



# The AMA History Project Presents: Biographies of GRANGER and LAWRENCE WILLIAMS

Started modeling in the 1930s



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## Career:

- Early 1940s: Granger set unofficial U-Control speed records during contests before official U-Control records existed
- 1952: Granger won the Nationals team racing event
- Late 1950s/early 1960s: They developed nylon hinges, bell cranks, and clevises for Radio Control models in the late 1950s and early 1960s
- 1960: Formed Williams Brothers Accessories to make products for the Scale modeler Produced the Duck Hawk kit
- 1968: They were named Formula-1 champion and grand champion by the National Pylon Racing Association
- Granger started XCELL Manufacturing Company to make small wet cell batteries and U-Control propellers during World War II
- After World War II, the brothers started making Supr-Scru brand propellers
- They developed successful all-metal U-Control team Racers
- Granger served as AMA associate vice president for District X and as vice president of Radio Control of the National Association of Scale Modelers
- Both were charter members of the First All Speed Team (FAST) club that pioneered Control and Radio Control racing
- They attended many trade shows and were members of the American Aviation Historical Society and the Experimental Aircraft Association as well as several model airplane clubs

## Honors:

- 1984: Model Aviation Hall of Fame (both brothers)

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*The following information about Granger and Lawrence Williams is taken from the Model Aviation Hall of Fame application submitted on their behalf in 1982 by Irwin Ohlsson and Carl Goldberg. The brothers were inducted into the Model Aviation Hall of Fame in 1984. Lawrence passed away on February 7, 2000.*

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Larry and Granger Williams grew up in the Los Angeles area of southern California. The Williams brothers began working on World War I surplus airplanes and engines at the Dycer Airport in Gardena while still in high school. During this period, they designed and built an all-metal monoplane in their backyard in Huntington Park.

The 1929 depression brought a halt to the full-size monoplane construction and Larry and Granger began building solid Scale and flying type models. Granger built his first gas-powered

model in 1935, a Scale model of the Northrop XFT-1 fighter. His second model was a stagger wing Beechcraft.

After seeing a Jim Walker Fireball at the local Free Flight field, Granger's interest turned to U-Control. He modified a Free Flight model to Control Line configuration.

Granger built many Scale U-Control models and set unofficial U-Control speed records during contests in the early 1940s with speed models later kitted by Modelcraft as the Vee Gee, but no official U-Control records existed at the time.

Granger then started XCELL Manufacturing Company making small wet cell batteries for models when World War II made dry cells unobtainable and also XCELL propellers for U-Control use at a time when only Free Flight propellers were commercially available. Larry was serving in the Army during this period.

Granger then went into the service as a radio operator in the Field Artillery Headquarters.

While on occupational duty in Japan, Granger built a towline glider and several O.S. engine-powered U-Control models in the radio room and taught several in the group to fly U-Control.

After coming out of the service, the Williams brothers started making Supr-Scru brand propellers.

After returning from the service, Granger built and flew his first Radio Control model, a Scale DeHaviland 4 with an Aitrol gas tube, single-channel radio. He became disenchanted with the results from existing Radio Control equipment and joined the FAST Club in developing and flying the Control Line team-racing event. Larry also returned to modeling and became a member of the FAST club.

The Williams brothers developed all-metal team Racers, which were flown successfully in contests. The brothers flew in the first AMA Nationals on the West Coast in 1952, and Granger won the AMA team racing event using an all-metal Scale model of the Cosmic Wind Minnow. This was the only Scale model to win a Nationals' team racing event. A construction article of all-metal aircraft by Granger was printed in Model Airplane News shortly thereafter.

During 1951, the FAST Club became the first Control Line show team, flying in a 50-square-foot wire enclosure at the annual hobby and craft show in Los Angeles. The Williams brothers developed and manufactured vacuum-formed plastic Scale models for the team's use on a water line carrier, which reposed in a 10 by 20 foot pool inside the enclosure.

In 1952, Larry and Granger joined North American Aviation working in the Downey facility model shop, constructing and operating wind tunnel models using metal and fiberglass materials.

They also made plastic floats for Schneider Trophy Racers that the team flew from the same pond. These shows were performed two each night and two each weekend afternoon for 10 days, annually, for 12 years. Cox, Wen-Mac, etc., plastic models were demonstrated in the shows with equipment furnished freely by the manufacturers.

The Williams brothers jumped into Radio Control during 1959 after seeing the reliability of the latest reed equipment, and Granger's first multi-channel model was of the Curtiss RC-3 racing bi-plane used in the Schneider Trophy races. This very stable model was later lost in his first midair collision.

