

# Fuel For Thought

*Landspeed Louise*

## The Science of Speed — How Walt Sheehan Made Craig Breedlove a Household Name

Walt Sheehan was the only other person to ever drive the Spirit of America world land speed car besides Craig Breedlove. I don't have access to all the newspaper clips from the era, but I've read hundreds and never once recall seeing anything about Sheehan getting behind the wheel so let's call this "breaking news" 45 years late.

A former aeronautical engineer from the celebrated Lockheed Skunk Works, Sheehan took Breedlove's racer boy ideas and made them work on the world motorsports stage. Among the most visual contributions are the car's huge air intake ducts.

Sheehan was responsible for the F-104 Starfighter ducts, a single-engine, supersonic interceptor aircraft used by the United States Air Force (USAF) from 1958 until 1967. Often called the "missile with a man in it," the Starfighter's thrust-to-drag ratio was superb and permitted a maximum speed well past Mach 2.

When I was working with Breedlove during the mid '90s, Walt and I spent many hours together because his beach house was only a few miles from my Ventura County, California home. Much of my tribal knowledge about this sport was upgraded to scientific understanding lis-

tening to this man at his kitchen table.

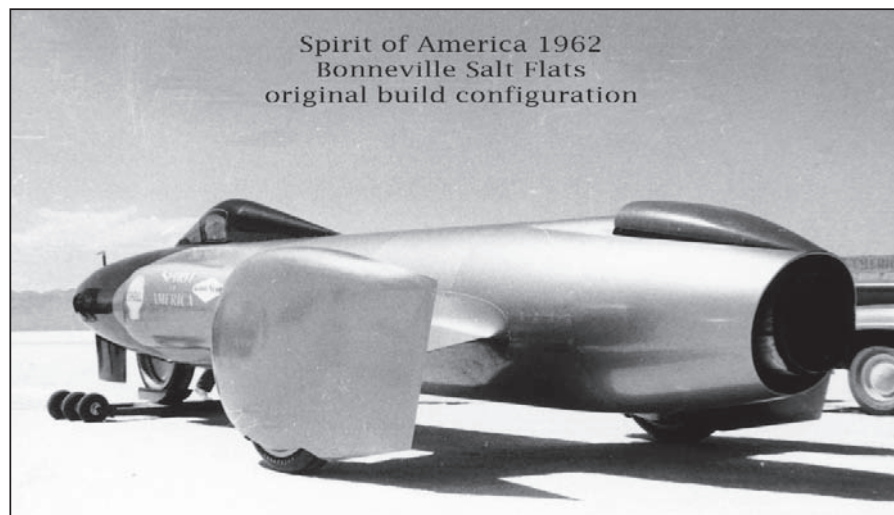
It was during one of those kitchen classes that he casually mentioned he had driven the Spirit of America in order to end a roiling debate with Breedlove about what the car was doing opposed to what Breedlove said it was doing during a run.

"I knew he wasn't giving me the right feedback," Walt told me, "Craig was the only one in the cockpit, but my data readouts contradicted what he was telling me. After Craig was done with a run and headed off to the hotel one day, I instructed the crew to refuel the car, climbed in and made a run to see for myself. Craig was livid when he found out, but from then on we had much better communication."

Sheehan, who died in December of 1997, walked out on Breedlove at Black Rock the day before the Spirit of America Sonic Arrow team blew up its best J79 engine.

"I couldn't watch it anymore," said Sheehan from his Bishop, California motel room phone where his wife Jean told me he had stopped to rest on his way back home, "The kid doesn't have any idea what he is doing which leaves the rest of them pretty lost."

Sheehan was not referring to Breed-



love, but the crew chief who joined the payroll as the broom-pushing, shop clean-up guy with no professional racing experience. When I explained the engine had suffered serious foreign object damage he wasn't a bit surprised.

"I saw it coming when they would scoop up the spent parachutes off the playa and stuff them into the inlets," he snarled with obvious anger in his voice.

Those inlets, as far as Sheehan was concerned, were his inlets and he upbraided the crew for lacking safety procedures.

When the crew chief ignored Sheehan's input and Breedlove didn't intervene, Sheehan left and in less than 90 days would be dead. And so came the inglorious ending of more than three-decades of an unlikely collaboration that brought the United States of America five World Land Speed Records.

This drama had been tucked into the dusty corners of my memory and was now blown back to the present moment when Sheehan's daughter, Cathy McEwan, lugged in a '60s era suitcase covered with decals, not stickers, into my house and flopped open onto the dining room floor.

Inside were the last vestiges of Walt Sheehan's remarkable engineering life: a couple dozen paper rolls similar in size to those used in cash registers, the Spirit of America Operations Log, a grey, metal box six-inches long by four inches high with rounded sides and two slits, some other hardware along with a few miscellaneous documents.

"We were going to throw this out," said McEwan, "We didn't know what any of it was, and the paper tape didn't make any sense to us."

At that moment I felt as though I had saved a bit of significant WLSR history for this box was the jet car's "flight recorder" used to document what happened during runs down the course. I explained:

"Call it a performance recorder...connected to a series of strain gauges to measure knots, pressures and what was happening to the struts under load. These recorded data points were how your dad was able to "tune the car."

