



# The AMA History Project Presents: Autobiography of ROBERT (BOB) DODGSON AMA #73551



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Written & Submitted by RD (10/2002); Edited & Transcribed by SS (10/2002); Updated by JS (04/2019, 04/2021)

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## Career:

- Graduated from the University of Washington's School of Architecture
- Joined the Soaring Society of America, the Seattle Area Soaring Society and the Experimental Aircraft Association
- Mid-1960s: Got into Radio Control Soaring
- Was designing his own gliders by 1968
- 1972: Designed and first kitted the Todi competition glider. The Todi was the first successful U.S. competition multi-channel glider kit. It featured flapperon control and elevator compensation when flaps were deployed. The Todi won major competitions in the U.S. and all over the world in countries like Germany, England, Norway, and Finland, etc.
- Designed the Dodgson Coupler, the first two-control mixer available to the model airplane industry; it was used on the Todi and Maestro gliders
- Introduced his Maestro series in 1974 and the Camano in 1980
- 1982: Revolutionized competition glider control systems with the production of the Windsong kit. In fact, the Windsong control has since become the standard for competition thermal gliders. The Windsong featured full wing trailing edge reflex and camber capability. It introduced what became known as Crow with aileron spoilers. It incorporated 90-degree flap movement with elevator compensation. These control innovations were accomplished mechanically by linkages included with the kits. Years later, computer radios were designed to reproduce this control system electronically.
- The Windsong was the first successful U.S. thermal competition sailplane to utilize solid core foam wings with fully sheeting skins
- Windsongs won the AMA Nationals several times in the 1980s and are still successful in thermal competition, as Jim Thomas showed at Visalia in 2002
- Designed the Pivot, the first hand-launch size glider to use foam-core wings; the wings also pivoted for aileron control
- 1997: Ended his kitting business and went to work for Boeing
- 1990: Introduced the Saber, which was the first U.S. thermal competition glider kit to use the SD7037 airfoil and obechi sheeting for the wing skins

## Honors

- 2018: Inducted into the AMA Model Aviation Hall of Fame

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*Robert Dodgson wrote the following article about how he got started in glider design and kitting. It was reprinted from issue number "89-1" of Dodgson Designs' Second Wind newsletter, but was originally published in the April 1983 issue of the Northwest Soaring Society Newsletter, edited by Dean Rea.*

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*A special feature of the Windsong is the use of separate, camber-changing flaps and independent ailerons, which are meant to be used as speed brakes by raising them both simultaneously about 30 degrees. Superior landing control is obtained by simultaneously deploying the flaps 80+ degrees down and using the ailerons in their speed-brake mode.*

*Thus reads a description of Bob Dodgson's latest creation in a series of multi-channel sailplane designs that originated more than a decade ago in a 400-square-foot houseboat on Lake Union in Seattle.*

*Back in 1972, the Todi was the first high-performance, multichannel glider kit in the world. It featured flapperons mixed with the Dodgson Coupler and a built-in elevator trim bar so that the elevator compensated automatically for changes in flap settings. The Todi had a full-flying stabilizer and featured the high-performance Eppler 387 airfoil on its high-aspect ratio 100-inch wings. The kit also came stock with a semi-symmetrical airfoil.*

*Anyone who has attended a contest in the Pacific Northwest probably has encountered a Dodgson designed sailplane – the Todi, the Maestro line, the Megan, the K-Minnow, the Camano and now the 134-inch Saratoga Windsong.*

*But not everyone knows the story of how a farm boy turned architect ended up designing and kitting model sailplanes. Bob was invited to tell the story about how he and his wife, Sandy, took an unexpected route to an avocation and business that has spread the Dodgson name around the world. Bob's response appears in this issue of the newsletter. – Dean Rea, Editor*

## **The Implementation of a Dream**

By Bob Dodgson

As a youth, I was enamored with model airplanes. Many 50 cents were spent on stick and tissue kits that were laboriously assembled with varying degrees of success. The bulkheads were not die cut and had millions of stringer notches that had to be meticulously hand cut. Growing up in the country caused its share of hardships to the eager hobbyist, namely that when I ran out of glue or some essential building item, the operation was out of business until the next weekly trip to town (16 miles away). Naturally, this difficult situation had one good thing about it. It definitely promoted innovation and unconventional attempts to circumvent the need for the “out of stock items.” On one occasion, I was so disparate to finish my latest plane that I glued the tissue covering on with paste, since I had no glue. The model was a bit on the heavy side. Even with the rubber motor fully wound, the plane had a glide ratio of about three to one (I never said that all of my innovations worked).

