction of any radio model. We chose the Good Brothers' equipment because of its dependable and rugged construction. And we have found that the Good Brothers' equipment is easy for the beginner with no technical radio experience.

The receiver is installed on sponge rubber pads at its extreme ends. The pads were cut from rubber model tires. One end of the rubber was bolted to the ends of the receiver; the other end was screwed to the receiver mount supports. You will find this method to be as shock resistant as rubber bands, and it makes it much simpler to remove the receiver. All wiring on the radio equipment is done with stranded wire. It is advantageous to use a variety of colors of wire if possible, to make tracing circuits simpler. We cannot stress too highly the need for a neat wiring job with well-soldered joints.

Our pet theory on wiring is to keep all wires well separated and fastened down, using plastic pieces to stand off any bare connections such as antenna and meter connections. Wire ends going under Fahnestock clips should be tinned with solder for easy installation and removal of equipment. The escapement leads are of stranded wire twisted together, terminating on clips at the rear of the fuselage. The antenna is enclosed in a strip of plastic tubing glued to the top of the fuselage. The plastic tube selected should allow the antenna wire to be easily removed for adjustment. The pen-cell batteries are installed in Austin-type battery boxes fastened to a 1/16" plywood bulkhead in the rear of the radio compartment.

The switches used to break the radio and escapement circuit can be any single-pole single-throw type. These switches are mounted in the bottom of the fuselage just below the pen-cell batteries. The "B" power supply is located forward against the main for-



PILOT'S CHOICE

TRIXTER
GAS MODEL CONSTRUCTION SETS

designed by

Lou Andrews

1948 International
Stunt Champion

HERE IT IS!

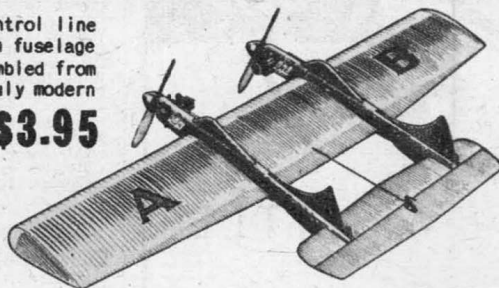
TRIXTER TWIN PROFILE A-B

A PREFABRICATED 47 INCH WING SPAN CONTROL LINE GAS MODEL

The newest thrill for control line flyers. A sensational twin fuselage model that is easily assembled from pre-finished parts. A truly modern design for sport flying. Tested by Lou Andrews. **\$3.95**

SPECIFICATIONS

Wing area . . . 362 sq. in.
Length 25 3/4 in.
Weight . . . approx. 38 oz.
Engine . . .19 to .29 disp.



Flash! Three outstanding numbers designed for the new Baby Engines



TRIXTER PIPER CUB SPECIAL \$2.00

An exact scale free flight model that can be converted to U-Control. 29" wingspan. Balsa parts cut to size.

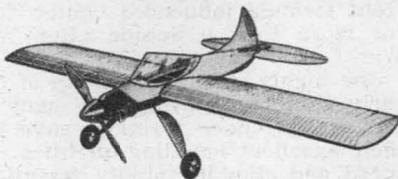
TRIXTER BABE \$1.00

20 inch control line model for in or outdoors, inverted or straight flying. Balsa parts cut to size or die-cut.

TRIXTER PIXY \$1.00

A free flight model with most parts die cut so that the model is easily assembled. 26 inch wingspan.

1948 International Stunt Champ



The TRIXTER INVERT JR.

Two of these models, powered with the Ohlsson 23, were used in winning the 1948 International Stunt Championship. Wingspan 40". For engines from .23 to .49 displacement. Directions for Lou's Variable Speed Control for Glow Plug engines included. Pre-finished balsa parts. Rugged construction. **\$2.95**

TRIXTER PROFILES

SUPER STUNT MODELS



CLASS A-B

A new profile control line flyer. Pre-finished parts. 32" wingspan. For engines .19 to .45 cu.in. displ. Simple construction. **\$1.95**

CLASS B-C

A 38" wingspan stunt model. Pre-finished parts for quick construction. For engines from .29 to .60 cu. in. displacement. **\$2.95**

MANUFACTURED BY **PAUL K. GULLOW, WAKEFIELD, MASS.**

ward bulkhead as shown. The ship is equipped with a thermal cut-off switch for breaking the ignition circuits. This circuit is installed across the escapement circuit and set to cut the ignition on a 6-second delay. This unit is shock mounted on rubber bands at the top and rear of the radio compartment.

The receiver power supply consists of XX30E Burgess 45 volt battery, two pen-cells in parallel for filament and two pen-cells in series for escapement. We have found that the advantages of the large B batteries more than make up for the additional 4 to 6 ozs. of weight.

The XX30E battery that is in our plane now has been used for over a year and has made 125 flights in the ship. It will be found that in normal use the battery will die of old age rather than be worn out. The pen-cells can generally hold out for 10 to 15 average flights. It is a good idea, of course, to check the filament batteries regularly and discard them when they go down to 1.1 volts.

Flying the model: The Hot-Shot should balance at the point indicated on the plans, for best results. The ship was completely equipped before any test flying. Some builders will not agree with this theory, but we believe you would only be fooling yourself if you fly it empty.

The model should glide flat at medium model speeds. The first flight is of short duration at low engine speeds to check for trim. The ship should fly straight under power and also glide straight. You can trim your glide flight with the pushrod turnbuckles. The power flight should be trimmed with the thrust line.

After the model is trimmed for free

flight, the radio equipment can be used. Before you make any control flight, the radio must be working perfectly.

We have found that the average builder has a tendency to neglect instructions. In radio control, this fault will probably result in the return of your ship to the shop in a highly "concentrated" form.

In parting, here are a few things to remember about radio control: 1) Don't overpower your plane. 2) Don't overlook the radio manufacturer's instructions. 3) Do test the radio often—power on and power off. 4) Don't forget to turn the switches on before launching.