

The Longest Twelve Minutes

ON 2 SEPTEMBER 2017, A NEW WORLD SPEED RECORD FOR
PISTON-ENGINE PROPELLER-DRIVEN AIRCRAFT WAS
SET BY STEVEN HINTON

BY SCOTT GERMAIN



strung-out Allison-rod racing Merlin be up to the task? Racing at Reno is one thing, but pushing the power way past that level to full throttle and 3450-rpm was uncharted territory. How long would it last? Would it last?

The answer played out like an aviation soap opera over the three-week effort.

Once settled at the site, Hinton flight tested the airplane, worked the power up to higher levels, figured out a few mysteries, and worked hard with the team to overcome some major problems.

PLANTING THE IDEA

As a teenager, Steven Hinton had stumbled upon a silver trophy cup in the attic; it was presented to his dad for the 1979 speed record. Young Hinton put it on his bedroom shelf, where the tarnished cup served as an inspiration. “It wasn’t even really a dream back then, it seemed so far away.” Now 30-years-old with a wealth of experience, Hinton’s desire and ability to break the same record was in reach.

The next piece of the puzzle had actually been put in motion years ago.

Joe Clark, a principal of Aviation Partners, Inc., had the desire to sponsor a modern speed record attempt. Clark had been friends with the late Chuck Lyford, a hard-charging air racer from the 1960s (please see Tim Weinschenker’s appreciation of Chuck Lyford in the September 2017 issue of our companion magazine *Air Classics*). Inspired by Lyford’s competitive spirit and friendship, Clark dreamt of somehow being part of a new record. (EDITOR’S NOTE: Talking to



Vintage V-12s owner Jose Flores kept a close eye (and ear) on the two race Merlins his company supplied for *Voodoo*. (MOL)



The innovative two-piece composite cowl in just one of the many design features on *Voodoo* that aid in the aircraft’s quest for speed. “It certainly makes it easier to remove and put back on compared to the standard cowl,” comments Bernie Vasquez. (MOL)



Joe Clark, Clay Lacy, and Steven Hinton. “When Steve Sr. was doing the record in the RB-51, I had the Lear up doing some photography,” recalled Clay. “When that throttle went up on the Griffon, the Lear was left in the dust — perhaps as much as 100-mph behind.” (MOL)

Joe Clark on the Idaho ramp, he commented, “Know what my first Warbird ride was? It was in P-51D N2869D — the *Bardahl Special* — when I was 16 and Chuck was the pilot.”)

“Joe actually approached me back when I was flying *Strega*,” Hinton said. “He wanted to sponsor a speed record attempt, and we tried to make it work. But it came down to Tiger not wanting to risk his asset for little-to-no return. And that’s entirely understandable.”

Even though that effort faltered, Hinton maintained the relationship with Clark over the coming years. After Hinton switched to *Voodoo*, the idea was rekindled.

“I didn’t want to just throw money at the attempt,” Clark said. “I wanted to add value.” Through Aviation Partners, Clark was able to do just that. The company is well known for their blended winglets that make airliners up to 7.4% more fuel-efficient. The engineering assets at the company were put to full use: Make *Voodoo* faster than any other propeller airplane — ever!

Thankfully, *Voodoo* had been brought up to a truly competitive level. To Hinton, it was a necessary and important starting point, but even that wasn’t easy.

“I joined *Voodoo* in 2013,” Hinton



Steve Hinton piloted the T-33 fitted with the unique nose-mounted camera to record *Voodoo*’s flights. The Mustang passed the T-Bird as if the jet were standing still. (MOL)

(continued from page 49)

If it seems like Hinton was doing most of the work, that's not entirely true. He was quick to credit his small band of friends that were spending long hours alongside him. BJ Healis, Frank Young, Bernie Vasquez, Cory O'Brian, Ben Marsh, and several others all played important roles in getting the work done.

Voodoo had always looked the part, but now she was really performing the part.

When speed record talks between Hinton and Clark resumed, all the pieces fell into place.

"After *Strega*, Joe and I kept running into each other at Reno and some other airshows over the years," said Hinton. "The speed record was discussed on many occasions. The idea was still there."

Hinton had the connection, and the planning, mechanical, and piloting skills. *Voodoo* owner Bob Button was on board. There was a great crew in place. Joe Clark had the vision and resources to not only make it happen, but do so on an elevated level.

Game on.

The minds at Aviation Partners landed on an idea to make *Voodoo* faster: Alter the wing's airfoil to push critical Mach from .72 to .76. A number of aerodynamic shapes — affectionately called "bumps" by the crew — were engineered and milled out of a high-tech foam. Hinton and crewmember BJ Heals installed the 35 pieces with corrosion-inhibiting adhesive and rivets over the course of two-weeks. Once filled, profiled, and sanded, the new wing was a radical sight to behold. The aft portion of the

Because of the ultra-smooth finish and glossy white paint, the wing modifications are a bit difficult to see but by running your hand over the wing you can really feel them. There is a very noticeable bulge to the wing and the change in configuration can be seen in the flap line. (MOL)



The ground literally shook when Steven brought the power up on the Vintage V-12s' modified Merlin. (MOL)



The racer takes a breather in Joe Clark's massive hangar. (MOL)

airfoil, from the root to the outer flap, was quite a bit thicker further back towards the trailing edge. The thickness scalloped out to a thinner section as it approached the trailing edge.

