



# The AMA History Project Presents: Autobiography of EDWARD (ED) J. LORENZ



December 4, 1917 – September 7, 2006  
Began modeling in the 1920s    AMA #28790

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## Career:

- c.1947-1950: Started Control Research with John Worth and Dick Cohn in Kingston, New York and Hampton, Virginia
- 1950s: Supplied plans/printed circuits to Polk's and Lafayette Radio (New York City)
- 1963-1973: Was Chairman of the FCC Frequency Committee
- Provided Radio Control parts and kits to Berkeley Models (New York City)
- Provided Radio Control parts and kits to ACE R/C (Paul Range)
- Started several beginners' clubs in conjunction with a shop teacher at local Poughkeepsie High School
- Made a variety of spark coils for model ignition use (Aero Spark)
- Built a Radio Control model of the Clermont; sailed this model across the Hudson River.
- Worked with IBM in Poughkeepsie and East Fishkill for twenty-six years

## Designed:

- 1950s: Several transmitters for Polk's
- Receiver/transmitter kits for American Hobbies (New York City)

## Honors:

- 1973: AMA Distinguished Service Award
- 1974: Vintage Radio Controlled Society Hall of Fame
- 1974: Howard McEntee Award
- 1980: Model Aviation Hall of Fame

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*The following was submitted by Edward J. Lorenz and transcribed/edited by AMA staff.*

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## Getting Started...

I began building models in 1925, starting with a Rise-off-Ground (R.O.G.) kit by Warner. I believe it was made in Dayton, Ohio. I kept building odds and ends of planes out of balsa and tissue until 1927. After Lindbergh's flight, a company came out with a kit of the *Spirit of St. Louis*, with all aluminum longerons, ribs, spars and more. It was held together with small aluminum rivets, and then covered with bamboo paper. The propeller was aluminum; it did not have the most efficient propulsion. Did it fly? You might call it a powered glide.

Towards 1930, I designed and built a number of rubber-powered models, both indoor and

outdoor. I managed to win a few prizes at the Ohio State Fair and at various contests at the State Fair Coliseum.

My first engine was a Brown Junior. I received it about a year after it came out (around 1934 or 1935). I earned the \$21.50 it cost by being a soda jerk at the local drug store. My first gas model was a Berliner-Joyce, built from plans in either *Popular Science* or *Popular Mechanics* magazine. [I believe] this was the first gas model flown in Columbus, Ohio, and it would have been a successful flight except for the low barbed-wire fence. From then on, I concentrated on Class C contest models. In 1937, I won the Scripps-Howard Central Ohio contest, in both gas and rubber-powered events, resulting in a trip to Buffalo, New York for a bigger event. The airplane I designed and built for that was not tested by the time I got to Buffalo, and a few glide tests did not convince me it was worth entering. On my return to Columbus I figured “what the heck,” fired it up and it really flew, enough to get quite a few wins in central Ohio (7' polyhedral wing with a Brown and weighing 4-1/2 lbs.).

The next “exciting plane” was the result of a “contest” among a few local flyers to see who could design, build, and fly something in the shortest period. In less than two days, the Cyclone (baby) was flying, and someone suggested that if I filled up the tank (about 30 minutes running time), they would chase it in a big plane. I did. I launched it and waited for the Aeronca C-3 to take off, which it did not. After about 10 minutes, it disappeared in the clouds at about 3,000 feet. Several army planes seemed to be in the vicinity and we went from Norton Field to Port Columbus (the local army base) to see if they saw it. The Curtiss Falcons saw it and thought it was a kite, chased it a bit and when it was out climbing them and they were short of gas, they returned. Altitude then was 5,000 and going up. Despite newspaper ads in the central and eastern part of Ohio, that was the last I heard of it.

Too much more to clutter up this section.

### **Competition...**

Competed in rubber powered scale events at the Ohio State Fair in the early 1930s (12 seconds with a Polish Fighter) and a variety of outdoor and indoor rubber powered events in the late 1920s and early 1930s. Entered Class C gas at the Nationals (Nats) held in Detroit in 1937-38.

In 1937, with a new plane and a new engine (Brown), I had 23 minutes, the highest time, except it was a test hop and in the official flights the engine did not run properly.

