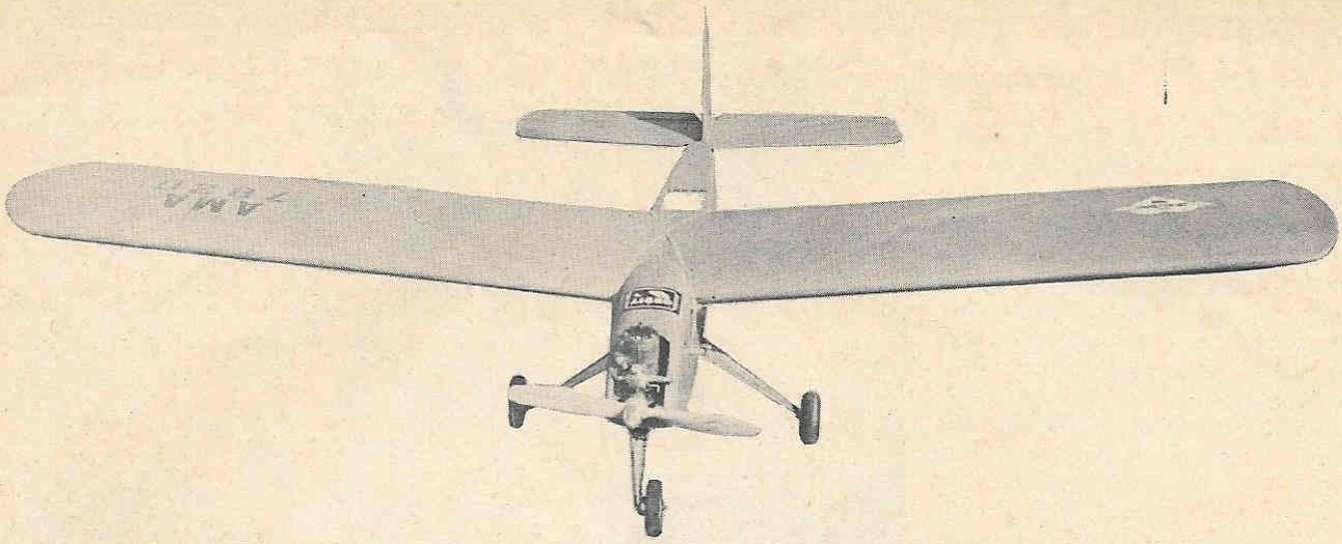

ARISTO—CAT

By BUD ATKINSON . . . A GOOD, SOUND EASY-BUILDING CONTEST DESIGN IS AN ABSOLUTE MUST IF YOU WANT TO WIN IN THE CLASS II INTERMEDIATE CATEGORY.

Top, trike gear for ground maneuvers, shoulder wing for flight maneuvers and plenty power, Veco .45, are a must for top notch contest work.

Above, in addition to all the requirements listed, we need generous control surface areas, with lots of movement coupled with smooth control.

First things first, all respectable Radio-Controlled jobs should and do have a name. The Aristo-Cat was nameless through its many changes until the final stages, when an observer at the old flying site made the remark, "This airplane is as light on its feet as a cat." Aristo, coming from aristocrat as being a little better or superior, and as nimble as a cat.

The Aristo-Cat concept goes back to the early days of the 6-channel event which was popular on the West Coast and in the Midwest about three or four years ago, until the old intermediate class was reclassified as Class II. A high-wing airplane was the start, much the same as the Explorer which was a takeoff from the original Smog-Hog. So you see, Class II airplanes do go back a long time. But back to Aristo-Cat! The high-winger left a lot to be desired, especially the outside loops and inverted flights. So a shoulder wing ship was built, several airfoils and wings were used, as well as a slightly modified 2415 airfoil. I wonder if any one ever used a standard 2415 without modifying it! At this time, I must say, the Aristo-Cat is a combination of all the good features of today's many accepted designs with added new twists thrown in. As some one said, "There is nothing new under the sun!" Just new variations, so be it with the Aristo-Cat. We now had a good flying plane, good inside and outside loops, fair inverted traits and easy to land but, wait a minute! The rolls looked as if they were being done on a roller coaster with the third roll, 300 feet below the first one. Problem: how to get a rudder elevator airplane to roll as an aileron elevator ship, without sacrificing performance of other maneuvers? Answer: More rudder! Unfortunately, this is not the right answer, as we found out. With much discussion with the K.C. R.Cers and remembering something from my old free-flight days in the 30s and 40s, I came up with a sub-rudder and small fin, and to our surprise this seemed to be the answer. By getting part of the rudder area below the wing and stabilizer wash, it gives more effective area and it has been used on free-flights for some time. Care must be taken not to end up with too much fin area or the airplane will weather-vane and make ground handling rough, also makes the loops touchy. By then the Aristo-Cat flew fine, but with so many modifications, it was one big patch. So, a new ship with pleasing lines was built and with a simpler fuse. There is no airplane immune to mishaps, we want a ship that could be easy and fast to build in the middle of the contest season. And this is the end result, to date with a full year's contest season under its belt and with 7 first places to the Cat's credit,