Even though the bottom of the wing appears to be a smooth, radiused airfoil, it received the same treatment as the top. "You have to look close to see any changes," Clark said.

Although the first two test flights were cut short due to unrelated problems, once the wing was tested, Hinton was very happy with the results.

COMPRESSED TIME

The team wanted to make their attempt in July or August. Temperatures would be hot — optimum for a world speed record. Clark's property, a private facility with a 7000-ft paved runway in rural Idaho (the longest private runway in Idaho), served as the



Karen Hinton recalls the RB-51 record run: "Steve helped with my worrying about him flying the RB-51 by explaining each step of what he would be doing with the Griffon-powered racer. Those detailed explanations really helped me understand how everything works while also reducing the stress factor. My son also did the same thing with me — so much so that I almost feel I understand *Voodoo* as well as he does." (MOL)



location. Many long days and late nights were spent getting the work done. Time slipped; the math between man and man-hours wasn't cutting it. The July date slipped to late August, but the crew pulled it together. Hinton launched from Yolo County Airport, California (which was also one of the training bases in early 1942 for Jimmy Doolittle and his Raiders as they practiced for their attack on Japan) got the gear up, and turned for Idaho.

Upon arrival at Clark's airstrip, the crew unpacked their support truck, tool boxes, and equipment and prepared the aircraft. The Merlin had been relatively happy in testing back in California, but it sneezed during a high-power test flight days before the record attempt. Thankfully, the screens were clean, but the crew discovered a valve seat within the B-bank caused the problem (the interesting, and unusual, cause for this problem will be explained by Bruce Lockwood in the *Air Classics* Reno issue). The head and bank were removed and flown to Vintage V-12s to be fixed overnight by Jose Flores and his talented crew.

With the loss of several days, the team was forced to balance the weather forecast against time. Would the weather remain warm for another few days? How would this time slip effect their chances of making it to Reno? To make matters worse, the sky condition and visibility had been horrible just about the entire time; a record number of wildfires in the northwest were fouling the air with heavy smoke.

Luckily, as 2 September dawned, there was sufficient visibility to make the run. The Merlin's head and bank had been reinstalled, a new carburetor had been installed, and after testing, the airplane seemed relatively happy. This would be the day.

The crew spent the morning and middle day going over the engine and airframe, making sure everything was as perfect as it

could be. The aircraft had been serviced with racing fuel, ADI, and spray bar water — all measured specifically for the run. The hottest part of the day, between 4-6 pm, arrived. The airplane was rolled onto the scales, weighed, and towed out to the runway. After a private crew briefing, Hinton gave a general briefing to the small crowd gathered to witness the run.

“JUST” FOUR PASSES

After donning his safety gear and chatting with his fiancé Jane, the two walked out to the racer. There was tension in the atmosphere. Hinton, the driving force in this endeavor, had invested more brain effort and sweat equity than most others. The weight of the outcome seemed to rest on his shoulders alone. But you couldn't tell by looking at him. He was accepting well wishes from others, smiling, and chatting with the crew.

All he needed was to make just four passes. All he needed was the engine to hold up for just four passes.

With little fanfare, Hinton climbed onto the wing, into the cockpit, and began strapping in. A short time later, the Merlin kicked over into a high idle, the oil temperature came up, and *Voodoo* taxied out. After a run-up, Hinton keyed the mic and transmitted, “I like it.” With that, he took off for the history books.

Instead of entering an orbit like his



“Jane has always been a big supporter of the Planes of Fame and our racing efforts,” said Steven of fiancé Jane. (MOL)



able oil blowing out the breather vents. He knew the engine wasn't giving its all.

"At this point," he said, "I could tell there just wasn't the power there should be." Cockpit footage shows only 117-inches of manifold pressure, noticeably short of the maximum.

But he kept going. Pass two was clocked at 527.3-mph — the effects of the entry dive had worn off. He kept going. Pass three was clocked at 528.48. That was good news; at least the last two passes were about the same. But would it last?

Somewhere during pass three to the turn for pass four, things suddenly changed for the worse. In an instant, oil pressure dropped from 120-psi to 70-psi, a sure sign something in the engine was pissed off.

"That was pretty surprising," Hinton said. "The good news was the oil temperature and coolant temperature were stable."

Hinton made a quick decision. He was heading away from the only runway around at more than 500-mph, and that single runway represented safety and all the things in the world that were good.

Instead of his planned 2G course reversal, Hinton loaded *Voodoo* up in a 4.5G turn. He wanted to get back for the last pass — and make the runway if the engine quit.

