

Wing Inflatables

By Herm Hoops ~ 2013

Wing Inflatables are the Lamborghini's of the river. They are quite a bit more expensive than other inflatable boats, but once you've driven one through the quicksilver ballet of a Big Drop you'll never want another raft.

I first saw Wing Inflatables at the Deerlodge boat ramp on the Yampa River around the mid-1990's. Adventure Bound was loading their outfitted trip, and I noticed how light on the water the heavily loaded boats were. I next saw them in a different role in 2002 when my son was in the Special Forces stationed at Fort Carson, Colorado. They were integrating with some Navy SEALs and in the SEAL(#a.) wareyard were four Wing rafts. The SEALs I talked with liked the construction and handling of the boats in the difficult conditions they encountered.

In 1965 Bill Wing's father, Lowell, was weighing a job offer in Humboldt County, California and described to his young son the fierce winter storms blowing in off the Pacific, and the north coast rivers in flood, washing giant redwoods downstream and like monster battering rams, taking out highway bridges and wiping out entire towns. Lowell described the scene and then asked, would young Bill like to move there? The answer was, of course, an emphatic "Yes!"(1,5)

Pablo Thevinin had a big influence on young Bill Wing, and Bill gives Paul part of the credit for starting him running rivers and Wing Inflatables. Paul was on the Boy Scout committee when Bill was an Explorer Scout in his Mormon Ward, with his dad, Lowell, as an Explorer Advisor. Paul and Lowell got the kids making kayaks and Bill never got out of it.(4,5)

After almost earning a bachelor's degree in music with a focus on jazz guitar, the river called to Bill and "The Electric Rafting Company" was formed - running commercial whitewater trips on the Klamath, Trinity, and Salmon Rivers. The Electric Rafting Company did a lot of trips for Humboldt State College students. Initially the company was called Mountain Waterways, but people couldn't remember the name and confused it with Bill McGinnis' river company.(1,5)

During a program Bill did for Good Morning America, the host asked what the company's name was and Bill replied: "We're going to go with Electric Rafting Company because we shock people, we're in the current and every trip we end up shocking someone with the intensity of our trips!"(5) "Early on there were a lot of trips, and only two or three companies on the Salmon River (California). After we did the trip for Good Morning America there were 50 companies on the Salmon, and it went from a small outfitted river to an overused river. The Forest Service forced us into that, they said either you use your allocation of use days or you lose them. If they just would have let it do its own thing a lot of companies would have gone out of business. They forced us to overuse it."(5)

{Numbers (1.) refer to references, letters (#a.) refer to significant notes. }

In the late 1980s Bill witnessed a tragic accident on a flood swollen Salmon River, Bill's attempt to save an individual on another trip failed, and it haunted him. He decided at that point that he just didn't want to be responsible for a death on the river. "I knew that my crew was good enough, but in the back of my mind I knew that sooner or later somebody was going to get hurt."(5) That prompted Bill to enter the inflatable manufacturing business.

He went to work at Whitewater Manufacturing, (SOTAR) and learned the tricks of the trade from Randy Hodges. "Although they were nice people it was probably one of the worst organizations I've ever worked for. They weren't very well organized"(5) "They were a Mormon company, Randy Hodges was a Bishop. There were three partners: Glen Lewman was the lowest on the totem pole, his ego was so big, he wanted to buy Randy and the other partner out. After he bought everybody out and he told me that if I worked for free for six months I'd get a piece of the company. So I did, and when it came to remembering that he forgot it. Half a year working for free."(5)

After working for SOTAR for a few years, Bill and Randy began their own boat design and manufacturing under the name of Lost Coast in 1988. The company was named Lost Coast after the remote coastal section of Northern California. They made one of the first modern self-bailing inflatable floors, changing the depth of the flat "I" beam to make a "V" floor. "It was flat on the top but it was a mathematical nightmare."(5)

"When I started working with Randy Hodges, I put \$100,000 into the company and then Randy had a nervous breakdown and some accounting incidents troubled Lost Coast. Times were hard. Money was hard. Interest was high, gas was going up, boats were coming in cheap from China and Hysides were coming in from Korea. It was hard to sell an American boat for twice as much as the stuff coming in from Korea. So we did whatever we could to sell boats we were practically giving them away for what we paid for them just to make the payroll. I worked as a plumber to give my whole paycheck to Randy to pay the payroll."(5)

