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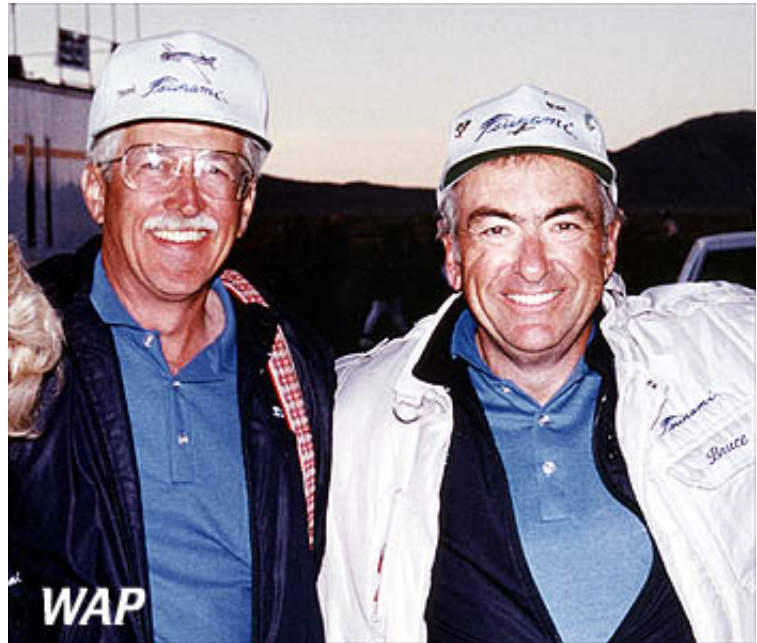
I don't remember who called back in 1995 and told me that Bruce Boland had died. I do remember the stunned disbelief I sat in after I hung up the phone. Just two weeks prior, I had met him for the first time and interviewed him for over four hours. It was more like two people getting to know each other and discussing air racing than an interview. We met at a Denny's in Canyon Country near his home in California. He was colorful, well spoken, animated and excited about air racing. He was also humble about his contributions to the sport. He recalled many of the racers - people and airplanes - he had been associated with. At the end of the meeting, I felt like I had made a new friend. I also felt like I was much further along in my air racing education than when I first shook his hand. In a way, the history I was so interested in had reached out and literally touched me.

Boland should take very little introduction to people that know unlimited air racing inside and out. Those that just know about the airplanes would be interested in Boland for many reasons. He was one half of a team of engineers that had a hand in almost every unlimited air racer since Darryl Greenamyer's Conquest One Bearcat. This goes back to 1964; the start of the Reno air races.

Employed by Lockheed's Skunk Works, Boland not only developed structures and aerodynamics for some of Lockheed's hottest and most secret aircraft, he did the same for some of the fastest racers and a slew of semi-stockers. At some point, his influence could be seen in almost every unlimited racer in some shape or form. He might not have worked on it or designed a modification, but his influence was there.

The Dream Team

The "team" of engineers mentioned above included Boland's close friend, Pete Law (Pete left, Bruce right). He was a heat transfer and systems specialist with the Skunk Works until he "retired" several years ago. Their friendship and mutual passion for air racing lead to some major breakthroughs in racing technology, record speeds, and some fantastic racers. The friendships formed were the best part. Bruce would handle aerodynamic and structural modifications on the racers, while Pete would flow carburators, design spray bars, water boilers and various other systems. These were the two guys you wanted on your team when it came to going fast.



Boland was born in Brooklyn, and had early memories of Floyd Bennett Field. Pan Am Clippers, Wildcats, Hellcats and PBYs illustrated his early imagination and planted the aviation seed. He credits his father with developing his interest in aviation. When it came time for college, he attended Brooklyn Poly and graduated in 1961 with an engineering degree. His first job while still in college was selling autopilots for Bendix International. After graduating, he joined Lockheed. It was his dream job.

"I was hired as a stress analysis engineer," he remembered over his breakfast. "I didn't care; that's what they needed. I had visions of being an aerodynamicist. I specifically wanted to get into Lockheed because of their air racing background. You had Tony Levier, "Fish" Salmon, and Amelia Earheart flew a Lockheed Model 10... It seemed like a natural place to be." Boland sips some coffee and laughs. "So, basically Lockheed paid the bills while I was doing what I really wanted to be doing... Racing..." He has a hearty laugh and his eyes twinkle. During his Lockheed career, he would rise to head the structures group at Skunk Works.

Boland explained how, in the back of his mind, he was chagrined at the fact that Germany still held the piston engine speed record. They set it right before WW II in a special Me-109. "That busted my chops," he said with a smirk. "Once we got into jet aviation, that got bypassed. But it seemed like unfinished business."

