
Autobiography of Dr. WALTER A. GOOD

Modeler, Designer, Writer, Inventor, Scientist, AMA Past President

“Father of the Modern Radio Control Model Aircraft”

Modeler since 1927 April 25, 1916 to July 19, 2002 AMA Number: 11

Written & Submitted by WAG (3/96)

Transcribed by NR (2/99)

Edited by SS (2002)

Career:

- 1937: With his brother Bill designed and built a Radio Controlled (RC) aircraft designing the model (Guff) and their own radio equipment
- 1965 - 1966: FAI-CIAM President
- 1952: Won the world's record for Radio Control duration model plane flight
- 1947 - 1949: AMA Contest Board Chair
- 1948 - 1950: AMA RC Rules Committee Chair
- 1950 - 1989: AMA RC Frequency Committee; Chair: 1950 to 1966
- 1958 - 1960: served as the 11th AMA President (AMA 11)
- 1965 - 1966: FAI-CIAM President
- 1960: RC Team manager of USA Team in Switzerland at first Radio Control World Championship; USA first as team and individual
- 1971: 7th Radio Control World Championships in Doylestown
- 1971: USA Chairman of Frequency Monitors

Honors:

- 1953: AMA Fellows
 - 1969: Model Aviation Hall of Fame
 - 1960: FAI Award, Diplome Paul Tissandier
 - 1975: Vintage Radio Control Society Hall of Fame
 - 1989: Society of Antique Modelers Hall of Fame
 - Naval Ordnance Development Award
 - Office of Scientific Research and Development Certificate of Merit
 - War and Navy Departments Certificate of Appreciation
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A Brief Aeromodeling History of Walt Good

Year(s)	Age	Activity
1926	10	Rubber-powered, baby Rise-off-Ground (ROG) and Twin Pushers built by both Walt and twin brother, Bill.
1930	14	Walt builds indoor microfilm stick and cabin classes.
1935	19	St. Louis Nationals (Nats) – Indoor Cabin, 13 minutes; 7 th place. Stick, 11 minutes; 27 th place
1936	20	Detroit Nats – Indoor Cabin, 13 minutes; 6 th place. Stick, 14 minutes; 22 nd place. Free Flight gas (8 feet KG), 5 minutes; 36 th place
1937	21	Walt and Bill added RC to their gas model and made first flights in May 1937 at Kalamazoo, Michigan airport. Entered first RC Nats in Detroit and won 4 th place. Lonzo won 1 st .
1938	22	Improved RC gear and new body for the KG. Now called the RC

		Guff. Won 1 st at the RC Nats in Detroit. Built a Free Flight model that spanned 6 feet called the FF Guff
1938 - 1939	23	Flew in 20 Free Flight contests, winning 1 st place in seven contests and 2 nd place in five. On the last flight in Monroe, Michigan, the model went out of sight in the same thermal with Chet Lanzo's model. His model was recovered in Canada, but the FF Guff was never seen again.
1940	24	Many RC Guff demonstration flights in Michigan, Ohio, Illinois and Canada. One was for Henry Ford.
1941-1945	25-29	World War II
1946	30	RC glider using Zaic's Floater.
1947	31	RC Guff equipped with new Beacon RC gear and flown to 1 st place at the 1947 AMA Nats in Minnesota. Had a fly-off tie with Jim Walker.
1948	32	Last flight of the RC Guff was a demonstration requested by the NAS in Glenview, Illinois.
1949	33	A new RC design; the six-foot span Rudder Bug had rudder and motor control. It won 1 st at the 1949 RC Nats in Olathe, Kansas.
1952	36	At Andrews Air Force Base near Washington, D.C., the Rudder Bug set a new FAI RC World Duration record of over 40 minutes, passing the previous 23 minute Russian record.
1956	40	The Multi-Bug was built for REM controls and flown to 3 rd place at the 1956 Dallas Nats.
1957	41	The Multi-Bug won 1 st at the King Orange Miami meet and 3 rd at the Nats.
1958	42	The Multi-Bug won 5 th at the Nats and won the LARKS pylon race at 36.3 mph.
1960	44	A request came from the Air and Space Museum in Washington, D.C.
1963	47	FAI World Record Trials at Dahlgren, Virginia. The next day, Maynard Hill flew the Multi-Bug to 13,320 feet, which set a record.
1964	48	The Multi-Bug climbed to 14,620 feet, but failed to return to the field, so it set no record.
1966	50	Piggyback launching of the 10 foot RC Sailplanes from the six-foot pleaser. Fun for the two pilots.
1970	54	Specialized in RC sailplanes and dropped out of power. Helped start Thermic Sniffler variometer device for model sailplanes and fabricated the flow meter part from 1970 to 1983.
1973 - 1974	57	Worked in Germany for two years and participated in RC
1978 - 1989	62 - 73	Retired to Florida and fly RC sailplanes. Gave Multi-Bug to the AMA Museum in 1978.
1989	73	Living, flying and traveling with wife Joyce, who supports the hobby and likes to travel.
1999	82	Still living in Florida. Flying RC sailplanes with the local Pelicans.