Bill moved back to Humboldt County, California and started Wing in 1993, initially under the name of ERC (Electric Rafting Company) Manufacturing. "We had a room that was just big enough to bring a boat in one door and go out the other door. The boats had to snake in and out to hit the welder, hit the sewing machine, we had RF (Radio Frequency) welders Banner welders. We've welded (fabric) since the start and we never looked back. We had so much trouble with the glue, bad glue, old glue, glue that had frozen and just didn't hold up."(5) After September 11, 2001 Wing was swamped with orders and had way more work than they could handle. Now 20 years after his start in inflatable manufacturing, Wing's annual sales exceed a million dollars.(5)

As a river outfitter running class 4 and 5 runs, river safety and swift-water rescue techniques came with the territory. Bill got involved in teaching swift-water rescue to various state and federal agencies including special operations contingents from the military. Wedding this experience and network of users with off-season work as a raft designer, Bill was becoming an acknowledged expert in his field - outfitter, guide, boat-handler, and inflatable craft builder.

Bill and his wife Elizabeth have been together for 26 years and they run the company together.(#d.) Today Wing has about 65 employees, most of who work at the manufacturing plant in Arcata. A few salesmen are in Virginia, San Diego, Chico, and some in more remote locations. Most are retired Navy SEAL's and some are retired firemen.(5) The current plant is 85,000 square feet with the potential for another 15,000 square feet if necessary. The building is on an industrial site, formerly used in the now defunct logging industry to make redwood barrels. A hundred people worked there making barrels, and now Wing is a significant contributor to the area's economy. One of Bill Wing's finest attributes is the loyalty between him and his employees, and many of his employees have worked there for over fifteen years.(2,5,6)

Many inflatable manufacturers use conduit or large PVC pipe to design their boats and then develop a formula for their CAD cutting machine.(#e.) Wing's custom CAD program is used to design each inflatable, and they can duplicate existing designs or create brand new ones.(1,2) Wing's Jim Havstade, a mathematician, developed Wing's inflatable design with mathematical formulas and programmed the CAD to create even and smooth seams and construction specifically for the material being used.(2,5)

About the time that Bill started Wing a new welded-fabric called 'polyurethane' piqued his curiosity. It was expensive material but it was tough and strong in ways no other fabric could match. Bill saw the potential of polyurethane for applications far beyond river rafts.(1,5) Polyurethane is tough, lasts a long time, has excellent air retention and results in a more environmentally-friendly production process than the process that uses Hypalon or other fabrics.(1) From the beginning Wing Inflatables specialized in thermo-welding high-strength, long-lasting polyurethane coated fabrics in an array of designs and applications.

One of Bill's early target markets was the Navy SEALs who were using the Navy 'ten-man' inflatable boats, otherwise known as IBS's (Inflatable Boat-Small) using technology dating back to WWII. It took almost ten years, but eventually the Navy and the SEALs recognized the benefits of polyurethane and thermo-welding.(1) An incident at Fort Eustis, Virginia, with a hundred new boats in boxes helped the marketing of Wing's inflatables. When they opened them up in the heat and grabbed a handle it came off in their hand. If inflated while they were hot they fell apart.(5) "The boats didn't have any logo on them and they didn't know whose boats they were. When they called the distributor to get some glue kits for those "Wing" boats, the distributor informed them that they were not Wing boats but Zodiacs!"(5)

In 1991 ALMAR Marinas (#f.), decided to give polyurethane a try. The polyurethane air-holding tubes designed by Wing Inflatables for ALMAR were adopted to a fleet of RIBs, (Rigid Inflatable Boats) for use on off-shore tours in Hawaii and were the first of their kind. In 1992 the Navy returned to Wing for polyurethane tubes on its Explosive Ordnance Disposal craft.(1)

In 1993 the various claims and counter-claims relating to all marine air-holding fabrics by their various promoters, Wing among them, had risen to a level where the Navy needed clarity as to how to move forward with air-holding tube technology.