As Lockheed employees, both Law and Boland were sent to USC in 1963 to earn their Masters degrees. Boland had already become friends with Law, but their schooling cemented the friendship. The air racing stuff came soon enough. "In 1964, one of our test pilots had a Bearcat, and his intention was to fly in a cross country race, then a pylon race. Pete was called upon to do some modifications to the oiling system. I did some stress analysis on this modified canopy he was going to put on the airplane. Of course, this was Darryl



Greenamyer." His eyes sparkle at the mention.

This portion of Boland's history and how he intertwined with Greenamyer and his Bearcat could fill a book. But Boland's story is so much deeper and more interesting than that.

Career Snapshot

Boland and Law - it's hard to talk about one without talking about the other - made Greenamyer's Bearcat the six time champion it was. They concentrated on making the aircraft light and clean, and using a little more than takeoff power to run the races. It also helped that a late model R-2800 was used, along with the Skyraider propeller. It was the most modified racer at Reno for a long time.

"Darryl was a hell of an engineer, too," Boland points out. "He wasn't just a good stick." The Bearcat, crewed by Law, Boland, Bill Kerchenfaut, Ray Poe and several others, took back the piston engine speed record in 1969 at 483 mph. The entire program and speed record was a feather in Boland's cap, as well as the rest of the team.

Bearcat to Baron

His next big project was the engineering for the Red Baron conversion. Ed Browning wanted to replace the Merlin with a larger Griffon, complete with counter-rotating propellers. Without computers - just a slide rule and a scientific calculator - Boland went to work. Knowing the additional horsepower would factor in, Boland also beefed up the fuselage and made other changes to squeeze more speed from the racer. What they didn't plan on was the amount of instability from the propellers. They fooled around with increasing the chord on the vertical stabilizer and adding a skeg (right) beneath the tail. Neither worked very well, and the airplane flew poorly. In the end, the answer lay with making the vertical tail taller, and moving the center of gravity forward a bit.



While piloting the Red Baron, pilots Mac McClain and Steve Hinton would be a dominating force at Reno, Mojave and Homestead. In 1979, Hinton broke Greenamyer's record at 499 mph. While that seems impressive, one has to understand that the team chose a series of days that were, historically, the hottest days of the year in Tonopah, Nevada. When they arrived in the high desert, their effort was greeted with cloudy skies and downright cold temperatures. "We were shooting for 530 mph," Boland said with a raised eyebrow. "Yeah, pretty good for the late '70's... But we needed a hot day to go fast, and we didn't get it. We ran out of time and had to go to Reno."

Boland's body of work is expansive and impressive... Even today, you can walk the unlimited pits at Reno and see Boland's influence. His work has been associated with Conquest One, Dick Weaver's Mustang, Miss Candace, the Red Baron, Jeannie, Georgia Mae, Tsunami, Larry Haven's P-63, and even the Pond Racer program. There are more; Miss America, Escape I, early Strega and Dago Red work, John Wright's Mustang... A little Rare Bear is in there, too. His final work saw him once again team with Greenamyer for Shockwave; a purpose built R-4360 racer with cut down Sea Fury wings and a modified F-86 tail. This airplane's would-be rival - Matt Jackson's American Spirit - features a R-3350 for power and a modified T-2 Buckeye wing and center fuselage. Chalk that one up to

Boland, too. Neither racer has been finished yet.

The Tidal Wave

Judging from our conversation, I would say Bruce's crowning achievement, and the one he was most proud of, was the design of Tsunami. It was John R. Sandberg's money that financed the program, but it was really Boland's baby. He held that racer close to his heart. It wasn't a modified anything. It was his Masters thesis on air racing and how a prop racer should go fast. "The initial idea centered on an airframe slightly smaller than a Mustang with tank volume for a Mojave style distance race. Ray Poe was a partner in the project with me," he said. This particular idea wasn't Tsunami yet, it was a different airplane.

Several events shelved that particular idea; the Allison V-12 engine had been loaned to Larry Havens for his P-63 racer. Havens turned on the water injection system during a flight before it had been tested. The engine detonated and blew the induction system apart. When the cockpit filled with smoke, Havens bailed out and the aircraft went into Long Beach harbor. "Havens was instructed not to turn the system on. Anyway, that whole project was shelved in the early seventies when Ray (Poe) went to the middle east to set up an L-1011 ground school."



However, the idea of the smallest airframe around a racing V-12 still lived within Boland.



"When the Tsunami project got started, it would be a similar idea but even smaller. We put about the smallest airframe you could around a Merlin. What dictates how an airplane is built, is first of all, you've got to have an engine. Once you figured what kind of engine you'll have, then you have to figure out what you're going to use it for. Racing, long distance, or what? Like a Reno type race, that determines how much fuel you have to have to finish the race. Or you won't win," he smiles.

