



The AMA History Project Presents: Biography of ROBERT (BOB) BOUCHER



Written by BB (2015), BW (1980), and MA staff (1996);
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The following was written by Bob Boucher and submitted to the AMA History Project in September 2015.

Beginning

Bob became interested in airplanes in 1939, when his father took him and his brother on a plane ride in a *Gull Wing SR-7 Stinson Reliant*. At once, they were both hooked on aviation.

They first started with simple rubber-powered models. The biggest was a rubber-powered scale German *Stuka* dive bomber with a four-foot span; one of those Joe Ott kits with cardboard formers and pine sticks since there was very little balsa available during the war. They really could not get it to fly right, so they threw it off the roof of the grammar school (after putting a match to it to watch it crash in flames.)

One very successful flyer was a Free Flight rubber-powered *Jabberwock* with folding prop. Later on, they got interested in U-Control and entered a 1948 contest at Brainard Field in Hartford, Connecticut. Bob came in about seventh or eighth place in U-Control Stunt, flying a *Madman* with a Madewell 49 up front.

A couple of years later they designed and built a single-channel proportional radio control system and installed it in a six-foot high wing monoplane with an Arden 19 up front. That thing was heavy like a rock, with four D cells for the rudder servo, a 45 volt B battery for the vacuum tube radio, and another four D cells for the tube filament. It could do loops by using rudder to pick up speed in a spiral dive, then when the rotation was stopped, the excess speed would cause the model to do a loop. Still in high school, they gave up modeling for a while after both soloing in a *J-3 Cub*, then buying a used *Ercoupe 415C*, NC 99999, for \$900.

After graduating from Yale with Masters Degrees in Engineering, they both moved to Los Angeles to work as engineers for the Hughes Aircraft company on military programs. Bob bought 1/7 interest in a *Cessna 180* taildragger and spent many weekends traveling around California or visiting Los Vegas. His longest cross-country flight was from Los Angeles to Connecticut and back, about 19 flying hours each way, but with stops along the way to visit relatives in Kansas and Virginia.

Years later, in 1968, when Bob's daughter Michele was four and Roland's son John was five, both wives complained that they were not spending enough time with their kids. They decided to get back into U-Control, and bought a pair of 15 glow engines. The O.S. MAX 15 and the Enya 15 were too small for proper aerobatics, so they up graded to a pair of rear rotor K&B 40s on pressure. These were racing engines and not the right stuff for U-Control Stunt.

The engines were calmed down to 10,000 rpm by using oversized props, but the line tension was at least 50 pounds. After a few minutes it felt like your arm was going to be pulled off. This kind

of modeling was way too much for 5 and 6 year olds, so Bob decided to try a towline glider. They had fun with a *Thermic 50*, with Bob's 5-year-old daughter Michele running with the towline. One day it was lost in a thermal.

Bob decided to design his own glider. He named it the *Sandpiper*. Every kid in the park wanted one. In fact, one kid offered him 50 "Shell Presidents" (a token coin from Shell Oil) for one. So Bob built quite a few and gave them away. This was later to be their first kits, when Astro Flight was still in a garage.

Their friend, Eddie Phillips, got them interested in RC sailplanes and slope soaring off the bluffs at Loyola Marymount in Los Angeles. The bluff is right behind the Hughes Aircraft plant where they all worked. Eddie had a window office opposite the flight line and could see the wind sock. When the sock showed a stiff onshore breeze, he would call his buddies and they would all meet at the slope for a long lunch break.

Again, it wasn't long before they wanted to design their own models. The first was the *Malibu* sailplane. A few years later, Bob used it to set a new FAI closed course record of 302 km/h on August 1970 on the slopes in Waimanalo, Hawaii. The next was scale model of the *Fournier RF-4*, a sailplane designed by Roland and powered by his O.S. MAX 15. This model would later be converted to electric flight.