### **Designer/Experimenter**

My experimental work concerned Radio Control models. I wrote articles on relays and escapements (in *Model Airplane News* – M.A.N.) in the mid 1940s. In the mid to late 1940s, I was chief engineer at Aero Spark in Kingston, NY, putting into production the Aero-Trol Radio Control set, which I developed several years earlier. Also produced were special rocket igniters (GE) and several other model related products for engines and Radio Control use. Aero Spark

expired when the glow plug caught on.

Several of my gas model designs were used successfully around Ohio but I do not know if they won any contests.

### **Leader**

In 1952, I helped start the IBM Radio Control Club, now the Mid-Hudson RC Society, served as president, vice president, secretary, and treasurer of this club in the early days. (No, I was not president or vice president when four months were spent in debating whether or not to join the AMA ----- the insurance plan settled it.)

Served as Chief Scale judge at the Rhinebeck Jamboree for about 15 years, also for the classic event inaugurated later. The jamboree was not given much chance of success by others outside of the club because "you can't run a contest on only one type of plane," and models will not fly with a full-scale airfoil. Both proved wrong. The Jamboree is close to 30 years old.

Also started several beginners' clubs in conjunction with a shop teacher at local Poughkeepsie High School.

Was Chairman of the FCC Frequency Committee from 1963 to 1973 and instigated the raising of \$10,000 for our first FCC lawyer. Was awarded the Distinguished Service Award for this effort. Also received the second Hall of Fame awards ---- way back when. In 1974 was awarded the Vintage RC Society Hall of Fame award.

### **Contest Director**

In the 1930s and 40s I directed Free Flight gas and rubber powered events (Columbus, Ohio and Kingston, NY).

### **Writer/Editor**

Wrote construction articles for Popular Electronics and several other electronic magazines in the 1940s and early 1950s. Also wrote technical articles and chaired electronic packaging conferences (International), Boulder, Colo. in the 1950s and 1960s.

Wrote many articles for Model Airplane News in the 1940s and 1950s, before becoming Radio Control editor for M.A.N. for 16 years starting in the early 1950s.

Had three presentations to the DC/R Symposium published in their proceedings in the 1950-1960 period.

### **Part of the Hobby Industry**

### Designed:

- A variety of spark coils for model ignition use. (Aero Spark)
- Wiring harnesses for model ignition use
- Several transmitters for Polk's (1950s)
- Receiver/transmitter kits for American Hobbies (NYC) 1950s
- Supplied plans/ printed circuits to Polk's and Lafayette Radio (NYC) 1950s
- Started Control Research with John Worth and Dick Cohn in Kingston, NY and Hampton Va. from about 1947 through 1950
- Control Research supplied parts and kits to Paul Range as he was starting ACE RC and to Berkeley models (NYC)
- Did retails for F.P. Hall and C. S. Mooney hobby shops in Columbus, Ohio from 1934-1959 and 1947-1949
- Carved hundreds of gas props for Hall Hobby, used throughout Ohio in the 1930s and mid 1940s
- Provided packaging design and configuration for the Batt-Chek, a small airborne device for monitoring battery voltage (Protune, Poughkeepsie, NY in late 1980s)
- Worked at F. P. Hall's Columbus Ohio, along with Jack port in the 1930s and early 1940s
- Chief Engineer for Aero Spark in Kingston, NY in mid to late 1940s; this covered manufacturing and QC of spark coils for model and industrial uses. The main work consisted of producing (1000 units) Of Aero-Trol the first small R gear.
- Won first prize at a big model industry show at Madison Gardens for the smallest R plane at that time, 1946.

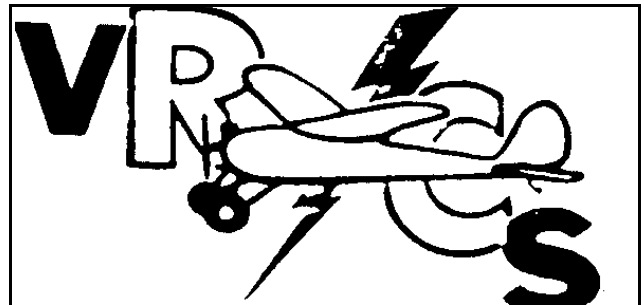
### **Items not covered by biographical outline:**

Interest in modeling at a very early age led me into big time aviation. After attending school in Kansas City, Mo., I went to work for mid-Continent Airlines in Huron, SD as radio operator and station manager (1940-1942), in 1942 I went to work for TA in Kansas City in the communications department and did instructing of new flight personnel in meteorology/communications. Also taught airline procedures at Decries radio institute in Chicago. Also wrote a Link Trainer course for new flight personnel at TA.