He would be able to adjust not only the engine, but other parts of the car as well, based on the information recorded on the tapes. This was your dad's version of a lap-top computer, only he needed to

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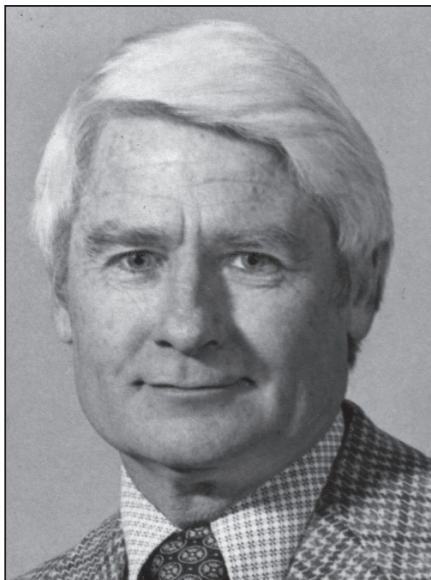


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develop the paper film in his motel bathroom.”

There was even an unused box of DuPont Lino-writ 4 thin weight photo recording paper. The “use-by” date on one box was September 1966, the other September 1962.

The homemade hard blue fiberboard cover of the one-inch thick notebook with comb binding is hand-lettered: Spirit of America Operations Log. Inside are 2-sided log sheets with a top view of the three-wheeler screened diagonally across each page and black lined sections with various headings.

Sheehan notes not only the date, but the run number and direction as well as operational parameters, atmospheric conditions, run objectives, “pilot” comments and areas of investigation or concern among other pertinent bits of data. The log covers every run made from July 29, 1963 through October 13, 1964 when the three-wheeler set a new world record.

Here was the proof positive of what was happening to the car as it screamed across the blistering hot white sparkling diamond salt playa. The tapes are a fascinating scientific look at how a world land speed record is achieved, an evergreen testimonial to a guy who really knew his calculus.

October 13, 1964 was a big day in Sheehan’s life and he kept the paper roll to remind him of exactly how Breedlove’s 468.72MPH world record was recorded. Run #2 to be precise. The log noted that the run was made at 10:15AM with the throttle position set at 95%. The front and rear tire pressures were 250 p.s.i. and the vertical fin size was #3. Breedlove’s helmet broke out the right canopy window due to a “bump” at the 4-mile mark. Some bump.

Everyone remembers the hero driver who morphs into the bon vivant of the television appearance and lecture circuit.

Very few recall the team and even less know the people who coaxed the science to give up the speed.

You know the name Ron Ayers because Andy Green and Richard Noble never missed a chance to tell the public who was solely responsible for ThrustSSC’s aerodynamic prowess which contributed greatly to the world’s first supersonic land speed record.

Sheehan doubtless spent as much time, if not more, with Spirit of America than Breedlove did because it was his job to keep the driver alive by keeping the car in aerodynamic trim as it screamed across the salt flats.

Another roll that caught my eye was the one Sheehan penciled in, “double image, 600MPH+ failed chute, low voltage. I was holding very fast paper tape with five distinct data channels. This was the money run tape, the second run data, the one that secured Breedlove’s spot in the history books as the first person to exceed 600MPH on land.

That 600MPH was no easy feat. On the first run of two runs on a course with a half-mile of rough salt Breedlove reported the nose of the car began to lift. For the second run Breedlove insisted the car be set-up so that he averaged 600MPH, not 601, just 600.

Sheehan performed the requisite calculations in his head before setting the

throttle. It was a balancing battle with engine thrust and aerodynamic drag, to outwit the car and address as many unforeseen eventualities as possible, let alone make Breedlove happy.

Neurons and synapse fired away like roman candles, his brain simultaneously considered the expected rolling resistance, how the temperature and density of air would affect the engine’s thrust and how the car’s aerodynamic surfaces would interact with the coldness of the day. It had just begun to snow.

All this to place the critical bolt on the throttle linkage which he determined would be 100% power. With minutes to spare in the hour window, Craig made the second run. FIA timer Joe Petrali’s voice crackled over the radio static, “your average is 600.16 miles an hour, that’s good for a new conditional world land speed record.” Man, but Sheehan could resolve numbers like a champ.

So let’s hear it for all those people in the background whose names we will never know but have contributed to speed deeds. The ones who figure out how to slip through air with greater ease, suspend the chassis with straight-arrow determination, find kernels of horsepower lying hidden in the powertrain and mix fuel like a five-star petroleum bartender. For most, it’s just to see if their ideas ring true. **EB**

Breedlove was well and truly done by 1965 so the remaining seven data tapes from October 1968 had to be from Mickey Thompson’s failed speed attempts. I knew Sheehan had helped Mickey because Chris Sheehan, Walt’s son, recalled the speed king often came to the house.

When I was writing my Bonneville Salt Flats history book, Chris gave me much of his dad’s private papers where I found a bunch of engine test tapes that I matched to Mickey’s Ford-backed run dates, contacted son Danny and sent them his way.

“Nye Frank always wondered what happened to those data tapes,” an astonished Thompson told me. Yo, Danny, call me if you want the rest of ‘em!

**Note:** Photojournalist Louise Ann Noeth is the authoress of the award-winning book, *Bonneville: The Fastest Place on Earth*, a complete historical review of the first 50 years of land speed racing now in its 7th printing. For more details and to order, go to: [www.landspeedproductions.biz](http://www.landspeedproductions.biz).

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