I could never determine why my models never would climb under rubber power and why they never really flew – until I was about 15-years-old. I didn't have much spending money and I didn't put fancy color schemes on my planes. In fact, I did not even spend money on dope for the tissue. Finally, I discovered that when the tissue was sealed with dope, things worked a lot better. My next rubber-powered plane flew great!

As most of you know, I have a stuttering problem. My dad noticed that when I worked on model airplanes, my stuttering appeared to get worse. So he, at various times, forbade me to build model airplanes. Naturally, my being perverse by nature, this putting model airplanes in the “forbidden fruit” category only heightened my enthusiasm for the hobby that otherwise may have simply died a slow, natural death.

I started college in 1960 and had to start thinking about what I wanted to do when I grew up (I still haven’t figured that one out). I went the gamut from psychology to engineering and finally to architecture as a last resort. I felt architecture offered a unique blend of art and technology. I was about to become the Renaissance man of the 20th century.

After working my buns off getting through the School of Architecture at the University of Washington, I learned that my romanticized picture of the cavalier architect was not the same picture that awaited me as I stepped into the cruel world. I discovered that I was working as a draftsman eight hours a day and for not much more than a minimum wage. Where did I go wrong?



***Bob launching his Todi. The Todi kit was introduced in 1972. It had flapperons with elevator compensation when flaps were deployed.***

During my college days, I had developed a great interest in full-scale soaring. I joined the Soaring Society of America and the Seattle Area Soaring Society and I joined the Experimental Aircraft Association. I yearned to soar with the Joe Lincolns and the Moffets, but alas, I was being put through college in part by my part-time working and mostly by my young wife Sandy’s full-time job, so my limited funds left me with limited options. (Sandy was under the impression that I was going to grow up to be an architect.) Because there were no ultra-lights and no hang gliders at the time, my cheapest option was to construct a kit like the wood BG12, which cost about \$2,500 or to purchase an old 1-26 or something. At that time, I could not join the Boeing gliding club to get my soaring license as I was not a Boeing employee and there was no other such club in western Washington. This meant that just to get a soaring license would cost me a couple thousand dollars in instruction and rental time. In the middle of my frustration over the high cost of getting into soaring, I read an article by Dale Willoughby in the Soaring

Society of America magazine entitled, “Soaring With Both Feet on the Ground,” which was about the new burgeoning hobby of Radio Control (RC) soaring. This idea so excited me that I bought a single-channel rubber band escapement system by World Engines (I couldn’t afford the \$300 to \$600 that the new digital systems cost) and a \$16 Graupner Weihe 50 kit with about a 72-inch wingspan. I all but forgot full-size soaring.

Most of my flights were disasters because in order to save weight, I had ignored the recommended c.g. position. After all, how can making a glider heavier make it fly better? My flights off a slope were a terminal series of ever-expanding oscillations that ended only when the glider’s nose was laid to rest six inches into the hillside. After all, I was a loner and knew no one to turn to for help. Finally, in desperation I decided to put a handful of rocks in the nose to move the c.g. closer to the point shown on the plans. Once again, I fearfully heaved the battered little plane off the slope, and to my total amazement, it flew straight out over the Issaquah Valley as if

it were on rails. Not long after my initial amazement began to subside, it was renewed when I discovered that the radio link between the glider and me was missing. While I was standing there helplessly watching my dreams and aspirations quietly glide off into the sunset, the little plane slowly turned in a giant arc, came back, and landed on the slope.

Needless to say, soon I became frustrated with the rubber band escapement system and after much work, I convinced Sandy that I needed (and it wouldn't cost much) a pulser conversion on my transmitter and a galloping ghost rudder/elevator servo for the plane. With this system, the rudder is always flopping back and forth and the elevator is always flopping up and down. For up elevator effect, the pulse is speeded up and the elevator spends more time up than down. For down elevator, the reverse is true. Rudder control is achieved by the "on" pulse being either longer or shorter than the "off" pulse. If it is longer, the rudder spends more time on one side than on the other. If it is shorter, the rudder spends more time on the other side. This galloping ghost system allowed me to achieve my first sustained controlled slope flights. The year was about 1968.