Polyurethane fabric, and by association Wing Inflatables, its sole user and promoter at that time, underwent an intensive in-depth study along with Hypalon, Neoprene-coated polyester, vulcanized rubber, and PVC.(1) The Navy determined that welded fabric was superior in strength to glued fabric, and that in the three critical areas of puncture, abrasion, and tear resistance the polyurethane fabric surpassed all others. The decision was important as around this same time river-rafts made from less expensive materials coming in from low-wage producers in China and Mexico flooded the commercial raft market. In some instances a completed raft cost less than Wing's raw polyurethane fabric. As river raft sales at Wing stalled and then slowly declined in the face of this off-shore competition, the sales of air-holding tubes for RIBs took off.(1)

1997 brought another innovation to the Wing line, significantly expanding the reach of polyurethane into the marine industry. Since the early 1800's cork floats wrapped in sailcloth and fastened to gunwales had been used on small craft by Norwegian fishermen to add stability and floatation. The modern version of this is closed-cell foam wrapped in a fabric sheath. The Wing polyurethane version featured an air bladder running the length of the collar, inserted within the foam and lying against the hull. When inflated it brought the foam and sheath under tension for rigidity and a clean, wrinkle-free appearance. This air/foam hybrid collar was sought by the Navy, U.S. Coast Guard, and other government and state agencies for its performance, shock absorption, and appearance.(1)

Today polyurethane thermo-welded fabric has become an industry standard, and Wing Inflatables is recognized as the premium quality fabricator of polyurethane in the world. Lending credence to this claim is the fact that several of the largest river outfitters operating in the U.S. returned to Wing, forsaking less expensive rafts for polyurethane's durability and longevity. But today it's not all about collars, sponsons, and rafts. Wing is working with research and development teams in the military, commercial marine industry, and a host of other industries to use welded-fabric technology to an exotic blend of applications including stealth technology, ballistic protection, port security, and air-sea rescue among others.(1)

Originally formulated in the nineteen sixties for use in portable aviation fuel bladders, heavy-duty polyurethane coated nylon is highly inert, very stable and resistant to a variety of chemicals, while remaining pliable and workable throughout a wide temperature range. Polyurethane-coated nylon fabric is used in dozens of everyday items, from rain gear to furniture; any cloth item that must be both waterproof and abrasion-resistant. Wing's 40 oz. per square yard polyurethane boat fabric is an industrial-strength variant, a custom formulated fabric, waterproof, air-proof, and extremely puncture and abrasion resistant.(1) Neoprene-coated polyester has been around since the 1950s and Hypalon since the 1970s, but Polyurethane has ability to withstand almost any abuse and outwear the other fabrics by a factor of two or three times.

Unlike competing neoprene and Hypalon fabrics that are glued, polyurethane can be heat and R/F (radio frequency) welded—a process that chemically and mechanically fuses the material together in a manner that makes seams and attachment points far stronger than the original fabric. Yet repairs in the field are fast and straightforward using appropriate Clifton or Sta-Bond adhesives. Urethane-based adhesives allow usable bonds to be produced in 5 hours with a full cure in 24 hours, while seven days are required for Hypalon adhesive to fully cure.(1) One advantage of using polyurethane fabric is that the boats are much stiffer than boats made from other types of fabrics.(2)

All Wing products are manufactured in the USA with American made materials and labor.(1,5) Dupont makes the nylon and polyester yarn and Cooley/Group weaves it and applies the coatings(#b.) to Military Specifications and is Berry Act compliant.(#c.) Cooley does material tests, but Wing double checks the specifications. Wing records and keeps a piece of fabric on file from every roll of fabric.(5)

Wing's commercial grade whitewater rafts use 40 oz. polyurethane fabric (warp 820/fill635), which offers strength, durability, and longevity.(1,2) Most Wing rafts used yellow fabric, although special orders were of many colors.(2) The boats had an inch and a half overlap on the inside and outside of each seam, and on the I-beam floor construction which was something that no one else was doing.(2) The floors were "V" shaped and from 6½ to 8½ inches thick.(2,5) Wing used a doubler on their inflatable floors that was not on the same bias as the adjacent material, giving it added strength. (2,5)

Although they have recently emphasized the military and industrial markets, Wing's roots are on the river. Years of personal experience coupled with decades of partnering with outfitters to design and build boats to their specific needs has led to long time relationships. Jessica (Abendroth) Ricker became Wing's National Sales Manager in 1995, and worked in that position until 2004.(#i) Will Colon was a Wing Sales representative in West Virginia and Colorado after meeting Bill Wing around 1996. Through his rafting contacts along the New and Gauley Rivers in West Virginia, and rivers in Colorado Will sold Wing river boats to several outfitters and many private river runners.(#h.)

