

College watercraft project Jet Blade has three-ski design

May 18 2015, by Nancy Owano



A four-person team from Calvin College in Grand Rapids, Michigan, have come up with a unique personal watercraft dubbed The Jet Blade. In terms of being durable, stable and agile, which were the project's

goals, the Jet Blade prototype looks promising as a product that could provide good rider experiences in water sports.

The Jet Blade is a single-rider personal watercraft with a three-ski design—two [skis](#) in the front of the craft and one ski in the rear. Why choose a three-ski design? The creators said they did so "because it was determined it would increase the maneuverability of the PWC [personal watercraft]. With two skis located in the front it would then allow for two edges to be in contact with the water while turning at all times giving more control over a one ski design. Having two skis on the Jet Blade will allow for increased stability and allow for easier use for the end user."

The skis are located below an aluminum hull. They can lift the Jet Blade to cruise position by the relative water flow on the undersides of the skis. The rear ski is attached to a horizontal jet pump powered by a 650cc water-cooled engine. The front suspension implements an Active Tilt steering design.

The four-person team are Josh Vanderbyl, Nico Ourensma, Ryan DeMeester and Zak DeVries. Each is part of the mechanical concentration of the engineering program at Calvin College.

They consider Jet Blade to be unique in that conventional personal watercraft rely on a directional water jet to steer, whereas in the Jet Blade, they said, the jet is fixed and steering is accomplished by turning the front skis. For maximum turning performance, both skis must remain in contact with the water at all times.

Their Design Report said that Jet Blade is "for use on small inland lakes where waves should not exceed 1-2' in amplitude. Like most watercraft, it is a seasonal vehicle. It is able to [operate](#) in water temperatures down to 32oF; however this is well below comfortable riding temperatures. Conversely, the liquid cooled 650cc engine allows the Jet Blade to stay

cool even on the hottest summer days, operating in water temperatures up to 90oF."

They completed the task of manufacturing a functional Jet Blade prototype. The report stated, "After the preliminary design decisions, calculations, and budgeting Team 6 has decided that the project is feasible."

What's next? In working out a business plan, the team said that "Currently there is nothing on the market that is identical to the Jet Blade. The Jet Blade is a unique product with a target market comprised of individuals that have some discretionary income, as it is a luxury item. Specifically individuals or those individual's kids that have an interest in extreme sport and have access to a body of water to ride the Jet Blade. The key marketing strategy for the Jet Blade is to create superior customer value by means of differentiation."

More information: [www.calvin.edu/academic/engine ...
15-team06/index.html](http://www.calvin.edu/academic/engineering/2015-team06/index.html)

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