Roland set a world record electric flight with a version of this model, powered by an Astro 25 ferrite motor and an EaglePicher Silver Zinc battery. This demonstration flight was witnessed by a U.S. Army colonel and a retired naval officer, who later helped our company get its first military contract.

At the 1973 Oshkosh Nats, Bob entered RC Scale with an electric Astro15-powered *Fournier RF-4* designed by his brother Roland, and RC Pattern with his own design, a *Partenavia P-68 Victor* powered by twin Astro 05 electric motors. Bob finished in the middle of the scale pack with the *Fournier RF-4*, and next to last in Pattern after his *Partenavia P-68 Victor* suffered a mid-air collision with another model.

At the Reno Nats in 1984, Bob won first place in Standard Class Electric Sailplane with his Astro 05 powered *Astro Challenger*. The *Challenger* became a very popular Astro kit, both the original 05 size version, and later the smaller *Mini Challenger* designed for the Astro 035 motor.

Hobby Products

From 1970 through 2010 (when he retired), Bob developed electric-powered RC model airplanes, electric motors and electronic controls and battery chargers. His glider designs were the *Sandpiper*, *Malibu*, *Asw-17*, *Asw-15*, *Californian*, *Astro Challenger* and *Mini Challenger*. Scale models were *Porterfield Colligate*, *Vielle Monocoupe*, and *P-68 Victor* twin. Motor designs were Astro Cobalt 05 through Cobalt 60 brushed motors, and Astro 035 through Astro 300 brushless motors, as well as battery chargers and speed controls.

Leadership and Contest Directing

In 1969, Bob was a founding member of the San Fernando Silent Flyers, and their first club secretary.

Bob organized, and ran as Contest Director, a series of electric contests called the Astro Champs from 1975 to 1989. These all-electric contests included Free Flight, Scale, Pattern, and Sailplane, as well as Payload in the later years. He also helped the U.S. FAI Electric team and provided motors for their models for a number of years.

Publishing

A construction article was published for each kit design in one of the leading RC magazines. The Quiet Revolution Book, LICC No. 79-84174, first printed in 1979, sold over 100,000 copies. It was a complete manual of electric propulsion systems at that time. The Electric Motor Handbook, ISBN 0-9644065-0-0, was first printed in 1994, and over 30,000 copies were sold. It was a complete handbook of DC brushed motors used in the hobby at that time.

Hobby Industry

Bob worked for five years at Astro Flight with his partner and brother, Roland. After Roland left in 1975 and moved to Orange County, Bob spent the next 35 years as owner and President of Astro Flight until his retirement in 2010.

Honors

- 1954: Earned BSEE, University of Connecticut
- 1955: Earned MSE, Yale University
- 1961: Received California Professional Engineering License No. 6105
- 1961: Received Hughes Aircraft L.A. Hyland patent award
- 1970: Achieved FAI World Record 302 km/h for closed course RC sailplane
- 1975/76: Received U.S. Patent 3,957,230 for a remotely controlled electric airplane with brother, Roland (<http://www.google.com/patents/US3957230>)
- 1995: Model Aviation Hall of Fame inductee

The following was printed in the December 1980 issue of Model Aviation magazine, in the Bill Winter column "Just for the Fun of It." Writing in brackets are edits to the article, made by Bob Boucher in 2015.

The Electric Man

Bob Boucher sometimes seems like the proverbial prophet un-honored in his own country. History will mark him as one of the major pioneers. (The late Militky of Germany demonstrated long ago that an electric-powered model airplane could fly – but it seemed just a novelty.) Starting from scratch some 10 years ago, Boucher peeled off a string of developments that made Astro Flight a common name.

Like so many people, the writer once had a subconscious block about electric – we just couldn't see it comparing to gas. Now we know each has advantages and drawbacks, and that electric is here to stay. Many knowledgeable trade people term it the wave of the future. Perhaps it is – for development is continuous. Since war's end, we've seen so many "impossible" things that one cannot say anything is impossible. Elsewhere in this column we shamelessly tell you about the stupid goofs we experts in this portion of the "ignorant East" have pulled. You'll find some good advice. Let's just say that if you get Boucher's fine book, *The Quiet Revolution*, and really read it carefully ([\$14.95] from Astro Flight), you won't burn out batteries or motors as we smart-aleck beginners sometimes do. But back to "Mr. Electric."