Boland explains that sizing a racer depends on the engine and how much consumable volume you'll need. Tsunami began with the idea of using a -7 Merlin set up for racing. His design was sized

and based on a pylon racing and speed record requirement. John Sandberg teamed with Boland on the project when the speed record was being flown with the Red Baron in 1979.

With Sandberg financing the program, metal was cut and the airplane came together very slowly.

Years went by, and rumors surfaced every so often. Several Reno races came and went. No racer.



Warbird Aero Press

When Tsunami did make it to Reno 1986, it caused a sensation. "The Wave" had finally arrived. Boland felt like a brand new father. Over the years, it seemed one thing after another plagued the airplane. Some of it was bad luck, and some of it was induced. Overall, there were some marked successes, and some heartbreaks.

Bitter Pill to Swallow

As Sandberg developed the airplane, things had begun to change within the program. It left Chino and went back to

Sandberg's shop near Minneapolis. "Sandberg was an experimenter and inventor," Boland remembers. "He was very good at that and had good ideas. I think where he had a problem is he hadn't really tested things that well." This clearly is not an easy subject for him to talk about.

"It just got to the point where people were leaving the program because of all the changes being made. There wasn't proper testing," he said. "In the beginning, the agreement was to have an all out race plane. In the end, Sandberg wasn't extremely comfortable flying it, so he was moving towards more of a sport airplane."



Warbird Aero Press

A lot of changes had been made. The wing had been moved back nine inches; a major rework of the airframe. Many other things had changed, including the moving the center of gravity, electronic ignition and tail changes. Boland had grown weary of the situation. He pulled out a letter he had sent to Sandberg in 1989. It was worded simply and respectfully; Boland was leaving the program and he cited his reasons why. He let me read it, then said, "It's not for publication, but I wanted you to understand."

"The airplane wasn't designed for flaps," Boland continued. But back in 1987, Sandberg wanted to fly into a little airport in Minneapolis, so we hooked up flaps to it. We took Yak-11 flaps and used a T-33 actuator, and that worked very well. He just used them to get into this little airport." After that, he wanted flaps more like a P-51. He built and installed a set, except he used one source of hydraulic pressure to a T fitting, which then went to each flap. They had no interconnect. "Some of the guys that worked with him told him not to put those in there, but he went ahead and did it."

After the 1991 races, Tsunami was weary from being run hard. Holm had gotten as far as Cheyenne when weather forced him to abandon further flight. He parked the plane, told Sandberg he'd return later to get it, and not to fly it



himself. The airspeed indicator wasn't working properly and the flaps were coming out asymmetrically. There were also some problems with the pitching moment the flaps set up in regards to airspeed. Evidently, Sandberg got itchy and wanted the airplane back home. He went out and began to fly Tsunami back to Minneapolis.



On approach to Pierre, South Dakota, Sandberg passed his MU-2 chase plane when he put the flaps down. One of the actuators broke, and it rolled the airplane over. He never had enough altitude to recover, and was killed when the airplane hit the ground. Boland was asked by the NTSB to figure the airspeed and flap angle when the failure occurred. Using a carbon test, he found the actuator would fail at an airspeed of 144 knots, and his airspeed had been approximately 190 knots.

"That was a bitter pill to swallow," Boland says. He remains silent for several long moments. "Really an unnecessary thing." He is angry and sad.

If you're feeling like this story took a hard left turn into Tsunami territory, it did. Boland's passion for this airplane was unmistakable, infectious and deep. It's not that it outshines any other program he was involved with, but it was "his" airplane in a sense. He didn't own it, but it's heart owned him. He was as upset about the accident in 1995 as the day it happened. He didn't want to see anybody get hurt, and somebody did.



Sum of Experience

That aside, as we sat there, I felt like he had weighed the sum of his experiences. The good far outweighed the bad. Tsunami had been clocked at 557 mph during a test flight, he had helped set speed records with Darryl Greenamyre and Steve Hinton, and the racers he had worked on had won at Reno more often than not. He had touched many people, and they had touched him, too. He had a lot of friends. Boland's mind, imagination, talent and experience should be credited with furthering air racing to its present level. It is a shame that he isn't more widely known within the race fan community.

When I hung up the phone that day, I was sad that a new friend was gone so suddenly. I was even more sad for his close friends and his wife, Dorrell. Even from my short exposure, I came to see that he was universally loved and respected by those close to him. He probably was a hard nose at times; this stemmed from him having the best interest of the program or the person in mind. He wanted what was safe and right. I'm sure a lot of people still feel his loss today.

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