While building their Radio Control models, they found a need for nylon fitting because of metal-to-metal noise problems and developed the first nylon hinges, bell cranks and clevises (now – in 1983 – produced by almost everyone).

In 1960, Larry and Granger Williams left North American Aviation and formed the Williams Brothers Accessories business in their garage at home, developing new products for the Scale modeler, such as pilot busts, vintage wheels, and nylon fittings. Their business expanded as they gradually added new items to the product line.

Granger's Nieuport 28 placed third in Radio Control Scale at the 1963 Nationals after suffering a first-round accident that necessitated a rebuild overnight. His AMA Pylon Racer placed fourth in the AMA Pylon event. This airplane was kitted by Williams Brothers as the Duck Hawk during 1963. This same year they moved from the garage to a small industrial building.

The Nieuport placed second in the 1964 Nationals, the only Radio Control Scale model to complete a full flight program but losing to mechanical option with there being no Scale flight maneuver points available in the rules at the time. Granger was a member of the AMA Scale Board and strove for more equality between Scale points and flight points in competition regulations.

During 1965, to help promote the new Goodyear Radio Control Pylon racing event, Williams Brothers produced wheels, large racing pilots, spinners, wheel pants, and cowlings for the eager enthusiasts. The Duck Hawk kit was redesigned into a Scale model of the La Jollita (Skeeter) configuration requiring several major changes and became the second kit to be produced for this event. It was the first Radio Control kit to have many injection molded parts in plastic in its construction, including all the wing ribs, fuselage turtleback, engine cowlings, cockpit cowling canopy, wing tips, plus all the other needed accessories to complete the model. This design was flown successfully for several years, placing first or second in every race attended by Granger and Larry including first place in Radio Control at the 1968 Nationals. The La Jollita and the Williams brothers also walked away with the National Pylon Racing Association awards for Formula one champion and grand champion of 1968.

Needing more room for the rapidly expanding product line, a 12,000-square-foot building was constructed in San Diego County, and the business, including employees, was moved there in 1970. The brothers' flying activity was curtailed during this period of relocation until 1971. A decision was then made to promote Scale only; to make only Scale-oriented products and fly Scale type models.

A new product line was initiated during 1972 – plastic shelf models of Gold Age airplanes. Tooling and production of the line now (1984) occupy a large portion of the Williams brothers' time. New products for Radio Control are added each year, however, including Giant Scale items. Williams Brothers encouraged Lou Proctor to produce a kit for the Nieuport 28 in Giant

Scale and furnished plastic accessories specifically for that kit. Similar services had been performed for other manufacturers during the previous years.

The Williams brothers have served in all offices of the local club, Palomar Radio Control Flyers, for the past 10 years and have watched it grow from 15 active members to 150. They have assisted in acquiring flying fields for the club on several occasions.

Granger as has been AMA associate vice president for District X, San Diego, vice president for Radio Control of the National Association of Scale Modelers and, most recently, assisting in the acquiring of the Russ Barrera Museum collection for the National Model Aviation Museum.

Granger and Larry Williams have spent their entire lives – both as a hobby and as a profession – designing, building, and flying better models and accessories for model aviation. Their Scale model kits and accessories have no equal.

They truly deserve membership in the Hall of Fame.

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*The following information on the Williams brothers comes from a book called International Model Builders and Their Models compiled by Bill Hannan and published in 2002. A copy of the book is available in the Lee Renaud Memorial Library, part of the National Model Aviation Museum. For more information on Bill Hannan, see his biography in his AMA History Project file.*

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## **The Williams Brothers Remembered**

All six brothers are gone now. The unusually talented Williams family consisted of Fred, Don, Glen, Ray, Larry, Granger, and one sister, Lucille. It was my privilege to enjoy firsthand their friendship for many years and to witness them exercise their creativity, fine craftsmanship, and patience.

The Williams brothers began model building during the 1930s, starting with Free Flight airplanes and racing cars. World War II military service interrupted such activities for Granger and Larry; however, older brother Don, also a modeler, manufactured gas model airplane propellers during the war using machinery of his own design.

Returning home after service, Granger was active with Control Line speed models and, together with Virgil Clark, developed the Vee Gee, which was kitted and well promoted in model magazines. Granger and Larry were charter members of the First All Speed Team (FAST) club that pioneered Control Line and Radio Control model racing. Among prominent members were Les MacBrayer, Dan Lutz, Keith Storey, and Bud Hardtrampf. Their models had such great spectator appeal that Leroy Cox employed them to conduct regular flight demonstrations in California's Disneyland! Another popular FAST club achievement was flying Control Line Scale models from a miniature aircraft carrier, moored in real water, for hobby trade shows.