There probably is more, but after over half a century!

In charge of reckon on gun sights/Na equipment on B-29 flown in from Texas -- Full of dust (Curtiss-Wright). Also, built with help of one man the aft section of an ASW mockup -- just like a model. Had it built before Engineering sent down official plans (C-W)?

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## **Ed Lorenz in the Valley of Giants**

*Anyone involved in Radio Control from the early days will remember the name, Ed Loren. For many years, Ed wrote the most informative column on Radio Control matters, "RC News" in Model Airplane News. His circuits, particularly the various Lorenz receivers brought reliability to a very unreliable activity. Those circuits were built by novice and expert alike and brought many of us to a true flying stage; a part of the hobby that alluded some of us for many of our early years. Ed relates in this article the wonder of his first Radio Control project. (Art Schroeder VR/CS Ed.)*

In the Medieval Age of Radio Control, roughly in the early to mid 1930s, yours truly had been building models of various kinds for about 12 years. After reading of some work during World War I on Radio Control of various vehicles, it was decided to look into it, even though our knowledge of same was zilch.

The first thing was to find out what radio was all about, but we were sure a crystal set would not do the job. A local bed-ridden "ham" operator was contacted and therein began a most interesting entry into Radio Control. I shudder to think of it now.

The design of the plane was left until last because we figured something could be designed to lift whatever weight we ended up with.

The receiver was the first item to be considered and primarily the type of circuit to be used. Raytheon had a new thyatron, which looked promising because of the relatively large current change to actuate a relay. This was a rather large glass envelope with a four-prong Bakelite socket that cost \$3.50, same as the later and much smaller RK-61. It still produced a beautiful purple flash if the wiring was mishandled. The circuit was that recommended by Raytheon and used the Sigma 4F relay, bulky and weighty but reliable. The relay closed a circuit upon receipt of a signal, the difference in current reading being from 1.5ma down to, hopefully, .5ma or less. Relay settings versus vibration could be a problem. The power supply for a single channel was a 1/2v filament cell (50ma drain) and a 45v B battery. And not of the smaller hearing aid sizes to come out later.

The frequencies used for the 8-channel (nightmare) were in the 160-meter "ham" band. Receiver and power supply for one channel was about 8 ounces, maybe a bit more. For 8-channels, the weight was estimated at about 40-44 ounces. This brought us to the decision (and flip our lid) to go for a big scale model, not in existence in the early days of gas-powered models.

The model chosen came from photos either in Popular Mechanics or in Popular Science of a Crusader (manufacturer unknown). As can be seen, it had a generous fuselage and good wing area. And now for some of the statistics on what we think is the first of the giant Radio Control

models.

- Wing span 141 inches
- Overall length around 8 feet
- Wing chord at outer panel attachment 27"
- Depth of airfoil at that point 5"
- Diameter of fuselage about 19"
- All fuselage formers/ribs 1/4" balsa
- Fuselage stringers 1/4 x 3/8" balsa
- Tail booms, built up and sheeted
- Covering, Fuselage, silk over bamboo paper
- Covering, Wing, glider fabric
- Covering, Tail, bamboo paper
- All surfaces had 3 coats of nitrate dope/ two coats aluminum
- Wheels, 6" M & M's
- Engines, Forester 99's w/ butterfly throttle valves (you could almost count the Rpm's on low idle)
- Props, 18", turned about 6500
- Center section of the box wing spare (pine and balsa) supported
- 170 pounds when supported at each end of its 4' length
- Controls were motor driven servos with a 4' aluminum drive shaft/bevel gears in each tail boom
- Total weight with radio about 17 pounds

Before heading to school from Columbus, Ohio to Kansas City, Missouri, we just had to see if it would get off the ground. Without the radio (those were the wild impetuous days) and the engines timed for a 30 second run, it was released on a paved road near Port Columbus (not much traffic in those days). Yep, it took off after a wobbly run of about 100 feet and gained an altitude of 12-15 inches, thank goodness it cut off in time.

Now for the second nightmare of the 8-channel transmitter. In keeping with the practices of some of the "ham" operators of the day, the tank coil was of 1/8" copper tubing about 3" in diameter, thank goodness we operate on higher frequencies now. The box that held the circuitry and a multitude of switches was about 22" long, 10" deep, and about 8" high. The sloping panel with meters was right out of Buck Rogers.