The primary models were from ten feet in length to 18 feet in length, although they made a few twenty foot long boats.(2) Only one Wing model had a name. The ten-foot long "Miss Jessica" was named after the National Sales Manager Jessica Abendroth. Wing river boats had numbers rather than names. Wing had an early line that were RWS-V, later models were RWS-VII.(7) The code for model RWS-VII, for example, stood for Wing River Series and the Roman numeral indicated how many pieces made up the bow and stern panels of the boat.(2) In the later years Wing produced boats with a tapered bow and stern for additional room, those models were given the code TRWS (Tapered Wing River Series).(2) The number of panels lets you control how much or how little rocker there was in bow and stern and hence how boat would perform in white water. The more rocker the less "hard edges" when going into a big hole. The transition would be smoother with more panels creating less hard impact at the bottom of a hole.)2(Initially Wing used Halkey-Roberts valves, but later changed to Leaffield valves around 2004.(2)

Over time, the river companies became such a small part of the business that Wing has virtually stopped plying that market. Today Wing still makes river inflatables but they only accept multiple boat orders. When Wing began production most companies were manufacturing their boats in China, Taiwan, Mexico and Japan. Wing had a hard time competing with the cheaper foreign-made boats because all of Wing's materials were made in the United States with American labor. Even with volume pricing a Wing boat was around about a thousand dollars more than their competition per boat. On an order of fifteen boat order outfitters could save fifteen grand - enough to buy several more of the less-expensive rafts.(2,5)

Wing's attempt to overcome that problem was to develop a niche building large quantities of custom boats. But they were still expensive and it was a troublesome process because of the variables of the manufacturing process, the cost of material, the design, things like valve placement, d-ring placement and their size and orientation. Much of the outfitter design information was taken over the telephone further complicating the manufacturing process. Wing often lost money trying to please their clientele and that's what eventually led to the end of river boats manufacturing by Wing.(2) "It was costing us more to build a river boat than the fabric. I know we did it at a loss! We did the Rivermen's boats on the Gauley River, West Virginia. We did quite a few of those boats and they were very custom, they had huge lifts on them 15' long and the rake was 4 feet high. There were only 15 inch tubes on the front. They were great boats to give maximum rocker ride."(5)

"OARS purchased approximately thirty boats for use mainly in the Grand Canyon," and now uses two in Dinosaur National Monument. Adventure Bound purchased two for use on Cataract Canyon, Westwater Canyon and in Dinosaur National Monument. As of 2006 Canyon Expeditions, Inc. was using Wing 18' boats in the Grand Canyon.(3) Bill McGinnis' Whitewater Voyages bought some, and at Electric Rafting we had a whole bunch of them."(5) The New and Gauley Adventures in West Virginia and Arkansas Valley Adventures and Clear Creek Rafting in Colorado used Wing's. Nantahala Outdoor Center (North Carolina) used Wing inflatable kayaks and paddleboats. Wing inflatable kayaks and rafts were used from Maine (Northern Outdoor Center) to Alaska (Chilkat Guides).(4g)

When Bill stopped running the Electric Rafting Company he gave all the boats, except for two that he kept, to a non-profit company for disabled kids. They also made two special Catarafts for wheel chairs that had remote controlled electric motors on them.(5)

Bill was determined to make his inflatable business work. He kept telling his wife Elizabeth "by this time next year we'll be rich! I've been telling her that for 25 years!" Bill Wing and his team continue to be a leader and visionary of a dynamic and growing company. Honored with a lifetime membership in the Navy SEAL Association, he continues to guide Wing Inflatables to ever-greater success and accomplishment. With Bill Wing's hands firmly on the oars, Wing Inflatables, like the rivers that originally spawned the company, grows ever more deep, wide, and strong, as it gathers itself and moves inexorably into the future. To quote Jessica Ricker, his once National Sales Manager: "Bill is a wonderful, wonderful human being." And there is little doubt he makes a wonderful, wonderful river craft - the equivalent of a river Lamborghini.