Administrative Assignments in Aeromodeling

1947 to 1949	AMA Contest Board chairman
1948 to 1950	AMA RC Rule Committee chairman
1950 to 1989	AMA RC Frequency Committee; Chairman 1950 to 1966
1953	AMA Fellow Award
1958 to 1960	AMA President and AMA Representative to FAI/CIAM. Chairman of the CIAM RC Rules Subcommittee
1960	RC Team manager of USA Team in Switzerland at first RC World Championship. USA first as team and individual
1961 to 1962	CIAM RC Subcommittee Chairman
1962	Jury chairman at the second FAI RC-WC in England
1963 to 1964	FAI-CIAM Vice President
1965	Jury at the fourth FAI RC-WC in Sweden
1965 to 1966	FAI-CIAM President
1967	Jury at the fifth FAI RC-WC in Corsica
1969	Sixth RC-WC in Germany; Model Aviation Hall of Fame Award
1971	Seventh RC-WC in Doylestown; USA Chairman of Frequency Monitors
1972 to 1974	Assigned to Germany by my Laboratory. Flew RC sailplanes in many countries during holidays.
1974 to 1987	Model Aviation Hall of Fame Committee Chair
1999	Honorary member of the AMA RC Frequency Committee



The Johns Hopkins University
Applied Physics Laboratory
Laurel Maryland

June 23, 1977

F.B Proctor.

Dr. Walter A. Good, a major contributor to development of guided missiles for U.S. Fleet defense of the radio proximity (VT) fuse during World War II, and a pioneer authority in the field of Radio Control Aeromodeling, retired on June 30, 1977 from The Johns Hopkins University Applied Physics Laboratory (APL) where he had served for 35 years after being hired as one of its first staff members.

Joining the Laboratory when it was organized in Silver Spring, Md. in 1942, Dr. Good designed oscillators that were at the heart of the proximity fuse first used in anti-aircraft shells and considered one of the most important advances in military ordnance of that era. He later worked on fire control systems for Navy ship gun directors and then analog computers to simulate missile dynamics and controls during early development of guided missiles for the Fleet in the 1950s and 60s. He was a principle supervisor who directed design of controls for a series of air defense missiles at APL and the Polaris submarine's underwater hovering system. During 1973-74 he headed the APL Field Office in Heidelberg, Germany. He was serving in the APL Submarine Technology Branch upon his retirement.

In his younger years Dr. Good's hobby, Aeromodeling, and that of his twin brother William's radio were combined to produce what was one of the first Radio Controlled airplanes, which they flew in May 1937 in their hometown of Kalamazoo, Michigan. The unique plane, called Big Guff, was flown for some 1,000 subsequent flights and has been housed at the Smithsonian Institution since 1960.

An international authority on Radio Controlled planes, Dr. Good has judged several World RC competitions. He has been elected a fellow and life member of the National Academy of Model Aeronautics, is the recipient of the Federation International Aeronautique's Tissandier Award (1960) for outstanding Aeromodeling achievement and in 1969 was named to Model Aviation's Hall of Fame at Spokane, Washington. He was U.S. representative to the International Committee for Aeromodels in Paris for eight years and president of this committee in 1965 and 66.

In 1952 Dr. Good won the world's record for Radio Controlled duration model plane flight, taking the record of that day away from the Russians.