It wasn't long before I wanted a new glider and so I designed and scratch built a ship of about the two-meter size with standard box fuselage and constant cord wings with dihedral, utilizing the same wing construction that the Weihe 50 had used. The plane flew great. I had heard about a group of Seattle flyers who flew gliders off Badger Mountain, by Wenatchee, Washington, one weekend a year, and I went over to showcase my newfound skills. It was no fair. These people all had digital radios, and the speed capabilities of some of the planes took my breath away. The well-publicized designer Harley Michaelis was there with his Tri-belle and breathtaking Misqueet. Ralph Brooks were there with his huge, gorgeous scale-like Nelson KA6. Ralph White, who later bought the Flight Glass Company, was flying his Phoebus. The Graupner Fokas, Claus, and other imported ships and many original designs were flown.

This was heaven to me, but I had never before flown off such a colossal slope into such winds. It was all that my little, quivering, slow glider could do to stand still into the wind. The amount of down elevator available was very small. Finally, I made it out away from the cliff and into a giant thermal. Wow! I was right up there with the big digital birds. Everyone was amazed at seeing this pulsating aberration doing so well. More than one person remarked as they watched the tail surfaces vigorously flapping: "Look, even his glider stutters."

My enthusiasm was enormous in this moment of triumph, but so was my fear. How was I going to get the ship down? I was holding full down elevator just to get it to move forward. Finally, I put full down and full turn into the plane and it started a spiral descent, slowly at first and then gradually steepening. As the speed increased, the pulsing tail surfaces began to make the entire fuselage oscillate like the body of a powerful fish running at full speed. Then came the ego-shattering snap as the combined effort of all the forces caused a wing panel to give way and brought an abrupt and untimely end to my brief moment of glory.

It wasn't long until I ordered a digital Control-Air, four-channel radio kit from World Engines with a single stick transmitter configuration. To complement the new radio, I needed the greatest glider in the world, and I couldn't afford the \$35 for a Phoebus or Foka kit. Besides, I wanted more scale-like controls in the model than the simple rudder-elevator controls offered in stock

kits. I designed a four-channel glider with a rounded and shaped balsa fuselage covered by fiberglass. It had a high-aspect ratio, 100-inch wing with the Eppler 387 airfoil. The plane had flapperons, coupled rudder and ailerons and elevator. My first flights were very short, ending in an underground probing mission. The difference in control between the slow, gentle galloping ghost system and the quick, precise response of the digital system was more than I could handle. I was too proud to let any of the more experienced Seattle flyers help me. I didn't even know what the problem was. I thought the plane was just uncontrollable. After many crashes and after moving the c.g. very far forward, I finally got a handle on the plane. It flew just great and I was king of the slope. I never did experiment with moving the c.g. back where it belonged, after I learned to fly the plane. Flaperons were achieved in this plane with a sliding servo.

The next year when I went to Wenatchee, I had a plane to be proud of. By this time, I was growing restless as an architectural draftsman and I had lost my zeal for taking the state boards to obtain my own architect's license. I found I was spending every spare moment on the job designing a new glider or working out some new control linkage, etc. My heart was with my hobby.

In 1970, Sandy and I quit our jobs, rented out our houseboat on Lake Union in Seattle, piled our six-month-old daughter Heather (Todi) into our VW camper, and headed out for a six-month tour of the United States, on a very limited budget. I had sold my first four-channel plane to Larry Nuss before I left, and I had designed a new glider to take with me. The new glider had the same control system but two sets of wings. The long set had a span of about 120 inches and an NACA 4412 airfoil. The short set of wings (100-inches) had a semi-symmetrical airfoil. They were interchangeable on the fuselage as it had no fillet and was flat at the point the wing root contacted the fuselage sides, as on the later Todi and Maestro gliders. The flaps and ailerons were mixed with the forerunner of the Dodgson Coupler, which was devised, in part, by an innovative Seattle flyer and mechanical engineer Sandy McAusland from my own sliding bell crank platform. The Dodgson Coupler was to become the first two-control mixer available to the model airplane industry.