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ARISTO—CAT
. . . continued

plus several gallons of go-juice running through its Veco.

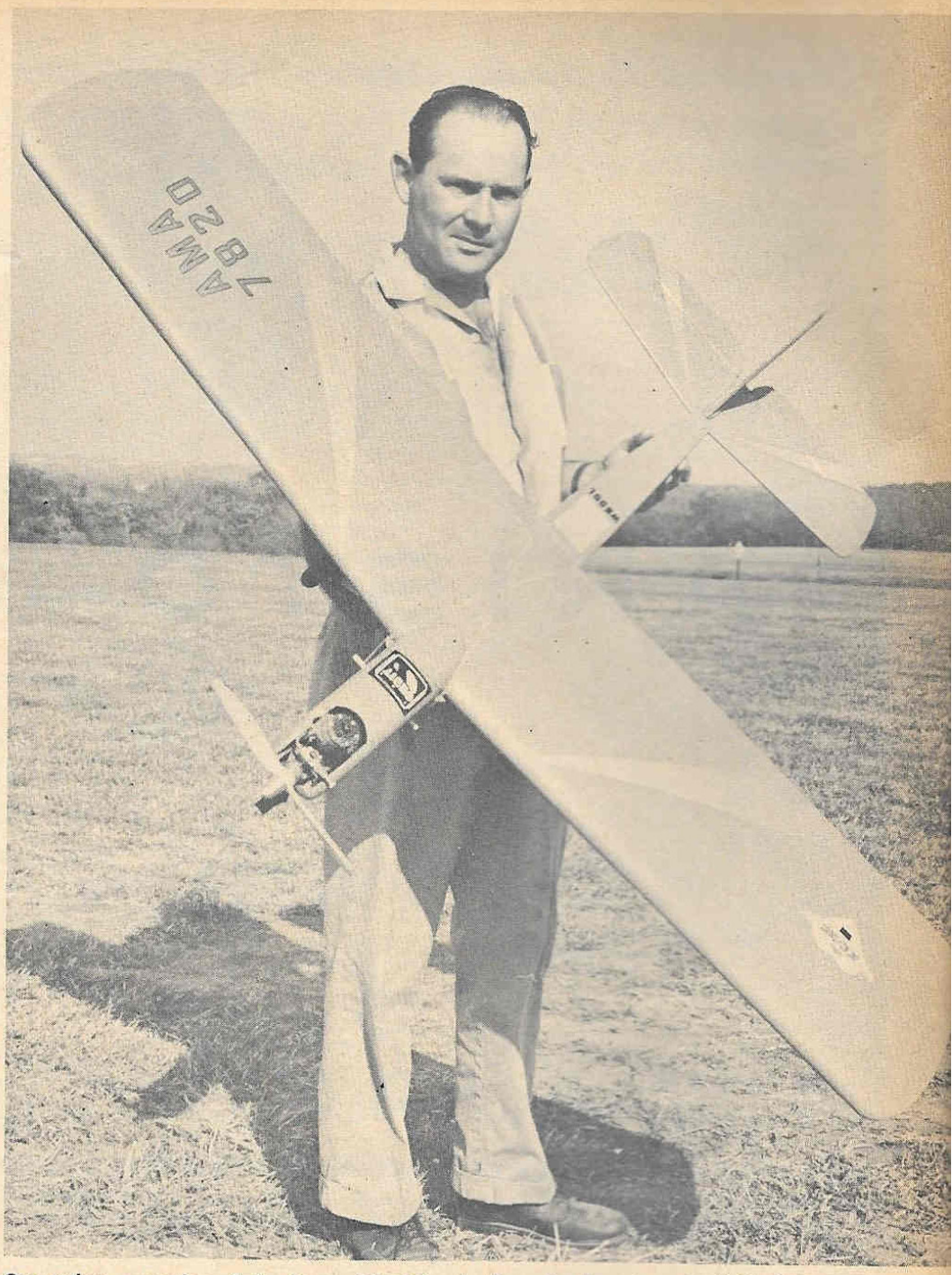
The servo-switcher shown is an addition which gives smoother straight flights and turns by giving half-rudder on rudder-control and for rolls, full rudder throw on aileron control. This device was incorporated for us, slow-thumbed old flyers, and does make for a smoother pattern, but is not absolutely necessary for the Aristo-Cat to perform well. This system has appeared in print in many forms but this one is by far the simplest and most foolproof to date, and was developed by my long time friend, Max Boal; also a long time K.C. R.C. er. We will not go into detail on how to make the switcher as there have been many articles describing printed circuits. The sector gear stand off should be free with no bind as this will load the rudder servo. It will be noticed that there is a pulsing of the half-rudder. Everyone that has seen it, wants to know where the pulser is on the X-mitter; this is caused by the switcher circuit over-riding the rudder servo circuit. There is no harm to the servo-circuit or no more than normal drain on the battery pack. Even if the switcher-circuit is broken, this does not affect the normal rudder-servo, as it works out you have a safety factor in that you now have two rudder controls. The switchers weight is less than one ounce and takes up little room.