Dr. Good in 1965 successfully launched a Radio Controlled model glider from atop a Radio Controlled power model plane in flight. This feat was recently recognized as having "strongly-influenced" the use of a similar concept in the current full scale 747/Orbiter piggyback flights by

the NASA official who first proposed the system for the U.S. Space Shuttle test program.

For his work at APL, Dr. Good is the recipient of the Naval Ordnance Development Award, the Office of Scientific Research and Development Certificate of Merit and the War and Navy Departments Certificate of Appreciation.

He has served on the Technical Committee on Guidance and Control of the American Institute of Aeronautics and Astronautics (AIAA) and is a member of the American Physical Society and the Society of Automotive Engineering. In 1951 he received the Kalamazoo College Citation as an Outstanding Alumni (A.B., physics, chemistry, math, 1937) and returned there earlier this year to receive the Distinguished Alumni Award with his brother William and electronics consultant for the General Electric Co., Syracuse, N.Y.

Dr. Good came to APL from the Department of Terrestrial Magnetism, Carnegie Institution of Washington, D.C. where he first began working on the VT fuse. He was born in Hilldsdale, Michigan in 1916 and received his master's (1939) and doctorate in physics (1941) from the University of Iowa where he served three years as a graduate assistant.

Dr. Good is a resident of Bethesda, Md. where he lives with his wife Joyce. Their daughter Ginnie Warner is married to an astrophysicist and lives in Minneapolis and their son Terry is an electronics technician working at Hewlett-Packard Co. in Paramus, N.J.

Articles Written by Dr. Good

Model Aviation Magazine

History of RC:

Part I – March 1986, page 56

Part II – April 1986, page 58

Part III – May 1986, page 76

Battles for RC Frequencies:

Part I – May 1989, page 88

Part II – June 1989, page 40

Part III – July 1989, page 60

World's First RC Sailplane?

February 1987, page 56 by Walt Good and Hans Justus Meier

Model Builder Magazine

The RC GUFF – The Life Story

Part I – August 1988, page 22

Part II – September 1988, page 20

Part III – October 1988, page 9

Part IV – November 1988, page 20

Building the RC Guff

December 1988, page 12; Designer – TTPW 1954

RC GUFF 1938

Thermic Sniffler: 1970 Walt Good, Don Clark, Ben Givens

The Pioneers Video

Story of Bill and Walt Good - AMA Headquarters in Muncie, Indiana

League of Silent Flight European representative from 1973 to 1974

The following article written by Walt Good about himself ran in the Model Airplane News magazine 1961 Annual.

It's difficult to say what the most exciting day of my life was. Maybe it was that Baby ROG (Rise-Off-Ground model) back in 1927 or my first Nationals in 1935 or getting my doctor's degree in physics in 1941 or the first RC flight in 19376. Or perhaps the most exciting time is still to come. I'm sure that will be the case.

In any event whether it was model planes or school work, it is not clear if they've ever been completely separated. I suppose my interest in physics stemmed from a desire to understand all angles of RC models such as the electronics, radio, wave propagation, aerodynamics, magnets, structures and the many varied aspects. You know an engineering course would help you in one of the fields but a physics background provides the basis for all the engineering disciplines. I imagine that this motivation does not seem like a very profound one. However, I have a good friend who is a technical director of one of the government's largest laboratories and when he was asked why he liked physics; he said, "I like to build things!"

Going back to the beginning, it must have been Lindbergh's flight in 1927 that started many of us, including [my] brother Bill and myself, in model planes. Merrill Hamburg's Baby ROG in the American Boy magazine came out in kit form with real balsa wood, the first we'd seen. The Baby ROG really flew and we built many copies from supplies wisely carried by Mr. Barrows, the Boy Scout executive for Kalamazoo (Michigan) at that time.

From Baby ROGs to indoor models with microfilm was a step that took several years. Fascinated by the interference colors in the microfilm, we found that it was possible to measure the thickness of the thin film by observing the change in color when turning the film through an angle. What a painless way to learn the physics of interfering light rays. Of course, the real payoff was 11th place in indoor at my first Nationals meet in Saint Louis in 1935.