Our trip was plagued by radio problems. However, I did get some good flying at Torrey Pines, California, where I met some notables like Fritz Bien and Kelly Pike. After six months of being cooped up in our camper with a young child, Sandy and I were hardly speaking to each other on our return to Seattle. Needless to say, I had no desire to resume work as an architectural draftsman, so I put in for unemployment compensation while I cogitated on the alternatives. I discovered that while my planes were as good in light slope lift as any before my trip, that upon my return the Monterey had been introduced and it was superb as a light-life slope machine. I also discovered that Larry Nuss, who was now flying my original four-channel glider with the Eppler 387 airfoil, was out-flying my new gliders and he was getting performance from the ship that had eluded me. His secret, come to find out, was that he lost the lead nose ballast I had in it and was inadvertently flying with a much further aft c.g.

Don Burt, who had been brought to the United States from Scotland by Boeing as an aerodynamics engineer, played a prominent part in my life at this time. He also had designed several gliders with multi-channel control. The Boss T had polyhedral wings, but it had flaps and it had ailerons that were coupled to the flaps so that they moved about half as far as the flaps

moved. Don Burt's T2 had two-channel control and polyhedral, but it had flaps coupled to elevator and ailerons coupled to rudder, so it got a lot of mileage out of those two channels.

Don had all the design books by Horner, etc., and had been a well-known Free Flight competitor in Scotland. We spent many hours discussing the merits of different design concepts, wing tips, control systems, etc. In the end, we had several basic differences of opinion as to the configuration of the best high-performance glider.

Don decided that he would kit his T2 and Boss T in a small kit run. The idea seemed totally outlandish to me, but I started thinking that if Don Burt could do it, why couldn't I? My latest design after the six-month sojourn was a winner. It could hold with the Montereys in light slope lift and yet it could move out, was fully aerobatic, and had two sets of wings with flaperons. It was to become the Todi. The original fuselage was of shaped balsa, covered with Monocoat. (I still have it.) I had no fiberglass experience but wanted to make the pod of fiberglass. I wanted to make the tail boom of balsa but couldn't figure out a good way to do so. Ralph White, who now owned Flight Glass Models, generously and kindly instructed me on how to make molds and fiberglass fuselage shells. Don Burt gave me the basic idea of rolling the balsa tail boom, but it took many frustrating experiences before I developed the hardware to do the job.

It took several weeks of work, but I finally got my first Todi kit together, plans and all. I placed a tiny 1/12-page ad in Radio Control Modeler (RCM) magazine, for about \$50 and started getting catalog requests. Soon, orders started to trickle in. For the first two years, 1972 to 1974, we made our kits where we lived – on a 400-square-foot houseboat on Lake Union. The fiber glassing and the sawing were done on the covered portion of the deck while the materials were stored inside. All parts and the kit assembly were done inside the tiny houseboat. The first Todi had been ordered by John Davis, one of my slope-flying friends. He constructed it and when the great day for the test-flight arrived, he called me and we went to the slope.

This was the moment for which my ego had been waiting – the day when I would see my creation, built and flown by someone else, soar to glory! John threw it out over the slope with a steady hand. It was a success. But wait. Suddenly the glider went into a series of gyrations and crashed. John said it was the squirliest glider he'd ever seen. After several similar attempts, John gave the glider to me in disgust. I was totally crestfallen. This was 1972. I took John's Todi home, put my radio in it and flew the glider. It flew great. I told John, and he didn't believe it. I had to conjure up several witnesses. Finally, John took the Todi back and somehow discovered that his antenna wire in his transmitter had broken. The problem resolved John's Todi flew fine. In fact, at the 1983 model show in Puyallup, Washington, I heard from John Davis that he was still flying the No. 1 Todi kit from 1972.

The Todi was born on the slope but it had all the necessary ingredients to be a thermal champion. I now wanted to put the Todi to the test in serious thermal competition, but I had had little experience with winch tows and no contest experience. My early winch tow memories still give me nightmares! The concept of the turn-a-round had not yet been born, so the winch box was placed at the far end of the field with a highly trusted person left there to operate it. You hooked your plane on the line, waved to the winch operator, watched the line tighten and then off the plane would go full bore to the top of the line, if you were lucky.

Steve and Larry Nuss were the first boys in the Seattle area with one of these marvelous winches. It was only their constant enthusiasm that enticed me out, Todi in hand, to observe winch launching first hand. Larry had a Dandy two-meter glider with which he was going to show me how easy and safe this launching technique really was. Steve was running the winch. Finally, the moment came when Larry signaled the winch man that he was ready. With a surge of power, the Dandy sprung to life. It catapulted about 20 feet into the air and then did a snap roll on tow. Unshaken, Larry calmly continued on up the line to get a reasonable tow. "There, see how easy it is!" said Larry looking over at a quivering mass of humanity, holding a Todi that immediately went, unflown, back into my car.

