

Reno Air Race Stories 2022

Sonja Englert

September 2022

The largest fire of this season in California was in the mountains southwest of Reno. I was somewhat relieved that I did not have to drive through that area to get to the races, but even before I left, I noticed that the visibility at the airport there was reduced from the smoke. When I arrived on Tuesday, the weather looked great and the planes were busy flying. This was in part because on the previous day, smoke and a thunderstorm had prevented much of the qualifying flights and they were in the process of catching up.



Here the T-6 class is lined up, ready to go, while the jets are speeding around the pylons.

From the main gate, I made my way along the pits of the Unlimited racers, and ran right into Dennis Sanders, who was standing next to one of his Sea Furys. He and his family keep their fleet of warbirds at the private airport Eagle's Nest, in California, not far from where I live. Shortly afterwards, I saw them fly the course, the sound of these big radials at full throttle is amazing.



Sport class lines up while the Unlimited's are flying, here is a Sea Fury in the air



The P-51 Mustang is still a very popular Unlimited Racer



It saves space if you can fold your wings up

I headed towards the Formula 1 and Biplane hangar, at the west end of the ramp, to see if my friends and customers were there. First I saw Scott with his Racer 66, a modified Pitts S-1C, for whom I had designed a composite part. He told me that he had it partly built when two weeks ago he made a mistake with it. Rather than try again in a hurry to fix it, he decided to work on the project after the races by starting over and fly with the original part for now.

Designing a new part, even if it is a whole wing, is a lot faster than building it. So maybe if I keep coming back to Reno for a few more years, the teams may have more of my designs actually flying.

The Phillipson brothers, Justin and Josh from California, had their two Formula 1 racers, Race 79 “No Strings Attached” and Race 81 “Sleeper”, sitting in the usual corner of the hangar. I had also done some work for them, but none of it was finished, as I learned when Josh brought me up to speed. The planes had been able to qualify the day before and were now waiting their turn for the first race.



Next to them was a casualty of the previous day: the white plane in this picture had swerved off the runway the day before during its attempt to takeoff. In the soft ground, a wing tip scraped the ground, the plane stood on its nose, balancing briefly, until a slight gust of wind flipped it over on its back. The pilot, Eric, was ok and managed to extricate himself from the cockpit. The canopy and the prop were smashed to pieces, the tip of the vertical tail was crunched and the turtledeck and a wheel fairing ended up cracked. The damage could have been repaired and even a spare prop was on hand, but there was no replacement canopy available. So the unlucky pilot had to remain a spectator for the rest of the week. He had only finished and painted his plane two weeks prior to the race, and I wondered if he should have spent more time flying it to become more familiar with its handling.

Another Formula 1 Racer was worth looking at. Its two owners had bought an existing Cassutt in the attempt to improve their speed from last year with a slower plane. “QuadNickel” (45) looked beautiful: it had just been painted professionally and looked perfect enough to win the title of prettiest racer in the hangar.



I talked to the owners for a while, giving them some tips on how to improve the performance of their new toy. They were dreaming of one day designing and building their own custom racer, to maybe beat the really fast guys in this game.



I walked back through the pit area. The airplanes of each class are grouped together, and the T-6 had also come back from their flights and were getting taken care of by their crews. It requires a lot of helpers to keep these planes ready and flying, small issues fixed, polished and all the gaps taped up.



I asked one of the guys of the Race 88 team a question about the plane and noticed that he had a German accent. He noticed the same of me and we switched the conversation to German. This young man had been invited by the owner of the T-6 when he was visiting an airfield in Germany, to come crew for him in Reno. At first Chris, the German pilot, did not take him seriously, but after the offer had been repeated over the course of several years, he decided that it was really meant that way. Yes, unpaid helpers are always welcome. It was now his third or fourth year of being part of the team. It turned out that Chris was actually a Boeing 777 pilot flying out of Frankfurt, but living in Wien, Austria, so I told him about the project I was working on with Diamond, sort of around the corner from him.



Race 88 and Chris (in front of the black car).

It was now afternoon and on the horizon I noticed a distant white haze to the west. It soon changed from just a somewhat bright white, harmless looking strip to a wall growing higher

and closer. It was dense smoke. The wind was slowly shifting from south to southwest and blew the smoke produced by the large fire closer. As the wind swung further to the west, one by one the hills you can still see in the picture above disappeared.

An airplane that looked like a Beech 18 Twin stood in the warbird area, although I doubt that it was racing. It had a lot of glass on its nose, and I made an attempt at producing a Selfie with its help:



While the visibility was deteriorating, the Jet class had taxied out for takeoff, but turned around and came back.



Blue L-29 with red nose, behind it the more elegant L-39



Mark's L-29

They parked, the pilots climbed out and secured the planes with canopy and engine inlet covers. Then the pilots gathered on the ramp. The smoke had moved in and reduced the visibility to below the 6 miles that was required for their class to fly.



