A happy Walt Good after his 1952 R/C duration record flight of 40 minutes, 28 seconds, at Andrews Air Force Base, near Washington, D.C. The model is his 6-foot Rudder Bug, with a Forster .29 ignition engine. Transmitter control box is in his left hand. Radio is described in text.

FAMOUS R/C AIRCRAFT..... NO. 1 Walt Good's 'RUDDER BUG'

PHOTOS FURNISHED BY WALT GOOD

The expression "going *DOWN* in history" just doesn't seem appropriate for famous R/C model aircraft. We intend to keep them *UP* in the air by bringing them back to you, one at a time, in this interesting series.

• In the months to follow, **Model Builder** intends to present a series of famous, pioneer R/C aircraft. This presentation will include background history on the model . . . and its designer, and also a complete set of construction plans, which may be purchased through **Model Builder's** plan service. When possible, we will publish photos of the original model, and will also give brief building instructions, particularly in areas that may need additional clarification.

Many of the very early R/C models, which were designed in days when the rudder was the only moving control surface, were so inherently stable that, if left alone, they would keep on flying until they disappeared . . . which was very often the case . . . as a result of the crude, tempermental, relay-operated, rubber band powered, control mechanisms! Because of their stable flight characteristics, most of these famous, historic R/C aircraft would still make excellent trainers, and with the matter-of-fact reliability of today's radio equipment, could give even more pleasure to modern day builders than they did 15 to 25 years ago.

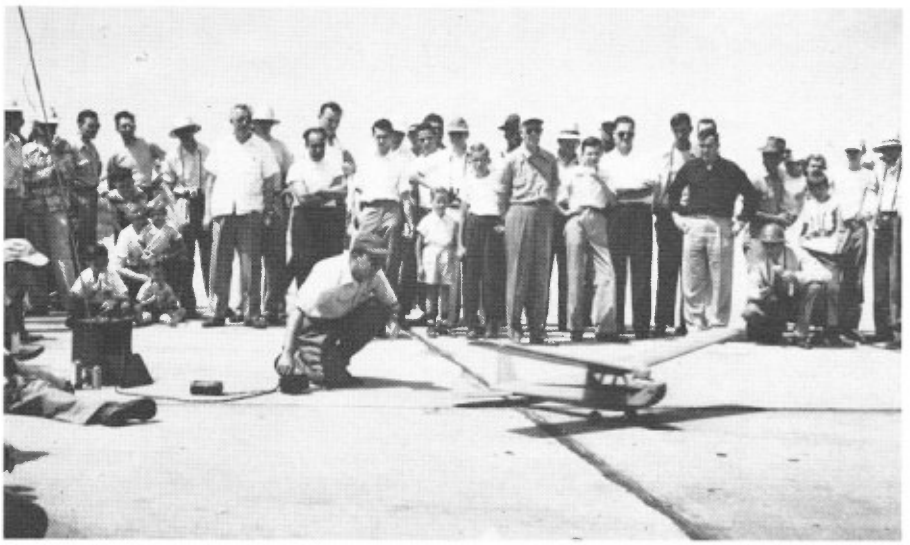
There were a few famous R/C model aircraft prior to the "Rudder Bug", but the "Bug" represented the first departure from the 8 to 12 foot, load-carrying behemoths that came before it. Perhaps it is time to let its designer, Dr. Walter A. Good, pick up the story.

"The Rudder Bug was designed especially for radio control rudder flying . . . in 1949. This six foot giant was considered small at that time, but large enough to carry the one pound *(Yes, 16 ounces! wcn)* of single-channel equipment.

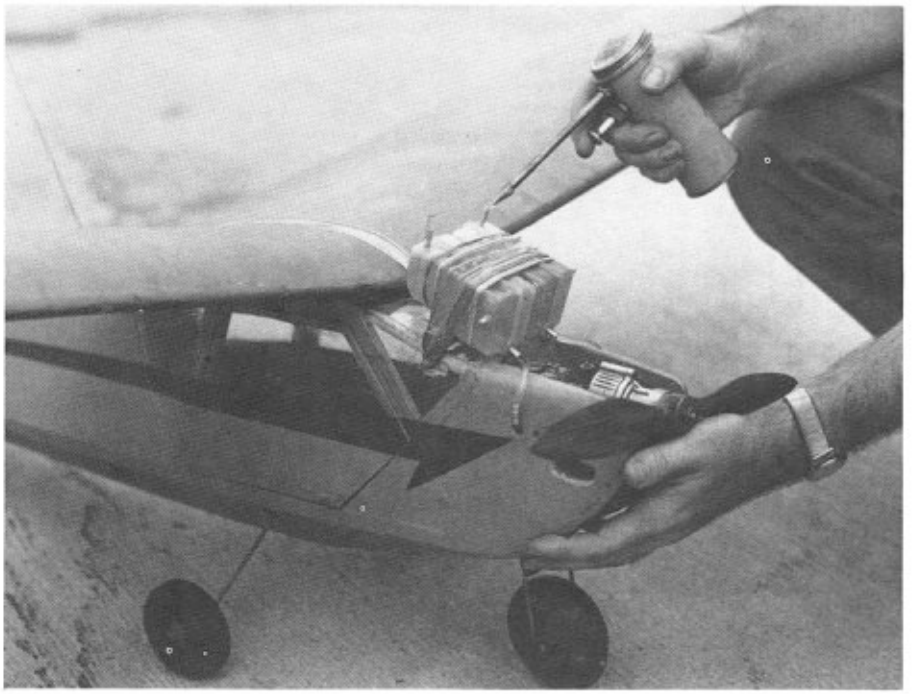
"The radio was the Good Brother's single-tube receiver and escapement, put out by Beacon Electronics, in Pittsburgh. The ground-based transmitter gave 2 watts at 54 MC, and was push-buttoned on and off to give right, left and neutral rudder. Incidently, in those days, we tuned the transmitter to the receiver!