How to hook up your switches:

Drill a 1/16″ hole in Transmite sector gear, like the switcher. Remove the servo cover screws and install the switchers.

For elevator: Solder a yellow wire to the yellow single-dot land on the switcher; the other end goes to servo yellow. Solder an orange wire to the orange single-dot land on switcher; the other end goes to servo orange. Solder yellow and orange wires to the double-dot lands; free ends of the wires go to the trim reeds. To reduce throw on the new positions: remove the switcher sector gear and cut, trim, the double-dot lands 1/16″ or less at a time until you get the desired positions.

For C.A.R: Install the switcher on the aileron servo. Connect the single-dots to servo yellow and orange. Then connect the double-dots to the rudder servo yellow and orange. This gives full rudder and part ailerons.



Our author, a member of the Kansas City RC Modelers, is a very active competitor on the local, regional and national levels and has established a very enviable record of wins.

To get 5-position Rudder: Follow same procedure as on elevator.

Use rudder and aileron reeds and servo wires.

Construction: Everything in the fuselage is standard. I used a Veco 45 for power, but any good 45-49 will do, and cut out engine-mount accordingly. I did not show servo mounting as there are many ways to do this. My Aristo-Cat had the trim and elevator servos bolted to the floor and the rudder and motor control servo bolted to the sides. Dope the radio and servo compartment with several coats which make for better base for mounting the servos. I used ¼″ sq. spruce for torque rods. But with the advent of proportional, there may be many to mount your servos.

Tail Surfaces: The stabilizer is conventional but keep in mind that it is quite far behind the CG, therefore select light wood. If you wet the silk before applying, coat wood two or three times with clear dope before covering, then wring all the water out until silk is almost dry, then apply to wood, covering both sides as soon as possible. This procedure is a warp-free as possible; always dope both sides at the same time.

Wing: This is of standard construction; without aileron the wing must be warp-free to perform properly, be careful in planking the trailing edge. The best way to build this wing or any wing, I think, is to build both wing panels at the same time with the dihedral being built in: a ¾″ ply wing jig board with adjustable dihedral is what I use.

In sum- (*Continued on page* 44)

Aristo-Cat

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ming up, the Aristo-Cat should be easy to build and a dream to fly and I think you will find it a real tiger at contests and as playful as a kitten when Sunday-flying. Good Luck and many touch-and-goes!"

In Their Honor

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from India into the interior of China reducing danger from enemy fighters and under better weather conditions. It was he who organized a weather service with stations set up in areas of China so isolated that the native populations had never before seen a non-Asiatic. When he was finally sent home in September 1945, Ellsworth was a Colonel. He had accumulated 780 combat hours in 400 combat missions with the Tenth and Fourteenth Air Forces over China and had been awarded battle stars for his participation in eight different campaigns.

Colonel Ellsworth's next assignment was with the AAF Weather Service headquarters in Washington where he became Chief of the Operations and Training Division. His greatest handicap was brought about by the rapid post-war demobilization of the U.S. military forces. The weather service was reduced from 18,000 to 4,500 men and more than half of its 1,000 weather stations operated throughout the world were inactivated. This enormous decrease in personnel left too few men to operate the required number of weather stations and threatened to cripple the Weather Service. One thing was certain: Ellsworth had to find a way to utilize his few remaining men to better advantage.