At the annual slope flying bash, the second for me, on Badger Mountain (near Wenatchee), I heard that there was to be a thermal contest in Spokane as a part of the Spokane Internationals, a well-known power contest at that time. This, I thought, would be the golden opportunity to showcase my new Todi. I would simply breeze in with my wonderful multi-channel bird, win a decisive victory, impress the heck out of everyone and get great material for my advertising. Sandy, my supportive wife and I, drove for six hours and got to Spokane only to find that no one knew anything about the contest. Finally, we found out that we were two weeks too early. As luck would have it, the Spokane Barons were holding a glider contest that weekend anyway to sharpen their flying skills in preparation for the big contest.

We decided to stay and fly in this local contest, since we were already there and had nothing else going at the time. At the field, on the morning of the contest, I was chuckling to myself upon seeing the sorry assortment of gliders represented. Some flyers were even entering converted power planes, with the engines removed. There were a few Cirruses around though and they were good planes. Also, the first Airtronics kits were represented. They were the original Olympic 88 and 99. Harley Michaelis was there with one of his beautiful, published designs.

The first flight was a three-minute precision, which I figured would be a snap. I got a terrible launch and it was readily apparent that I was having a radio range problem, which demanded that I not stray very far away. Even so, I had no trouble getting the three minutes. In fact, I did so well that I got about four minutes and couldn't understand why I got zero flight points for this heroic effort. Finally, it sunk in what a precision flight was all about. My first flight was probably my best of the contest. I came off tow a few times, the winches were down at the other end of the field operated as described earlier, and I was having every problem known to a green contest flyer.

To compound my problems, most of the early Spokane Contests required that the launch be Rise-off-the-Ground (ROG) rather than throwing the plane from the hand. This type of launch was fostered by the LSF nationally and was used in their big annual California contests. Many articles were written in the magazines telling how much safer this ROG launch was than the hand-held launch. My own observations were that you were lucky to get three successful launches out of four with the ROG system. It was scary, you couldn't get as high and anything could happen in the first few feet while the plane was getting up to flying speed. Eventually both Spokane and LSF abandoned the ROG launch, much to my relief.

At the end of the contest, I had finished 15th out of 16 entrants. Even the converted power planes had beaten me. Either Harley Michaelis or Randy Holzapple won the contest as I recall. I went home a broken man. No one was impressed with either my amazing glider or me. I knew that my design could outperform the other planes at the contest, but no one else could have seen the potential from my dismal showing. Alas this was to be my fate on many more occasions over the next 15 years.

I knew that I had to go back and fly in the Spokane Internationals to redeem myself, so two weeks later we returned. There were about 40 entered in the glider portion of the contest. Several flyers were there from the Portland area, and five flyers of note from California.

This contest was a different story. I wasn't having any radio trouble at this field and I knew what a precision flight was. I had also been practicing landings. At the end of the first day, I was in the lead. My glider was a hit; even George Steiner and Greg Allen from California were going to buy kits. By the end of the contest, however, I had managed to drop to third place, the first two places going to the Allen boys from California. So ends the saga of Dodgson Designs . . . the beginning.

## **The Rest of the Story**

By Bob Dodgson in 2002

Well, the 100-inch Todi proved to be the first successful multi-channel competition glider kit in the United States. All of the other successful competition gliders had only rudder and elevator control. Some did have spoilers also.

The Todi used the first two-control mixer, the Dodgson Coupler, in the model glider industry to mix flaps and aileron – producing flapperons. Moreover, the coupler incorporated an elevator trim bar to feed in precise amounts of down elevator as the flaps deployed to compensate for the trim change caused by the flap deployment. The Todi did not need spoilers to win contests all across the U.S. and Europe. In fact, half of our Todi and Maestro sales were overseas where our kits were heralded as the wave of the future and won many major and national contests in England, Germany, Norway, Finland, etc.

The Maestro series of gliders was introduced in 1974. The Maestros used the same control system as the Todi but added spoilers as well. They were larger and most of the Maestro models had a wingspan in the 134-inch range.