His first airplane ride was at age five, in a Stinson Gull Wing. He soloed a Cub in 1949, and in 1950 got into RC. In 1955, he joined Hughes Aircraft, where his work on power systems, radar, and digital computers earned him the La Highland award, and \$3000 for his patents in the field. In 1969, [Bob and his twin brother, Roland, co-]founded Astro Flight. [The next year, in the summer of 1970, Bob] set a [new FAI] world record for Closed Course RC [sailplanes of 302 km/h on the slopes at Waimanalo,] Hawaii, using his original-design Malibu. In 1972, his [brother, Roland, using a] *Fournier RF-4*, established a closed-course record for electric of 19 miles in 29 minutes at 55 mph. [In 1973, Bob set a record with his three-motored flying wing RPV, powered by Silver Zink batteries. His *Astro Model 7212* carried a six-pound payload for over an hour at speeds between 55 and 85 mph in a flight demonstration for their customer, Northrup Corp.]

In 1974, his [brother and partner, Roland, designed and built and flew the world's first solar powered aircraft, *The Sunrise*. The next year, after Roland had left the company, Bob designed, built, and flew an improved version of the plane, called the *Sunrise II*, which climbed to nearly 20,000 feet above the Mohave Desert. Later on, Bob used this same technology to build the motors and solar panels for Dr Paul MacCready's *Gossamer Penguin* and *Solar Challenger* airplanes.]

Bob is a graduate of the Connecticut Engineering School (1934), receiving his Masters in engineering at Yale (1955). In 1976, he was recognized as co-inventor (with brother Roland) of electric flight and awarded U.S. Patent 39572230 for his discoveries. One of these days, he will be a Hall of Famer.

*The following was printed in the April 1996 issue of Model Aviation magazine.
Note: Bob Boucher was inducted into the Model Aviation Hall of Fame in 1995.*

Robert Boucher of Marina Del Rey, California, is best known in the modeling community for his pioneering work in electric power. As co-founder, and later owner and president of AstroFlight, Robert continues today to develop new and innovative products for the modeling community and contributes to the technology associated with all types of power tools.

Now 62 years of age, Robert's modeling career can be traced back to the 1940s. As a competitor, he has flown in a variety of events over the years. These events range from Control Line Aerobatics in 1948 to electrics and sailplanes in recent years. At the 1973 Nats in Oshkosh, he

flew electric models in both RC Scale and Pattern against the standard models of the day. In 1971, he set a closed-course world record of 302 km/h at Waimanalo, Hawaii using his own sailplane design, the *Malibu*.

As a designer or co-designer, Robert created a variety of designs ranging from sailplanes to electric trainers and Scale models. AstroFlight has kitted all of these designs, including the *Malibu*, *Astro Sport Trainer*, *Astro Viking*, *Partenavia P-68* twin and *Porterfield*.

Together with his brother Roland, he designed, built, and flew a Radio Control model in 1949. The 72-inch model sported a single-channel proportional rudder control and was powered by an Arden .19 engine. As co-inventor of electric flight, he holds US Patent 3957230. The advent of practical electric flight has been made possible by Robert's continuing efforts in creating or developing high-power, lightweight cobalt motors, quick charging systems, speed controls, gearboxes and other items. In 1973, he developed an electric drone that flew for an hour and 29 minutes at 75 miles per hour while carrying a six-pound payload.

Over the years, his efforts have included leadership roles in clubs and national organizations as well as contest director activities. Additionally, he has written numerous articles, newsletters, and technical papers.

Robert is active in civic affairs such as local, state, and national chambers of commerce and the California Industry Leadership Council. He has made numerous appearances lobbying on behalf of workman's compensation insurance reform.

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