Frustrated Jet pilots

The flying was over for the day, even though it was only 4 pm. I met Mark again, who had helped me out in Valentine, Nebraska, where I was held up with an engine problem on my Oshkosh trip in Caro 1. He was happy to hear that I made it there and back home after all.

The jets and the STOL drag competitors were not parked in the pit area, but way to the east of the grand stands on the ramp. So while I was there, I took a look at the slowest racers on the field.



I mean the two planes in the foreground, the ones in the background were not competing in the STOL event.

The had wind picked up considerably, and the smell of the smoke became intense. For a while, there was no one around the light planes, and it looked like they had been abandoned in mid-work. I had to rescue a stray spinner that was being blown away, and placed it inside the airplane.

The very competitive STOL pilots came up with all kinds of modifications. I was wondering if this thing attached to the wing was a small rocket, used to accelerate the takeoff:



Maybe it was, but on a closer look I discovered a label on it that said “ADS-B Receiver”. I don’t know why you would hang it out there on the wing.



This guy could not get enough performance from his flaps, so he extended them.

I found a very interesting engine and engine installation on racer 3 “Lawn Mower III”.



Its pilot was Harold, from Elko, Nevada, and he turned out to be a real Rotax expert. He had a highly modified Rotax 915 installed in his Rans S-7. Normally a 915 is turbocharged, but he had removed the turbo to save weight, as well as the electronic equipment normally used on this engine. Instead it had two carburetors like the 912, a tuned exhaust, an oversized balancing tube, ports for nitrous injection, and probably a number of other changes that I could not see. The prop was an in-flight adjustable DUC prop, which he could set by the pull of a big lever all the way towards beta (reverse).

He described to me the process of operating the plane during a drag race: Takeoff with prop in small pitch, full throttle, no flaps. Once in the air, estimate accurately when to pull the power back to idle, enter a steep slip, pull the prop back to flat pitch for maximum braking, drop full flaps. Once the plane touches down, raise the flaps, hit the wheel brakes, pull the prop into reverse and apply full throttle until it comes to a stop in a cloud of dust. All this is happening fast, and makes it a very high workload profile.

Nothing much happened for the rest of the day because of the smoke and wind, apart from a chat I had with Steve Hinton Jr, whom I had met many years earlier during an aerobatic training session in King City. He told me that he was not racing this year, but was going to perform some supporting flights. He still lived in Chino, but was getting tired of all the concrete there and was planning to move to a nicer area.

The next morning, the wind had died down but the smoke was still there. For a while, everyone just waited for the visibility to improve. Wandering through the big hangar, I ran into Klaus Savier, a fellow German engineer, who has designed electronic ignition systems for engines which probably a number of the racers were using here. He told me that he was finally flying his highly modified Long-Eze, for which he had built new wings and winglets. Years ago, I had seen his project in the early stages during a visit to the Santa Paula Airport. And as it so often is the case with new designs, some design goals met expectations and others didn't.

Because the drag racers did not care what the visibility was, they were able to start flying before anybody else.



They lined up facing east (right in the picture) on the ramp, then were paired to take off on the dirt next to this. The key to win a drag race is to accelerate fast, fly the prescribed distance, slow down as fast as possible and come to a stop. Then turn around, fly the other way, and the one who stops first wins. It is fun to watch, because the planes are much closer than the ones flying around the pylons. Here the two planes facing west have just returned and are trying to stop. Then it is back to the end of the line to wait for the next round. The yellow plane, Race 44, was so successful at this that he had to give his competitor a fifteen second head start. Even so, he still won this heat.

Formula 1 pilots like to fly early in the day, while the air is still smooth and there is little wind. On this Wednesday, it was not so early anymore when they got lined up on the runway for their first race (1A). The crews from all the teams lined up along the flight line barrier as anxious spectators. After two years of absence, Race 31 was back. Three years ago, it was the fastest plane and won the gold race with its owner Lowell Slatter at the controls. Following that he had decided to retire from racing for age reasons. This year, another pilot, Steve Temple, had convinced Lowell to bring it back and let him fly it.



So who would win this time, Race 31, a Gilbert DG-2 or the almost matched Race 34, a SnoShoo SR-1 flown by Justin Meaders? Justin was handicapped after a motorcycle accident and did not have the use of his legs, which meant that he had had to convert his plane to hand controls. He sure did not appear handicapped in the least when he was flying.

These two were lined up side by side on the runway, the slower planes were behind them. All of them took off together, flew one warmup lap and started racing. Steve in Race 31 "Fraed Naught" took an early lead, but not by much, Justin in Race 34 "Limitless" was right behind him. It did not take long before those two distanced themselves from the rest of the field, and before long lapped the slowest planes.