Each channel was on a separate frequency in the 160-meter band.

Do not know what this project would have cost in today's climate, but as the Depression was starting to wind down, I estimate it ran about \$140 for all supplies (not counting the radio) and the two engines. This amount was taken care of by carving 13" and 14" props, mainly for Browns and Baby Cyclones. F. P. Hall's Hardware traded supplies for props. Hall's was the leading hardware and hobby shop at the time. Jack Port got his start in modeling in Hall's hobby department.

Ah yes, those were the days of large Free Flight gas models, but who in his right mind would nowadays consider a giant scale as the first step in Radio Control?

And now we go from the Sublime to the Ridiculous, or is it the other way around? The other photo, taken in 1946 at Madison Square Garden during a model exhibition, was where we took first place in the novelty class for the smallest Radio Control at that time. The Arden .09 powered 40" model weighed in at 14 ounces and used a single gas tube receiver. I do not remember the gentlemen in the photo, although I believe they were connected with the model business. This installation also featured pulleys and control cables for rudder control. Flights were very good.

In the meantime we have gone to electrics (.05 FAI motors) and .01 and .02 gas engines, gliders are put up with a .10 or .15. After over 70 years of modeling – it is still fun.

*(signed) Ed Lorenz, September 21, 1996*

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*The following was printed in the September 1981 issue of Model Aviation magazine after Ed was inducted into the 1980 Model Aviation Hall of Fame.*

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Ed Lorenz began airplane modeling in 1926. He concentrated on rubber-powered (Wakefield) and hand-launched gliders from 1927 to 1934.

Ed flew gas-powered models first in 1934 and was Ohio state champ in 1935 through 1937. He won the Scripts-Howard event in Columbus with a trip to Buffalo. The airplane built for the Buffalo event was untested on arrival, but took five first places.

He became interested in RC in 1934 and, with the help of a few “hams” in Columbus, built a 10-channel set consisting of 10 separate frequencies in the 160 meter band.

In 1936, his first RC airplane was a 14-foot *Crusader*: a twin-boom, twin-engine job weighing in at 16 pounds with two Forster 99s and four pounds of RC gear. This convinced Ed that somehow RC gear must be smaller and lighter. He concentrated on miniaturization after this.

In 1947, he left airline flight control work (TWA) to become chief engineer for Aero-Spark. While with Aero-Spark in 1948, he realized his ambition to produce miniaturized, lightweight RC equipment. He developed and marketed the famous Aero-Trol RC unit. Aero-Trol was eventually marketed by Berkley and became a very popular single-channel item during the early 1950s.

He started a business in hard-to-get parts for RC use in Kingston, New York in 1949 called Control Research. John Worth and Dick Cohen became partners.

Ed began writing on RC subjects for *Model Airplane News* in 1950, and in 1952 he became the RC Editor for *MAN* and continued until 1965. During his more than 12 years with *MAN*, Ed

Lorenz profoundly influenced the direction of Radio Control technology. He provided detailed plans and descriptions of several versions of the original “Lorenz Two-Tuber” and the MOPA transmitter. In addition, he introduced the first magazine article on foam wing cutting with Ed Izzo as author. He introduced the “ammonia method” of bending wood (not only balsa) which has only recently been revived as “something new.” He was also the first to introduce printed circuit wiring into RC use.

In the early 1960s, Ed displayed and demonstrated the first electric-powered RC airplane at the Buffalo RC Conference and presented several papers at the DC/RC Symposiums in Washington, D.C. (Thermal effects vs. color, shock and vibration compensations, printed wiring for RC use.)

In 1963, Ed formed the group and provided the first leadership for the AMA FCC Frequency Committee. He helped raise the initial operating capital of over \$10,000. An attorney was hired and through the work of this committee the FCC later provided frequencies for Radio Control. He served in this pioneering effort for 10 years, until 1973.

In 1973, Ed Lorenz was the recipient of the coveted Howard McEntee Award, presented by the WRAMS, for his inventive leadership in the Radio Control modeling field. Also, he received the AMA Distinguished Service Award in 1975.

On the local scene, in 1956 he helped form the Mid-Hudson Radio Control Society, noted for their Rhinebeck “Jamborees” and “Classics.” He helped plan the first Rhinebeck Jamboree in 1967 and served as chief Scale judge until 1977.

Ed Lorenz retired from IBM Corporation in 1977 after 26 years as an engineering manager and is currently still active as a modeler and club member. [As of 1981]

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