All through the 1970s and 1980s most other competition kits still had polyhedral and rudder, elevator and spoiler control systems. Not so with Dodgson Designs kits! Toward the end of the 1970s, some of the competition flyers of our Maestro kits even started putting separate flaps and ailerons on them rather than using flapperons. In 1979, Dodgson Designs recognized this as a serious option for our kits even talking about it in our catalog.

Then, in 1980, we came out with the Camano to replace the Todi. It was the first thermal competition glider kit to come stock with separate flaps and ailerons. The early Camanos also had spoilers. I was still not completely confident in just using flaps for precision landing control.



However, it was not long until Camano flyers like Dave Johnson discovered that 90 degrees of flap throw provided the best landing control around. Soon the spoilers came off the Camano and we went to foam core wings.

In 1982, I drove our little Odyssey motor home on a Toyota chassis back to the AMA Nationals (Nats) at Lincoln, Nebraska. I was accompanied by several of the top flyers in the Northwest Soaring Society at that time including Tom Brightbill (multiple Nats winner), Tom Neilson (Nats winner), Dave Johnson (multiple season champion, etc.) and Tom Culmsee (Nats contest director). Most of us were campaigning Camanos and Maestros in open class and K-Minnows in two-meter class that year. The K-Minnow was a T-tailed version of the Camano with two-meter wings. It used the same revolutionary control system. We had recently pioneered the use of foam core balsa sheeted wings on the Camano and K-Minnow. These were the first competition glider kits to use solid core wing construction.

On the long drive home, the Windsong concept was born in a kind of think-tank atmosphere. We all liked the size of the Maestro MK III with its 134-inch wingspan, but we wanted the more precise control system of the Camano along with a higher performance wing, using the unheralded Eppler 214 airfoil. We also wanted a wing that would be easier to construct than the fully sheeted spar and rib construction of the Maestro, Todi and the first Camanos. The basic design concepts were pretty well solidified on that long journey home from Lincoln. However, I still had lots of decisions to make and details to figure out.

At home, I carved the plug for the first fiberglass Windsong “taco-shell” fuselage. This innovative idea, first used with the Camano, made it possible to have a graceful fiberglass fuselage that used spruce and plywood reinforcing inside and balsa and plywood for the top deck. It was easier to produce, stronger and more heat-stable than an all-fiberglass fuselage of the day. It was decided to go with foam core, balsa sheeted wings to simplify construction. As first used on the Camano, I figured out an efficient spar system and used lightweight foam to come out with wings that were stronger and yet as lightweight as equal sized built-up thermal glider wings.

While I was building the first Windsong prototype, I heard of a new full-sized German glider that could reflex the ailerons to function as spoilers. This idea got me to thinking. I have always loved simple and elegant solutions to complex problems. So, I decided to not put spoilers on the new Windsong and rather use separate flap control and ailerons that could reflex. I wanted to be able to reflex the entire Tailing Edge (TE) for high-speed flight anyway, so I would already have all the necessary functions in place. I worked out all the mechanical mixing systems and had the prototype Windsong flying in a few weeks after the trip to Lincoln. Its performance was breathtaking. I had seen nothing like it! At the time there were no computer radios, but the mechanical systems worked great and having all four servos in the fuselage kept the weight forward and gave me a Windsong that flew at about 54 ounces. The aileron spoiler effect used in conjunction with positive flaps was a real crowd stopper. No one had ever seen anything like it.

There it was in 1982, the control system, complete with “Crow” that many years later would become the industry standard and still is to this day. In fact, when computer radios started coming on the market in the late 1980s, they used the Windsong control system as the model that

they were trying to emulate electronically. The first electronic systems were used in Maestros and Windsongs.

Soon we learned that 90-degrees of flaps was about the best precision landing control and so seldom used the aileron-spoiler function except to help dethermalize. In what became known as “Crow,” with ailerons up and full positive flap, the Windsong could be pointed straight down dethermalizing at a safe speed of about 40 mph! No other thermal competition glider could dethermalize to fast and yet so safely and so spectacularly!

One of the most exciting sights that was unheard of at the time was watching Dave Banks regularly thermal out with his Windsong from a hand-launch! This is captured on our Dodgson Designs Video Tape that uses footage shot between 1983 and 1986. 134-inch multi-channel gliders should not be able to do this!