REFERENCES:

- (1) Wing ® Inflatables, From <http://www.wing.com/wing-history.php>;
- (2) Telephone Interview with Jessica (Abendroth) Ricker, National Sales Manager, Wing Inflatables; 941 H Street, Arcata, CA 95521; (707) 825-8177; 05/30/2013;
- (3) Grand Canyon River Management Plan; 2006; Appendix C; Page 2, Commercial Operating Requirements;
- (4) Paul (Pablo) T. Thevenin, letter to Herm Hoops, 03/01/2012;
- (5) Oral Interview with Bill Wing; Arcata, California; 01/21/2013 by Herm Hoops;
- (6) Telephone Interview with Will Colon of Raft Masters in Colorado (Former Wing Sales Representative) with Herm Hoops; 05/23/2013;
- (7) email from Jessica Ricker to Herm Hoops, 06/01/2013;

MISCELLANEOUS:

- Wing Hull ID Number: ERX
- Wing Inflatables, PO Box 279, Arcata California, 95518
1220 5th Street, Arcata, California 95521
(707) 826-7887 or (707) 826-2887
- Wing Inflatables has received a gold-level award for quality and performance from the Defense and Logistics Agency (DLA) Land and Maritime for 2011.

SIGNIFICANT NOTES:

(#a.) - The name SEAL is the United States Navy **SEa**, **Air** and **Land** teams. They are the U.S. Navy's principal special operations force and a part of the Naval Special Warfare Command (NSWC) as well as the maritime component of the United States Special Operations Command

(#b.) - Cooley/Group (In Rhode Island and South Carolina) makes the final fabric. They design, develop and manufacture a diversified portfolio of premier engineered coated fabrics used across an array of industrial, commercial and military applications. Cooley/Group's products and processes have a significantly reduced carbon footprint, and the Company is taking a leadership position in developing fully recyclable solutions for its global customer base. The Cooley/Group is comprised of three core divisions:

Cooley/Commercial Graphics offers a portfolio of high quality recyclable products for the commercial awning, sign and advertising markets; Engineered Membranes provides solutions for some of the world's most notable water, chemical and fuel containment and commercial roofing initiatives; Solar Solutions combines Cooley Commercial Graphics and Engineered Membranes products with solar power, including solar awnings, reservoir covers, tents and other unique solar solutions.

(#c.) - The Berry Act is a Military Specification requiring fabric and other materials for military use to be manufactured and assembled in the United States.

(#d.) - Bill and Elizabeth have an eight-year-old daughter. Bill met Elizabeth on the Salmon River (California) on April Fool's Day. Bill has done everything from working on his father's "gentleman farm," to commercial truck driving and piloting an aircraft. He is an avid boater using kayaks or inflatables. He has a U.S. Coast Guard Master's License for boat operation that includes a sailing endorsement. Bill and his brother, at one time used that license to deliver boats. Recently Bill was diagnosed with a condition called Myofascial neuralgia in which all the nerve endings going into his head are collapsing and exploding. The condition makes one feel like being stung in the face by wasps all the time. He's had several surgeries, one of them left half of his face paralyzed, another one didn't work. The injury and stress has been putting a strain on Bill's brain and heart. During this interview he constantly had a cold pack on his right face and although he doesn't want to Bill will likely retire in 2013.

(#e.) - A CAD machine is a computer controlled cutting machine that has a pin, a punch and a cutter that makes maximum use of fabric through mechanical, laser and/or heat cutting devices on a large vacuum table.

(#f.) - ALMAR: Was founded in 1973 by Harry Nelson, who shared an idea with two partners, and together they acquired a marina to begin a true boating community. As the marinas grew in number and size they became the largest operation of saltwater marinas on the West Coast. Almar Marinas are found at many of the major western boating markets, including two Marinas in Hawaii. Combined, their marinas can accommodate over 3000 watercraft.

(#g.) - Other outfitters using Wing rafts and inflatable kayaks are: Northern Outdoors (ME), Nantahala Outdoor Center (NC), Clear Creek Rafting (CO), Chilkat Guides (AK), All Outdoors Whitewater Rafting (CA), (2,6)

(#h.) - Will Colon now owns and operates River Masters, a whitewater rafting company in Colorado.

(#i.) - After graduation from Humboldt State University, Jessica (Abendroth) Ricker guided for The Electric Rafting Company. Jessica became Wing's National Sales Manager in 1995, and worked in that position until 2004. Jessica left wing when they stopped plying the river inflatable market. Jessica remarked: "I loved working with Bill. Bill is a wonderful, wonderful human being, but it was time to move on.

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- Jessica (Abendroth) Ricker

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