The next closest pair was Race 99, a Cassutt 3M and Race 79, a Shoestring, with my buddy Justin Phillipson. They fought each other for the lead early on, but Justin could not get past the Cassutt. I turned my attention back to the leaders, where Race 31 was still ahead. The next time I looked for Justin Phillipson in Race 79, I could not spot him anymore. Where was he, had something happened?

The sequence of the rest of the planes stayed the same for the remainder of the race and Race 31 once more racked up a win.

After everyone had landed, I was surprised to see Justin's Race 79 getting towed back to the hangar before anyone else. But at least the plane was in on piece. I followed, to find out why he had landed prematurely. The reason was quickly found after the cowling was removed. Everything was an oily mess because the cap of a fitting in the oil system had come off and all the oil had been pumped overboard. As soon as Justin had noticed that his oil pressure was zero, he had pulled out of the race, shut the engine off and glided to a good landing on the far runway. Not a good start to successful racing.



Justin admitted that he had forgotten to tighten the cap on the fitting before the flight. That Justin did not finish this race meant that he was bumped back to the B race for his next flight, which he won easily with his much faster plane, now with fresh oil.

The other Formula 1 race (1B), in which Josh Phillipson's plane Race 81 was participating with Carl Robinson as the pilot, finished shortly afterwards. When the plane came back into the hangar, it too was dripping oil. This one was not as messy though: just the oil cooler leaked. At least Justin had to get his hands oily only on one day, cleaning up and addressing both problems at the same time.

Back in the pit area I took a closer look at Sport class Race 30, a Lancair Legacy flown by Andrew Findlay. In the back of their hangar was a pile of parts that included a turbocharger. Suspicious.



I started asking questions about the plane, which a guy who was standing around there answered. He was an engine engineer and had worked for Deltahawk and Continental, and was working here as crew on Race 30. He explained that one of the new turbochargers which

they had installed for this year's races had a failed bearing and the spare parts they had ordered had not arrived yet. In order to be able to fly, they installed the "old" turbochargers from last year. The engine was a modified Continental TSIO-550, boosted to more than twice its normal power. This obviously required more than just aircooling to prevent overheating, so they were using ADI and spraying it with a lot of water. So much so that they were using one of the wing tanks for fuel and the other one for water. To turn this much power into thrust also required a special propeller, which was custom made by McCauley just for this race. The plane was then pulled out towards the flight line, but their race was cancelled due to smoke. Otherwise it would have had a good chance of winning it. As I learned later, he had another problem in Saturday's race and had to abort.



Next to fly was the biplane class, because the visibility required for them was only 3 miles, as opposed to 6 miles for the faster planes which flew the longer course. The races are numbered, starting with 1 and hopefully progressing through 3, with a letter that identifies how fast the competitors qualified. Up to 8 of the fastest planes fly in the A race, the next batch in the B race and so on. This one was biplane race 1A. It is always exciting to see who is doing well, with potential improvements from last year. After only a few laps it was obvious that Race 3, a modified Pitts S-1S, flown by Sam Swift, was faster than the rest of the crowd. He steadily pulled ahead, with no one coming close to him until he crossed the finish line in first place. Its name was appropriate: "Smokin' Hot". Second place "Racer X" with Patrick McGarry was almost 10 mph slower. My customer Scott Thomson in Race 66 came in third. Still some work to do. My other customer in this class, Jeff Rose, only managed sixth place in a borrowed Pitts "Ruby", because his new plane was still not finished.

In the late afternoon the smoke moved in like it had the day before, stopping all races. But for a while things had run smoothly, except for a flat tire on one of the jets on the runway, but a lot of the flying got done.



As part of the airshow, a U-2 did some fly-bys and even a couple touch-and-go's in front of the spectators. It showed off its incredible climb rate after each low pass. Then I had to return home, but was able to watch some of the online live stream of the following days.



On Thursday, the Formula 1 planes were pulled out for their next race (2A), and once they got going it was clear that it would be another battle between Race 31, who was up front initially and Race 34, close behind.

I watched the remaining planes, and after several laps, Justin Meaders in Race 34 kept creeping up on Race 31, looking for a way to pass him. This is not easy, because a pass has to be made on the outside, where he has to fly a longer distance. But after several attempts, he made it. Race 34 was now the leader. With only a short time to go, Steve was unable to win the lead back and had to be satisfied with second place.

In Friday's Formula 1 race 3A Justin Meaders in Race 34 won again because Race 31 had to slow way down due to a mechanical problem, which turned out to be a stuck valve.

Justin Phillipson in Race 79, who was back flying in the A race, was happy to finish in second place.

Carl Robinson in Race 81 "Sleeper" won race 3B.

The Formula 1 Silver race took place on Saturday followed by the Gold race on Sunday morning. As it was expected by now, Justin Meaders in Race 34 placed first (242 mph), followed by Steve Temple in Race 31. Justin Phillipson in Race 79 ended up in fourth place and stable mate Race 81, who had come up from the B race, was only fast enough for place 8.