

Wind-powered car goes down wind faster than the wind

June 4 2010, by Lin Edwards



Image credit: Thin Air Designs

(PhysOrg.com) -- A wind-powered car has been clocked in the US traveling down wind faster than the wind. In a recent run at New Jerusalem in Tracy, California, the car reached a top speed of more than 2.85 times faster than the wind blowing at the time (13.5 mph) powered by the wind itself. The run should now settle the DWFTTW (down wind faster than the wind) debate that has been raging for some time on the Internet about whether or not such a feat was possible.

The Thin Air Designs car, called the Blackbird, was built by Rick

Cavallaro, an aerodynamicist, paraglider and kitesurfer, who was alerted to the DWFTTW debate by his employer at Sportvision Inc., Stan Honey, a world-class sailing navigator. Cavallaro is chief scientist with the company. He made some calculations that convinced him the feat was possible and then built a model to prove it. When skeptics remained unconvinced, Cavallaro and a friend decided to build a full-size version.

The “Faster than the Wind” team was able to attract sponsorship from wind turbine company Joby Energy and Google, and worked in collaboration with the aero department of the San Jose State University to build their ultra-light vehicle, which is made largely of foam. The car has a passing resemblance to a Formula 1 [racing car](#), except for the five meter high [propeller](#) mounted on the back, and it is this propeller that holds the key to how it is possible for the car to travel down wind faster than the wind. An earlier version known as the BUFC for Big Ugly Cart (fill in the blank), also achieved speeds greater than the down wind speed at the North American Land Sailing Association (NALSA) meeting on a dry lakebed in Nevada in March.



Cavallaro explained the car is able to move faster than the wind because the propeller is not turned by the wind. The wind pushes the vehicle forward, and once moving the wheels turn the propeller. The propeller spins in the opposite direction to that expected, pushing the [wind](#) backwards, which in turn pushes the [car](#) forwards, turning the wheels, and thus turning the propeller faster still.

The vehicle was built after over a year of trials. Building a transmission able to transfer power from the wheels to the propeller was the most difficult part of the design. The next stage in development will be to have trials confirmed by NALSA.

More information: Thin Air Designs blog:
www.fasterthanthewind.org/
via [Autopia](#)

© 2010 PhysOrg.com

Citation: Wind-powered car goes down wind faster than the wind (2010, June 4) retrieved 20 March 2024 from <https://phys.org/news/2010-06-wind-powered-car-faster.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.