Bill had gotten his ham radio license by then and I was making my first gas model patterned

after the Kovel-Grant KG. It was 10 square feet and flew Free Flight with a Brown Junior engine on spark ignition and a 16-inch hand-carved propeller. It seemed only natural that Bill and I should combine the radio and the model and have radio control! The physics professor at Kalamazoo College encouraged our optimism by letting us take a special lab course to work out the receiver and relay problems. We adopted a portable communication receiver circuit out of the 1935 Radio Amateurs Handbook and found by some experimental changes that it would operate a homemade relay instead of a set of earphones.

Looking back at those days I'm surprised that things worked so well because the RC ship was shown at the college science fair that winter and was flown in the spring of 1937. This was probably one of the first powered RC model flights in the United States. That ship was dubbed the Big Guff and went on to win four Nationals and ring up 1,000 flights before it was retired. The ship now [still true in 2003] quietly rests in the Smithsonian Institution in Washington, D.C.

Off now to graduate school in physics at the University of Iowa. This slowed the model activities a bit, but I learned that staying up late working on an experiment was really no different than a wee-hour modeling session. I had gotten interested in the physics of single crystals of metals and learned how to "grow" and measure the crystals. "Growing" meant lowering a molten metal sample from an electric furnace at such a slow rate that sometimes it took as long as 12 hours. Since the equipment could not be left unattended, there were many late hours as a result.

Just before finishing graduate school in 1941 I was called to Washington to the Bureau of Standards. On walking into Dr. Dryden's office, I noticed copies of a model magazine open to RC articles. Then I was shown drawings of a secret glide bomb and asked if the model control ideas could be applied. It turned out later that this was the start of the Navy's famous BAT weapon that was employed so successfully during World War II!

Two days after completing my Ph.D. in Iowa I was back in Washington at the Carnegie Institution working on a tiny device filled with miniature tubes and resistors. I was fascinated by the tiny parts; I was sure they could be used in RC! At the beginning, all I knew was that this device was a tiny radio receiver and transmitter and was built very strong. Little did I realize that this was to be shot from a gun and was the proximity fuse, which exploded the shell when it neared the plane. By this time, Pearl Harbor was history and I was having my chance to help the cause by working on all phases of the fuse, especially the electronics. One assignment was this. I was handed a subminiature tube with instructions – "This tube has been mechanically designed to stand the 20,000 g's acceleration of the gun barrel; now all you have to do is to make it work electrically, but don't change anything!" That was not easy, but it was done. I'm sure some help came from a modeler at the tube company. He gave me the lowdown when things weren't going too well!

Since the end of the war, I have specialized in servomechanisms and control systems for guided missiles. This has been most interesting since the principles of a guided missile closely parallel those of an RC model. Missiles have receivers and amplifiers and batteries and control

actuators. They have test field problems, just like a model. Well, perhaps the test is more severe in that each missile is a one-shot test without benefit of a soft landing. I am sometimes reminded that a field test of an experimental missile is like the RC modeler who forgot to check the engine and radio gear on his new model at home before rushing out to the flying field and spending the day on the ground chasing troubles. Perhaps it would not be wise to pursue the comparison too far since my position at The Johns Hopkins University, Applied Physics Laboratory is head of the Controls Group and I might end up criticizing myself.

There is a new field evolving here, which is a natural for modeler-engineers. It is called systems engineering. A system engineer is the one who understands the overall problem and ties together the various specialists like the aerodynamicist, the electroniker, the mathematician, the servo engineer and others. The practical modeling experience helps to balance the overall design in the most optimum way and hence leads to a result which would have been impossible for the specialists alone.

Although the model activities have concentrated on RC for the recent years, and I claim my main interests are technical, I have somehow found time to help out in the organization aspects of American modeling as an officer of the Academy of Model Aeronautics. Sure, this has had its share of work, but who would have thought that it would lead to several trips to Europe to represent the United States at international model sessions? This has brought home to me one of the most pleasurable aspects of the modeling hobby. This aspect is the automatic bond between modelers. This bond transcends race and language and economic status.

What a thrill it is to walk along a strange street in Belgium, find a model shop and be greeted like a long lost friend in a language you don't understand. I sure wish I had studied that French harder in school. There is no doubt in my mind that the many modelers I've met from behind the Iron Curtain are modelers first and politicians second. I'm not proposing that if all peoples became modelers the world's problems would be solved! I am saying that we modelers are playing our small part, and playing it well, to help make this whole world a better place in which to work and play.