Well, the Windsong, and its smaller brothers the Camano and two-meter Pixy, went on to win the Nationals many times flown by people like Tom Brightbill and Tom Neilson. Even I paced second at the Nationals with both the Windsong in 1983 and again with the Pixy at a later time.

The Windsong design evolved into the Lovesong that was a beefed-up version of the Windsong. We improved the mechanical control system too, using the Automatic Flap/Aileron Reflex Trim (AFART) devised by Windsong flyer Gary Brokaw.

Another interesting first for Dodgson Designs in the early 1980s was the introduction of the Pivot. The Pivot was the first successful thermal glider to utilize pivoting wings (wingerons) for aileron type control. This control system had been used some on the slope, but no one had come up with a successful thermal glider kit utilizing this simple control system. The Pivot was the first hand-launch sized glider to use foam-core wings too! It won hand-launched and well as two-meter thermal contests and continued to be one of our most popular designs until we ended our kitting business in 1997.

In 1990, we introduced the Saber which had two firsts for a U.S. kit. It was the first thermal competition glider kit to use the SD7037 airfoil. This airfoil showed great promise from the wind-tunnel tests but had been passed over by designers and pundits – until the Saber. The Saber was also the first U.S. kit to use obechi sheeting for the wing skins. It was not long until the SD7037 airfoil became one of the most popular airfoils following the Saber’s successes and obechi sheeting became an industry standard.

Soon after the success of the new Saber, we updated the Windsong/Lovesong using the Saber wing technology and airfoil and called it the Anthem. However, many folks still preferred the Eppler 214 airfoil that the Mighty Windsong made famous, so we finally offered an obechi sheeted Windsong Classic and lastly the Windsong Silver in honor of Dodgson Design’s 25 years in the glider design and kitting business.

In the early 1990s, we replaced the venerable Camano and Pixy with the 98-inch V-gilante and the two-meter Wee-gilante. These kits featured Saber wing technology along with V-Tails. They used a new Mono-Seam fiberglass fuselage that I developed. This fuselage had the production

advantages of the taco-shell fuselage but offered the kit builder the construction ease of a fully formed and joined fiberglass fuselage. These beautiful glider kits offered all the controls that the Windsong had pioneered. They were popular in their size classes until we ended our kitting business.

By 1997, however, it was evident that serious thermal competition glider pilots were going to expensive pre-built gliders using all space-age materials and manufactured off shore. It was no longer profitable to continue designing and manufacturing high performance competition builder kits. So, I had an opportunity to go to work for Boeing in 1997 and I closed the doors to Dodgson Designs.

Last summer I decided pass along my molds, templates and CAD plans to longtime Dodgson Designs flyer and friend, Shawn Lenci of Escalon, California. He also has the world's largest collection of Dodgson Designs kits that he has collected at great personal expense.

By the way, Shawn just e-mailed me a week ago saying that Jim Thomas, flying a Windsong (a 20-year-old design) that he had just finished building, placed third at the huge 2002 Visalia, California contest. He was in first place until the final flight where he lost 10 landing points by  $\frac{3}{4}$ -inch and had to settle for third – showing that the mighty Windsong can still kick state-of-the-art-butt!

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*Peter Becker, Ph.D., wrote the following about Robert Dodgson in his letter to nominate him for the AMA Model Aviation Hall of Fame.*

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March 29, 2018

Dear Sirs:

I am submitting Mr. Robert Dodgson's name to the committee for consideration for admission to the Academy of Model Aeronautics Hall of Fame (AMA HOF).

I have traveled widely over the last 12 months and consulted both domestically and abroad on Mr. Dodgson and both his qualifications and status RE: Membership in the AMA HOF. Frankly, most of the competition sailplane flyers I spoke to, and many of the sport flyers and League of Silent Flight ranked fliers, were surprised to find he had not already been proposed and voted into the AMA HOF and wondered why he had not been. I could not offer them any coherent answer.

Robert Dodgson is a true pioneer and master of the art of the design, manufacture and operation of thermal duration and sport sailplanes. He started in the mid to late 1970s as an Architecture Major at the University of Washington. By the process of trial and error as well as assiduous study of aerodynamics, materials and design, by 1980, he had begun to both compete with, design and sell high performance Thermal Duration (TD), as well as sport model sailplanes. His iconic, ingeniously engineered kits with meticulously annotated AutoCAD drawings and detailed building instructions enabled many others to successfully build and fly in competition.