One of his first actions was to coordinate the revival of civilian weather services in foreign countries. If this could be accomplished, the Air Weather Service would be relieved of the responsibility of manning these overseas stations and a more concentrated effort could be directed toward the operation and maintenance of an efficient weather service within the United States.

But Ellsworth had to work fast. Overnight he produced an estimate of the number of people it would require to civilianize these overseas weather stations, and in the same evening he drew up a complete budget for the project. All this information was necessary so that an appropriation of funds could be obtained.

The eventual sucess of Ellsworth's planning enabled the Air Weather Service to continue operations even under the most adverse conditions. In a letter awarding Ellsworth the Army Commendation Ribbon, Col. D. N. Yates, Chief of the Air Weather Service, wrote: "In this and in other short-range planning and emergency moves, you displayed typical energy, assurance and perspicacity."

After seeing his work at the Air Weather Service headquarters to a successful completion, Ellsworth next assumed command of the 308th Strategic Reconnaissance Wing in August 1946. The 308th was a world-wide unit with its B-29 squadrons based in Alaska, Guam, Japan, Bermuda and California. Col. Ellsworth remained in command of the 308th for three years and then enrolled as a student in the Air War College, the Air Force's school of higher learning for its future generals. In November 1950 Ellsworth took command of the 28th Strategic Reconnaissance Wing based in Rapid Sity, S. D. Almost two years later, on September 5, 1952, he was made a Brigadier General. At the age of forty-one, Richard Ellsworth won his star.

By this time, the Air Weather Service's long-range Convair RB-36's were making scheduled weather reconnaissance flights all over the world. They gather data from the North Pole to the Equator, covering the vast Pacific Ocean and land areas so remote that they were beyond the range of weather stations on the ground. They tracked hurricanes and typhoons, provided operational and planning forecasts for every part of the world and furnished each major USAF command with the specialized weather service it needed. The Air Weather Service had come of age.

On the morning of March 18, 1953, Air Force RB-36H number 51-13721 was returning to Rapid City from Lages Air Force Base in the Azores. Although she was alone in the sky, 721 was actually part of a task force of RB-36's on a global training mission for the 28th Strategic Reconnaissance Wing. As they approached Newfoundland, the weather grew steadily worse. Visibility ranged from zero to one eighth of a mile at the most. Ceiling varied from 50 to 100 feet with freezing rain, drizzle, sleet and fog. But bad weather alone was no problem to a well-equipped RB-36. She could fly above it, around it or even through it with no sweat. Then 721's pilot Capt. Jacob Pruitt, Jr., radioed that two engines had failed. This changed the situation. Coupled with mechanical failure, routine instrument flying in even the best-equipped aircraft can be a dangerous thing and the weather becomes a callous enemy. Pruitt's report was the last message ever heard from 721 and its crew—which included General Richard Ellsworth.

Air Rescue Service B-29's took off immediately to search for the missing RB-36. A few hours later one of these searching aircraft also crashed. Finally the wreckage of 721 was sighted on a hillside near Nut Cove, Newfoundland. It had been in level flight when it hit the ground, with jets off but all propellers turning. The plane was completely burned except for the huge tail which stood out from the charred ground, a grotesque marker. There were no survivors.

Richard Ellsworth had been killed by a combination of mechanical failure and, ironically, bad weather.

On June 13, 1953 President Eisenhower went to Rapid City AFB and paid personal tribute to the man he called a "gallant and patriotic American" by renaming the SAC base Ellsworth Air Force Base in his honor.

How To Idle

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because of this varnish. This is the cause of a prolonged break-in in many cases. If after five or six hours, your engine still doesn't come in, it probably needs to have the varnish removed. If we always ran our engines wide open as in U-control and free flight, the problem wouldn't be as great. But any time you idle an engine, the problem starts. The combination of rich mixture, lower than normal engine temperature, and exhaust restriction, makes the deposits build rapidly. For this reason, excessive idling should be avoided, especially with new engines. There are several detergents that can be added to the fuel to remove varnish. The most easily obtainable is R.G.A. Glow-life available in any hobby shop stocking the ACE line. To clean badly varnished engine, remove piston and sleeve. Fine grade steel wool will do the job without hurting the parts. Carbon runs hand in hand with varnish and also causes problems. If an engine, which has been running well on the same fuel-plug combination, starts to cackle and fry as though too lean even when running rich, and never smooths out in a two-