In 1999 the Smithsonian Institution created a traveling exhibit on model aviation. It traveled the entire country, giving the average citizen the history of model aviation and its importance in the development of many skills and concepts derived thereof. It chronicles the biography of a number of famous modelers that made all of this possible.

This is a sample of the text that was used by the Smithsonian in that exhibit. Ms. Gail Spilsbury, the editor in charge, sent this information to the AMA History Program.

Walt and Bill Good

As a high school science teacher, Pop knew the value of learning through doing it yourself and he gave us his quiet encouragement at every turn, even when we first ran the engine in the living room! It was winter and we didn't realize that the engine's smoke would be sucked down the cold air register and then be blown back through the whole house!

Walt Good

The Big Guff, designed and flown for 10 years by twin brothers Walt and Bill Good, was the first Radio Controlled (RC) model airplane. It won the 1938, 1939 and 1940 national model airplane championships. In 1939, at a Detroit meet, Henry Ford showed up to witness the Guff's phenomenon and the 21-year-olds gave him a private demonstration that nearly took off his head as the plane landed. "But Ford never batted an eye," Walt later said. RC was yet a fledgling invention, but the twins' long careers in laboratory physics would help usher in the modern age of guidance-control systems and high-tech electronics.

As boys growing up in Kalamazoo, Michigan, where their father Lester taught high school science, Walt pursued a passion for model plane building and Bill for radios. Like aviation, radio was still in its infancy. At Kalamazoo College in 1933, the twins combined their separate talents into one pursuit – RC airplanes. Both their parents and their physics professor supported their avid interest, and the Kalamazoo Airport gave them space to run test flights.

After college, the Goods struck out in different directions – Walt to earn his Ph.D. from the University of Iowa in 1941 and take a job at the Johns Hopkins Physics Laboratory near Washington, D.C.; and Bill to earn his Ph.D. from the University of Illinois and take a job at Westinghouse's research lab in Pittsburgh. Later Bill transferred to General Electric in Syracuse, New York, where he helped develop the light valve projection system used for large-screen color television. Thirteen of his 18 patents relate to this work. In 1977 he received General Electric's prestigious Steinmetz Award for a distinguished career.

Walt also received accolades, particularly for his work developing the highly valuable VT Proximity Fuse during World War II. The tiny radio devices inside the fuses bounced signals off German targets and detonated shells as soon as they came close enough to their targets. After the war, Walt received the Naval Ordnance Development Award, the War and Navy Departments' Certificate of Appreciation and the Certificate of Merit from the Office of Scientific Research for his top-secret work.

Walt's model aircraft hobby never waned. After the war the Big Guff, outfitted with updated radio equipment, won the 1947 national championship. In 1949 Walt again swept the championships with a new model and in 1952 set a new record for the longest RC flight. Soon after, the Academy of Model Aeronautics honored Walt as a life member and fellow and from 1958-60 he served as president of that organization. In 1960, the Federation Aeronautique Internationale presented its Tissendier Award to Walt for his pioneering work in model aviation. Other prestigious recognition followed, culminating in his election to the Model Aviation Hall of Fame in 1969.

Following Walt's retirement in 1977 from the Applied Physics Lab, he and his wife, Joyce, moved to Florida, where they still live. Bill retired around the same time to Liverpool, New York, where he lives with his wife Tudi. With pluck, scientific genius and encouragement from

family and friends, the Good brothers contributed to aviation science from its early years of handmade structures and components to its modern state of high technology. Their historic model plane, the Big Guff, permanently resides in the Smithsonian's National Air and Space Museum.

The following article ran in the November 2002 issue of Model Aviation magazine after Walt's death on July 20, 2002.

Walt Good 1916 – 2002

Walter A. Good, past AMA president and considered by many as the father of the model Radio Control (RC) model aircraft, died on July 20, 2002. He was 86. His death followed a little after a year of that of his twin brother, Bill, who shared Walt's pioneering RC efforts.

A Life Member, Hall of Fame member (1969) and AMA Fellow (1953), Walt's considerable achievements spanned three principle areas – aeromodeling, AMA administration and a distinguished career in scientific research.