My initial contact with the Williams brothers was during the 1950s at the North American Flightmasters club flying Scale model contests held near Los Angeles.

During the 1960s, Granger and Larry were working at North American Aviation building wind-tunnel models when they started making model airplane accessories in their home garage. This part-time activity gradually evolved into a full-time business, which was moved to Bell, California, where they also made components for Bell Auto Parts and other firms.

In order to increase production, the brothers designed and built their own plastic injection machine and pioneered the use of aluminum, rather than the traditional steel models.

### **A Cosmic Confluence of Craftsmen**

In 1970, Granger and Larry relocated to a spacious factory in San Marcos, California, and were joined by brothers Fred and Don. Nearby was a large building owned by Russ and Lorraine Barrera, where Lorraine conducted a mobile home interior decorating business while Russ operated a hobby shop. Included was the Russ-Craft Model Museum and, for a while, John Pond's Old Time Plans Service. Russ also worked on a part-time basis with the Williams brothers.

Soon Mark and Rod Smith opened Mark's Models; Joe Martin's Sherline machine tools factory joined the complex, as did John Perry and Chuck Hayes with their model accessory businesses. Truly, this was a remarkable gathering of talented hobby entrepreneurs.

Among products emerging from the Williams Brothers' factory were a variety of plastic model airplane wheels, dummy pilots and engines, wheel-pants, canopies and other accessories. They next decided to enter the highly competitive plastic display model kit business and invited me to assist with research, graphic design, and pattern making.

Unlike the major corporations who often employed large numbers of personnel in different departments, the entire Williams staff, in addition to the brothers, usually consisted of about 10 or 11 people – Barbara (a 30-year employee!), Bob, Lela, "Day," Andy, Jim, Forrest, Willie, Felix, Meredith and Michele, while I was there, all doing different jobs at different times. None of us was above cleaning the machines, sweeping the floors or emptying the trash if that needed doing!

Perhaps surprisingly, Granger and Larry maintained their enthusiasm for model contests, ranging from local Free Flight meets up to and including the AMA Nationals, resulting in an overflowing trophy case. A stickler for accuracy, Granger constructed and successfully flew a Radio Control Gee Bee R-1 and Gee Bee Z featuring Scale flying surfaces and airfoils, confounding self-appointed pundits who said it could not be done. The Gee Bee Z is now in the Springfield, Massachusetts, museum amid other Granville brothers' memorabilia.

Meanwhile, back at the factory, elder brother Fred conducted his own business, making invention prototypes and fine, one-of-a-kind musical instruments, ranging from miniatures to full-size examples. Fred had a quiet, droll sense of humor and visiting with him was always entertaining. One of Fred's favorite replies after hearing someone's complaints about life in general was "Them are the conditions what prevail" (which he may have attributed to Jimmy Durante).

Don Williams, a licensed aircraft mechanic, machined various of the company molds, but on his own time converted a Chevrolet Greenbriar van into a Steambriar, making almost every component from scratch, including the power plant, boiler and fittings. Another Don Williams project was adapting a Ford Pinto to electric power “just for fun.” Don’s other spare time activities included photography, painting, and the electric organ.

Brother Glen, a retired carpenter, was also an experimenter who had reworked his car to run on alternative fuels long before such possibilities were generally known.

In spite of their busy schedules, Granger and Larry managed to attend trade shows in far-flung parts of the country, ever on the alert for new products suggested by their customers. Additionally, they were active in various enthusiast organizations, including the Cross and Cockade Society, American Aviation Historical Society, the Academy of Model Aeronautics (they were elected to the Model Aviation Hall of Fame in 1985), the Experimental Aircraft Association and several model airplane clubs.

Additionally, Williams Brothers produced a varied assortment of airplane accessories plus HO Scale model railroad accessories, including buildings, automobiles, and aircraft.

The first Williams Brothers plastic display model kit was the Boeing 247 transport, an aircraft familiar to me from childhood. Market reception was quite favorable and led to the production of other kits including the Northrop Gamma, Curtiss C-46, Curtiss Sparrowhawk, Douglas World Cruiser, Seversky P-35, Corben Super-Ace, Ford Flivver, and Pitcairn Autogiro.