The Gs scrubbed speed during the turn, and the fourth pass showed it. Clocked at 515.62, that fourth aggregate to the average hurt the bottom line. *Voodoo* flashed by a final time, still fast, but noticeably slower than before.

As he passed the final course marker, Hinton pulled up, arching left and skyward towards safety — and hopefully the history books.

He couldn't think about that now. The engine was shuddering every several moments, a sign of impending doom. On a high downwind, Hinton set up for an engine-out approach and landing. Turning final, he S-turned slightly to see the runway, but felt

he needed a burst of power. He moved the throttle forward, and nothing happened. He moved it a little more, and still nothing. Giving it a good shove half-way up, the engine finally responded with a highly protested and final burst of power.

"Even then," he said, "it was just kind of noise and RPM, there wasn't any power behind it."

Seconds later, the main wheels touched the runway, and Hinton cut the mixture on what was left of the Merlin. Coasting to a stop at the end of the runway, he turned off the aircraft's switches, and unbuckled his helmet, parachute, and seatbelts. For better or worse, it was over.

FOR THE RECORD

Voodoo's sides were heavily streaked with a beautiful brown plume, itself a lesson in aerodynamics. There was also a comprehensive coating of oil from the engine's breather vents on the aft fuselage. Hell, oil was even coming from the lower cowl into the landing gear bay, another sign of the Merlin's anger.

Hinton, cold beer in hand, was debriefing with the crew and talking with friends. In the hangar, the FAI official was crunching the numbers so see if there was a new record.

There was.

Hinton's average speed with the dying engine and a speed-scrubbing turn was 531.53-mph. Although it didn't beat Shelton's old record by the amount the team desired (EDITOR'S NOTE: To beat that record, the FAI requires 1% — now that does not seem like a lot but at this

(continued on page 66)

Timer Brian Utley's notes on the speed run's four passes. (Richard Hodgkinson)

$529.33 + 1\% = 533.6133$	
554.69	554.69
527.34	541.02
528.48	536.84
515.62	531.53



"This is what it is all about," says Steven Hinton as he points to the speeds achieved by *Rare Bear* and *Voodoo* etched into the engine exhaust. (MOL)



Steven decided to shut down the Merlin after landing from the speed run. The racer is seen being towed back onto the ramp. (MOL)

THE LONGEST TWELVE-MINUTES *(continued from page 56)*



A happy — but very tired crew — assembles in Joe Clark's hangar after the speed run. (MOL)

With Reno race markings added, *Voodoo* heads out for its qualifying run at Stead Field on 13 September. (Jarrod Ulrich)

speed that single percentage point was huge), it was still a new record, and the world's fastest piston-engine airplane was sitting right there to prove it.

Amazingly, the Merlin's screens were clean upon inspection, but there was a lake of oil within the induction trunk and several nose case studs were broken. B-bank was again the culprit; two cylinders were down on compression. Although the engine wasn't truly blown, it was used and abused to the point of impending failure.

With a short window of time before Reno, the crew went right back to work to install the second race engine. These guys weren't done, they weren't satisfied, and they were going to do it again.

They wanted that bigger record they worked so hard for — 531-mph was pretty damn good, but they knew they could do better with an engine that would make power.

Unfortunately, it wouldn't be. The engine change went quickly, but the smoky skies represented a specter that denied further record runs. There just wasn't a way to safely test the new engine and wait for smoke-free skies.

PAST THE LIMITS

In retrospect, Hinton and the team were obviously happy to set a new record, but it was by how much that gnawed at them. "Overall, I'd give us an 'A' for the effort," Hinton said, giving praise to his crew for their hard work and dedication. "We could have made a few different decisions in hindsight. And yes, we would've liked to have beaten the record by more, but we did what we set out to do."

Considering the last two 3Km records were broken by aircraft with engines of more than 2000-cubic-inches, *Voodoo's*



"measly" V-1650 Merlin did pretty good considering it wasn't operating at its potential.

One man, one Merlin, and approximately twelve-minutes. Each minute was stressful, but the last several must've been agony. That's what breaking a record takes; and very few people have the grit to weather that. It also takes a real team; the right leaders, the right sponsor, and the right crew. Every one of these people, those that put their hands on *Voodoo* for this endeavor, deserve recognition worthy of those that pioneer new ideas in the quest to break accepted limits.

At this time, Hinton isn't thinking about coming back for the record next year. "I just want to get through Reno, and hopefully be successful there. Then I want to sleep for two-weeks," he laughed. When pressed about the possibility of another attempt next year, he said, "Joe Clark is hot on that idea. Button is supportive as well. Ask me in a few months and we'll see if I'm willing."

Stainforth, Agello, Hughes, Wendel, Greenamyre, Hinton Sr., and Shelton have chiseled their names in aviation history. Steve Hinton Jr.'s name joins that list, a further reminder that Americans once valued and marveled at each new broken record. This achievement is a statement — we are lucky to have bold men that still push the limits of man and sky and machine. **WI**