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Wheels

The Nuts and Bolts of Whatever Moves You

Steam-Powered Racer to Make Run at Land-Speed Record

By PAUL STENQUIST



Harry Schoell, Cyclone's chief executive, with owner-racer Chuck Williams and his steam-powered racecar project.

On Tuesday, Cyclone Power Technologies of Pompano Beach, Fla., announced that it would attempt to break the land-speed record for an unlikely race class: steam cars.

A British team set the existing record of 148.308 miles per hour in 2009. The prior record holder? A 1906 Stanley Steamer.

Spearheading the record attempt is Chuck Williams, an engineer who has built a pair of steam-powered vehicles, including a dragster. Mr. Williams is building the chassis and body for the racecar, while Cyclone is supplying the engine.

The Cyclone unit, purpose-built as a power source for passenger cars, is best described as a Rankine Cycle heat-regenerative external combustion engine and is the invention of Harry Schoell, Cyclone's chief executive. The engine can burn multiple fuels, even simultaneously, in its centrifugal combustion chamber, which heats water contained in coils to 1,200 degrees in as few as five seconds. A cam and valve system controls the flow of steam to six radial-configured cylinders. Steam escapes the cylinders through exhaust ports and then is cooled in a condenser before being returned to the engine's water reservoir.

According to Mr. Schoell, the Cyclone engine burns fuel at atmospheric pressure, so combustion temperatures are relatively low and NOx emissions are virtually zero. A long combustion time results in a complete burn and low emissions without after-treatment, and because the engine can burn 100-percent biofuel in a minimally refined state, the resulting carbon footprint is reportedly lower than that of an engine requiring heavily refined fuel. The steam-powered engine that will propel Mr. Williams' racecar at Bonneville. Cyclone Power Technologies The steam-powered engine that will propel Mr. Williams' racecar at Bonneville.



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"Our calculations show that we can break this record with our stock automotive engine," said Mr. Schoell in a telephone interview. The engine produces 850 pound-feet of torque on start-up and ultimately achieves 100 horsepower at 3,600 r.p.m., with 140 pound-feet of torque. "We can turn higher r.p.m. levels at the same torque figure and will do so in the racecar," Mr. Schoell said.

"We look at this as a halo product for steam power," added Christopher Nelson, a Cyclone team member. "We think it hasn't gotten a fair shake."

The pre-production Cyclone engine is undergoing testing, and the body and frame are about two-thirds complete. Mr. Nelson said they hoped to begin testing the racecar in North Carolina this spring before tackling the record in August at Utah's Bonneville Salt Flats.