

Designing the World's First 'Purpose-Built' Law Enforcement Vehicle

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GTRI human-factors specialists helped Carbon Motors design the cockpit for its new E7. (Image courtesy of Carbon Motors)

(PhysOrg.com) -- The Georgia Tech Research Institute's (GTRI) expertise in human-factors issues helped an Atlanta-based startup company create the world's first vehicle designed specifically to meet the patrol needs of law enforcement agencies.

The Carbon Motors E7, slated for production in 2012, features an ergonomic "cockpit" designed to help drivers safely and efficiently interact with the vehicle under high-stress conditions. It features a large touch screen with voice-activated controls and a backup manual system.

"Like the pilots of jet fighters, law enforcement officers must interact extensively with their vehicles, receive and evaluate large amounts of information and make split-second decisions in high-pressure environments," noted Dennis Folds, GTRI's chief scientist and head of its Human Systems Integration Division. "The assistance we provided Carbon Motors helped the company develop a new-generation vehicle cockpit designed to help these officers do their jobs safely and efficiently."

The human-machine interface was one of the most critical aspects of the new vehicle, which was designed to meet more than 100 requirements recommended by law enforcement agencies across the nation, said William Santana Li, chairman and CEO of Carbon Motors Corp.

"We wanted to reach out beyond the usual automotive design groups," he said. "Getting insight from GTRI's military and aerospace background was helpful. There are a lot of similarities between what a fighter pilot has to do and what a police officer has to do while chasing a suspect at 100 miles per hour at 3AM"

Powered by a 300-horsepower clean-diesel engine that can accelerate it to 60 miles per hour in 6.5 seconds, the E7 will be offered with more than 70 options - including an automatic license plate reader, radiation detector and night-vision capabilities. The vehicle is designed to meet a 250,000-mile durability specification, and it will use up to 40 percent less fuel than current law enforcement vehicles, which are modified passenger cars.

"Today, the 425,000 law enforcement vehicles that patrol our country in most cases do not meet federal safety standards because they have been modified in a haphazard way for police work," Li added. "We will give these agencies a safer product with world-class performance and a reduction in total lifecycle cost."

The company recently showed a running prototype vehicle to law enforcement agencies around the country. According to Li, the response has been "overwhelming," and he expects the company's first year of production to be sold out before manufacturing begins.

Provided by Georgia Institute of Technology

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