The popular racing aircraft series included the Gee Bee R-1 and R-2, Gee Bee Z, Wedell-Williams and the French Caudron, during the time I worked there. Scale engine kits produced were the French Le Rhône, Pratt & Whitney Wasp, and Wright J-5.

## **The Process**

Manufacturing plastic kits is a complex, painstaking business and a brief examination of the procedures may be appropriate.

Customers frequently suggested new kits, and lists of these ideas were dutifully recorded and carefully considered. After reviewing these potential projects, informal selection meetings were held, considering the subject’s historical significance, uniqueness (certain types had already saturated the market) and the availability of reference material. Golden Age subjects were generally preferred. Why? Because the staff members liked them! By contrast, working on a basically bland project (think C-46) for a year or so, was not conducive to as much personal enthusiasm.

Once a subject had been selected and the Scale chosen (a controversial issue in itself), the research phase was launched, often a lengthy process involving phone calls, visits to museums and lots of correspondence. Happily, our worldwide networks of enthusiast friends were unfailingly generous in sharing drawings and photographs. Seldom were the full-size subjects available for our direct examination, but there were some exceptions, such as the accessibility of an actual Wright J-5 radial engine, thanks to Ed Leiser and the San Diego Aerospace Museum staff.

The next phase was making our working drawings. This was often quite challenging because most documentation, regardless of the source, must be regarded with caution. Typically, we had several different three-views with inevitable inconsistencies. Apart from trying to resolve drawing discrepancies, some aircraft had been modified from time to time, thus, it was necessary to decide upon specific individual configurations and to confirm any conclusions with the aid of photographs and published documentation.

In some instances, we were fortunate in having assistance from people who were especially familiar with the subject aircraft. For examples, our Gee Bees research was greatly aided by communication with Robert Granville and Scale drawing specialists Vern Clements and Harry Robinson. In the case of the Wedell-Williams aircraft, we had vital input from Don Young, who actually helped build Roscoe Turner's number 121 Gilmore Racer. George Townson, Autogiro pilot and restorer, supplied priceless information for our Pitcairn kit. And the late Bert Pond helped with the Corben Super-Ace project. Model builder Corben had worked for Bert!

Our working drawings were much larger than the finished models and the oversize patterns were usually carved from wood in the same manner as old-fashioned solid models. These male patterns were primed and sanded to fill the wood grain, then sealed and waxed prior to having female casts made from them. The casting material used was aluminum-filled epoxy, and Larry Williams was the master of the exacting technique required to prevent bubbles and voids.

Next, the female castings were installed on a pantograph-milling machine, a device used to cut the actual metal mold in the desired proportions. An exceptionally slow, tedious operation, this yielded a model-size mold, but hand-finishing was still required to create a suitably smooth cavity, and then additional details were created by an outside contractor.

Individual molds, next recessed into master block, were mounted in an injection-molding machine to be evaluated. The initial plastic test shots generally indicated the need for additional mold refinement before mass production could commence, a critical process that sometimes took several days, unlimited patience and considerable skill.

Early test shots were assembled as soon as available to check the component fits and to assist in the preparation of instruction sheets – another time-consuming operation. Also, examples of each model were assembled, finished, and photographed for advertising and promotional purposes.

Concurrently, preparations began to create the kit boxes, which involved graphic design, typesetting and commissioning the box art by such notable artists as John Amendola, Otto Kuhni, and Bob Parks, then having the boxes printed. The kit decals also required specialized artwork (by Lloyd Jones or yours truly) and precision silk-screen printing, sometimes by Kenneth Hannan.

When the molds were pronounced ready, the required quantities were estimated and production began. Next, the packaging line was arranged where the plastic-bagged components were boxed along with the instruction sheets, decals, etc. Finally, the completed kits were shrink-wrapped and shipped to individuals, distributors, hobby shops and to the magazine reviewers.

Is that all there was to it? Nope. Research and documentation for the next new project was already well underway!

Working with the Williams brothers was truly educational and memorable. All of them were fascinating, talented individuals, who freely shared their theories, expertise, and philosophies. Certainly, I feel exceptionally fortunate and grateful to have been associated with them and their families.

Although all of the brothers are gone now, the Williams Brothers business continues in Los Osos, California, managed by Granger's widow, Lorraine, and her grandson, Carlo Medina. To learn about their current products and activities, you may consult their Web site.

<http://www.wmbros.com/>

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*Partial plans of the La Jollita by Granger Williams is available from the [AMA Plans Service](#) under plan number 11415.*

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