Born in Hillsdale, Michigan, Walt is best known for his work with brother Bill, to design and build their first RC aircraft, the Big Guff, and their own radio equipment in 1937.

Their model placed first the following year at the RC Nationals in Detroit, Michigan. The Guff was used extensively for demonstrations, one of which included a spectator by the name of Henry Ford. Later accounts recalled that the model nearly struck Ford, "but Ford never batted an eye," Walt said in an interview many years later.

Walt's success carried over into the classroom and in the workplace. He earned his Ph.D. from the University of Iowa in 1941, and took his first job at the Johns Hopkins Physics Laboratory near Washington, D.C. His research there included top-secret work to develop the VT Proximity Fuse during World War II. Walt received several awards for his work in this area.

Following the war, Walt resumed his aeromodeling activities, winning first place with an updated RC Guff at the 1947 AMA Nationals in Minnesota. In 1952, flying a new RC design, the Rudder Bug, Walt set a new Fédération Aéronautique Internationale (FAI) RC World Duration record flight of just over 40 minutes at Andrews Air Force Base near Washington, D.C. A few years later he was honored by the FAI with the prestigious Tissandier award for his pioneering work in model aviation.

Another of Walt's model airplanes, the Multi-Bug, set an FAI altitude record in 1963 assisted by the piloting experience of another Model Aviation Hall of Fame member and past AMA president, Maynard Hill.

In 1965, Walt helped pioneer another form of aeromodeling, successfully launching an RC

model glider from atop an RC-powered model in flight. This event helped inspire the concept used 10 years later by NASA for the 747/Orbiter “piggyback” flights during the test phases for the U.S. Space Shuttle Program.

As an AMA member, Walt became active as a volunteer shortly after World War II. He served as AMA contest board chairman from 1947 to 1949 and as chairman of the AMA RC rules committee from 1948 to 1950. He was a member of the AMA frequency committee from 1950 to 1989, serving as the first chairman from 1950 to 1966.

Largely as a result of Walt’s early leadership, this committee went on to obtain from the FCC the many RC frequencies we enjoy today. In 1999, Walt was made an honorary member of the frequency committee. He served as AMA’s 11th president from 1958 to 1960.

Walt remained active as an aeromodeling competitor, functioning as RC team manager of the U.S. team at the first RC World Championships in Switzerland in 1960. He also continued to fly RC Sailplanes for many years, until within a few months of passing away.

Walt was inducted into the Vintage RC Society Hall of Fame in 1975 and was accepted into the Society of Antique Modelers Hall of Fame in 1989.

Walt retired from the Applied Physics Laboratory, Johns Hopkins University, where he worked for 35 years, in 1977. Most recently, he lived in Port Richey, Florida. Survivors include his wife, Joyce, two children, Terry Good and Ginnie (Good) Warner, and two grandchildren.

Perhaps his legacy is best defined by the fact that the Smithsonian Institution recognizes his achievements in aeromodeling and its important place in aviation history. Walt and Bill Good’s Big Guff has been on permanent display for many years at the Smithsonian’s National Air and Space Museum in Washington, D.C. In 1999, the Smithsonian created a traveling exhibit on model aviation, chronicling the biography of a number of famous aeromodelers, to include the Good brothers.

A special Walt Good memorial program was held at 2 p.m., August 22, at the St. Mark Presbyterian Church, 7922 State Road 52, Hudson, Florida, 34667. Joyce Good has suggested that any memorial donations, in accordance to Walt’s wishes, be made to the church and/or to the AMA.

The following quotes were included with the obituary:

“Dr. Walt Good was a very quiet, soft-spoken man who made a tremendous impact on modeling, Radio Control and all who knew him. His charm was that he treated everyone he met with grace and respect. After knowing Walt for 40 years I, for one, will sorely miss him.” – Norm Rosenstock

“When I was AMA president in 1963 at a time when AMA needed a new executive director,

Walt Good was one of the key AMA leaders who helped persuade me to move to Washington to accept the position. I made the move and stayed on for 27 years, during which time AMA grew from less than 20,000 members to about 150,000. Practically all that growth was in the form of RC modelers, so it is reasonable to credit Walt with helping to establish the basis for attracting so many new members.” – John Worth