I came back to model flying in the late 1980s in Graduate School in Virginia with Tidewater Model Soaring Society (TMSS). I had been competing in 36-600 class model yacht racing on the West Coast with the American Model Yacht Racing Association. My career as a polar oceanographer, living aboard a cruising sail boat and international travel in anti-submarine warfare, curtailed my previous model sailplane building and competition in 1/2A FF and A-1 towline gliders, which had started in 1956 as AMA 12202.

I was fortunate to fall under the tutelage of Robert Champine (AMA HOF), a colleague and competitor of Robert Dodgson in TD sailplane flying, who inducted me into the art of RC model sailplane (TD) competition, and I renewed my lapsed AMA membership as AMA 12203. One of our TMSS fliers was Josh Glaab, Sr., a frequent winner in 2m TD competition on the East Coast with his Dodgson Design PIXIE, and that was my introduction to Robert Dodgson's unique and winning designs. They certainly stood out in the bevy of polyhedral designs, strongly reminiscent of my 1950s FF designs, which Dodgson Designs routinely outperformed in competition.

Robert Champine, retired NASA test pilot, the first to attain League of Silent Flight Level 5 (twice), was a fierce competitor, record holder, and team leader (US Wakefield Team) in many disciplines of model aircraft but had chosen TD sailplanes as his preferred area of emphasis. He had re-engineered many designs and was particularly critical of the Clark "Y" airfoil as inefficient. I, as a student of low drag hydrodynamics in my career in ASW, agreed that there had to be something better for sailplanes than the draggy and flat-bottomed Clark "Y". Robert Dodgson's implementation of the Eppler code series of optimized low speed airfoils with the ability to control camber with only 3 RC channels as originated in Dodgson Designs, attracted our attention and influenced my building efforts. Robert Dodgson was also an early adopter of the new Selig-Donovan (SD) airfoil sections from the University of Illinois Urbana-Champaign.

Both Robert Champine and Robert Dodgson were about winning in TD sailplanes, and I liked the new, more efficient, and different designs that Dodgson Designs represented, as that was what won in Development Class Sailboats like the 36-600 class RC model yachts I had raced. Josh Glaab's routine winning in 2m TD also helped convince us, and soon, in 1990, I had a Dodgson Maestro Meghan Mk 3 with an Eppler 183 airfoil section, which I still fly to this day. This Dodgson Unlimited TD sailplane is now again highly sought after as it still retains its superiority in Nostalgia Unlimited TD contest flying over other aircraft of its generation.

One unique aspect of Robert Dodgson was his willingness to share his ideas and TD flying technology, anticipating things like the current Paul Nation thermal flying DVDs by a decade or more. Between 1986 and 1997, Robert Dodgson published and distributed 16 newsletters on Soaring technology and technique, detailing his use of both the Eppler and SD airfoil sections, all still as useful today as they were when they were released. Robert Dodgson donated [six DVDs containing digital versions of Second Wind newsletters and Windsong footage to the National Model Aviation Museum], along with his personal [Dodgson Designs Windsong] (Second place Unlimited TD to Tom Brightbill, who flew also a Windsong Saratoga) in the 1983 Nationals. Tom Brightbill also won the 1983 High Johnson Trophy at the AMA Nationals for highest overall score in Unlimited class, Standard Class and 2m, all with Dodgson Designs.

Robert Dodgson's designs and his kit manufacturing ended in 2000 when he went to work for Boeing Aircraft Company as an engineer and AutoCAD Specialist. He is retired and still flying his own designs here in Western Washington. His long, successful career in design, competition, original adoption of efficient Eppler and Selig Donovan airfoil sections (sometimes decades before other TD sailplane designers utilized them) more than qualify him for the AMA HOF.

Robert Dodgson's early implementation of multi-channel "full house" control (rudder, elevator, aileron and flap/spoiler) and control mixing for coordinated turns, only requiring 3 RC channels, through his innovative mechanical mixing systems, also revolutionized TD soaring through full camber control of the wing in the 1980s, not available until the "computer radios" of the late 1990s arrived. His outreach efforts likewise were innovative and contributed to both the science as well as the development of the sport of thermal duration sailplane flying both here and around the world. Robert Dodgson has long deserved to be installed in the AMA [Model Aviation] Hall of Fame.

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