"The engine was a deLong 30, which was later replaced with a Forster 29. Both engines were about as powerful as today's 19's, but the ignition system gave good long flights on a few ounces of gas/oil mix.

"Basically, the plane design came



Three attempts were required to accomplish takeoff for the June 25, 1952 record flight. Same model won the 1949 Nats R/C event. Five foot span version kitted by Berkeley.



Tank filling operation for the 1952 duration record flight. Extra tanks simply strapped to outside for the flight. Note cabin door for convenient access to radio system.

Armin Roethlisberger launching his Rudder Bug for the flight that won the 1962 Swiss Nats. Snow covered Alps form beautiful backdrop. This may be Royal Rudder Bug from kit.

strongly from free flight . . . note the large dihedral and small fin for good spiral stability. However, several features were especially for R/C. The very small rudder was remarkably effective . . . one-eighth inch deflection was plenty for a tight turn . . . and resulted in a tiny torque load on the weak escapement actuator. By placing the center of the fin area on the level with the thrust line, good power-on to power-off characteristics were obtained.

"Spacious cabin doors on both sides gave easy access to the temperamental R/C gear which usually required attention before every flight and sometimes during flight!

"Overall, the Rudder Bug turned out to be a very stable and docile model, thus providing a good platform for newcomers and the then not-so-reliable radio gear.

"The Rudder Bug was first designed, built and flown during 1947 and '48. By 1949, when the plans were published in Model Airplane News (May-June '49) the original had made almost 100 flights.

"It was surprising to see 11 Rudder Bugs at the 1949 Nationals (considering the plans came out only a few months before the meet), out of a total of 31 entries! A Rudder bug took first place.

"Within a few months, the British published the Rudder Bug in "AEROMODELLER" (Jan./Feb. 1950), which started an overseas interest in the model.

"By strapping extra tanks on the Bug, still using the ignition Forster 29, an FAI World's Record for R/C duration was set in June 1952, with a flight time of 40 min., 28 secs. The previous record was held by the Russians with 23 mins., 8 secs. The escapement rubber band was still only half wound down after the 40 minute flight. It started with over a thousand turns.

"In order to obtain a smaller Rudder Bug, the original was scaled from 6 feet span to 5 feet in 1954, and powered with a 19 engine. This version was dubbed the 'Royal Rudder Bug.' Don Clark, of the DCRC, did the reduced version, and plans were published in "Flying Models' in Feb., 1954. Later that year, Berkeley Models kitted the Royal Rudder Bug and sold thousands throughout the world *(**MB's** editor built his first R/C model from one of these kits, in 1954. wcn)*

"One evidence of its international popularity was the winning of the Swiss Nats in 1962 by Armin Roethlisberger . . . with a Rudder Bug!

"Even in 1977, a Rudder Bug is occasionally seen at the model field. Billy White, of Washington, D.C., recently finished a six-foot Bug,

Billy White holding his 6 foot version of the Rudder Bug in 1952. Billy and Walt are long-time members of the famous DCRC club in Washington D.C., now in its 26th year.

Billy White's 1977 version of the 6-foot Rudder Bug. Walt Good took this photo in a pose similar to the 1952 picture taken by the late Fremont Davis in 1952.

complete with rudder, elevator, and engine controls. The engine is an OS40 Schneurle, with more than enough power. Less than 1/2 throttle simulates the flight of the original. (I flew this one just recently . . . very nostalgic, but I must admit I liked the addition of the elevator and engine controls!) No plane changes were made, other than the addition of a two-inch wide elevator to the existing stab. Bill says he liked his earlier, 1952 Rudder Bug so much he just had to build another one . . . just 25 years later!!!"

Of course, these articles are primarily intended to tell you about the historic R/C aircraft, but in the case of the Rudder Bug, it is not sufficient to say, ". . .designed by a well-known R/C modeler," and let it go at that. This quiet, unassuming gentleman, is really 'Mr. R/C' in person, and the following list of modeling highlights in his life represent only the R/C highlights, and even then, we note several significant items are missing, some of which we could account for personally (such as the Dahlgren, Virginia, Altitude Record Trials in 1963, 1965, 1968, etc.).

1936 — First R/C gear working on bench.

1937 — First controlled R/C flights with 8 ft. Guff, in May.

1937 — Fourth place in the first AMA Nats R/C event. Chet Lanzo was first place winner.

1938, 39, 40, 47 — First place winner at AMA Nats, with 8 ft. Guff. Most satisfying flight was 14 minutes long, in 1939 Nats!

1946-47 — Design of single-channel R/C gear, produced by Beacon Electronics. (Note: All of this was on technician's band. The examination-free citizens band, as we know it today, did not come into existence until 1953.)

1949 — First place in R/C event at AMA Nats . . . with the Rudder Bug.

1946 to present — Chairman or member of AMA R/C Frequency Committee.

1952 — FAI World Record for R/C Duration, with the Rudder Bug.

1954 — Design of WAG single-channel tone system (3-tuber).

1956 — Design of Two Tone Pulse Width (TTPW) dual proportional system.

1956 — Design of "Multibug" plane, for dual proportional and engine control.

1959 — Winner of LARKS (once-famous Los Angeles Radio Kontrol Society) pylon event, with Multibug and TTPW. This was proportional vs.

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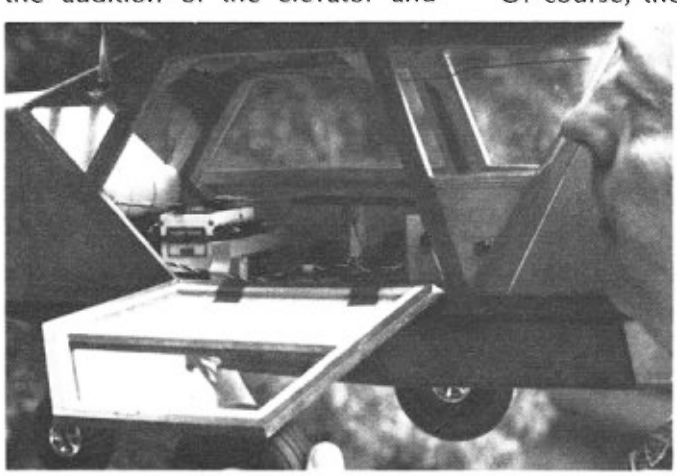
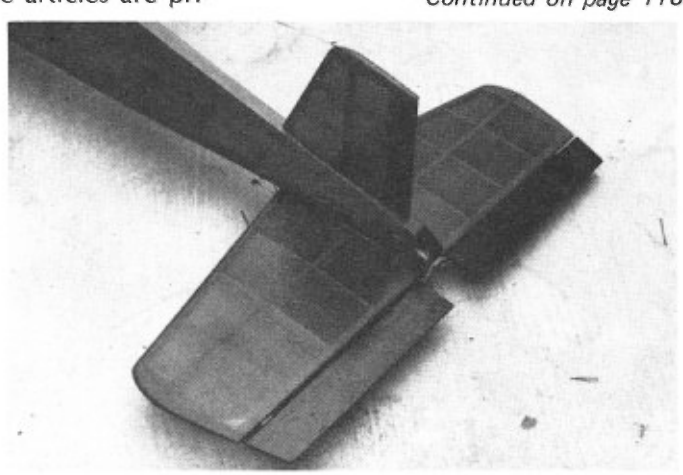


The huge cabin doors were necessary to service early cantankerous radios. Modern Royal radio is lost in all that space!



Billy's '77 Bug has elevator, rudder, and throttle. Original had only rudder. After flying Billy's, Walt admitted it was nice having elevator.

bang-bang reed radio models, at a time when there was much controversy between reed and proportional supporters.

1958-64 — Chairman of CIAM/FAI R/C Subcommittee.

1960 — Team manager of 1st FAI R/C World Championships, in Zurich, Switzerland. U.S. team was Ed Kazmirski (the winner), Bob Dunham, and Hal deBolt.

1962, 65, 67, 69, 71, 73 — FAI R/C World Champs, as jury member or official.

1969 — Chairman of DCRC 12th R/C Symposium (also the last one).

1968 to present — R/C Soaring enthusiast (winner of First Soar-Nats, Chicago, 1970).

1970 to present — Co-producer of thermal sensor for R/C soaring (Thermic Sniffler, by Soaring Products).

If you've had any scratch-building experience, you won't need a book of instructions to construct the Rudder Bug.

The fuselage is almost entirely built over the top view before removing from the board. The basic 1/4 x 1/2 crutch should be made from hard balsa, and if you're limited to 36 inch wood, make a neat splice, and double it with a scrap of 1/4 x 1/2.

The wing spars are first joined at the center, with the correct dihedral angle, and then the ribs and other parts are assembled. To produce the built-in tip washout, which is so essential to most all types of free flying models, except full-house pattern birds, build the entire wing flat, with "square" tips. Then slice off the angled trailing edge and shape the bottom of the ribs to fair smoothly into the trailing edge.

The fin is symmetrical and is glued directly to the top fuselage spine. The rudder is very sensitive, and though it doesn't appear possible, a tight turn is produced by an 1/8 inch of deflection.

Believe it or not, the original model was test-flown *without* radio. The balance point is at 37% (4-1/2 inches back from leading edge of wing). Wing loading of the original model, without radio, was only 10 oz. per square foot. With today's lightweight gear, the Bug will be a real floater. •