



Lights, Camera, Action!

Interceptor Hybrid Being Readied for its Close-Up

By Laurie Nealin

Whether it is a cameo appearance or a featured role, North America's only dedicated, parking enforcement vehicle—the Interceptor III—has long been a “star” of screen and television.

Among its credits are *NYPD Blue*, *Desperate Housewives*, *American Dad*, *Carpool*, *Two Weeks Notice*, and *School for Scoundrels*, in which a lead character working as a parking enforcement officer drives the Interceptor in his rounds.

Soon, a “green,” electric-gas hybrid model of the Interceptor will be ready for its close-up. That sequel has created quite a buzz among fleet managers, even without trailers on YouTube.

Green products have never been more in demand than they are today. With the push to reduce government agencies' operational dependency on imported oil and other fossil fuels, the public sector is always on the lookout for new products that will accomplish that goal.

City governments are aiming at having alternative fuel vehicles comprise at least

10 percent of their fleets by 2011”. Lawrence Traa, President of Westward Industries, an NPA member and the company that manufactures the Interceptor just outside of Winnipeg, Manitoba says Westward Industries is ready to meet this demand.

“Westward's goal with our hybrid is to make that transition as painless as possible,” Traa added. With government grants available to cities that embrace this type of alternative fuel technology in their fleets, there has been a pull from city managers and elected officials for more environmentally friendly vehicles of all descriptions and functions which meet criteria outlined in civic environmental policies and state and federal rebate programs.

Westward's street-legal, three-wheel vehicle is a series hybrid, meaning it runs on electricity from a battery pack that is recharged as needed by a gas-fuelled generator while the vehicle is in operation. As a result, the Interceptor Hybrid's range is limited only by the amount of fuel that the vehicle carries.

When Westward engineers test-drove an early version of the hybrid model, they were struck by the fact that it is almost silent when running

Interceptor Glamour shot: Electric-gas hybrid model of the ever-popular Interceptor parking enforcement vehicle is being readied for its close-up. Production is slated to begin in 2010 following comprehensive field testing of beta units in cities such as San Francisco, New York and Denver.



solely on electricity. As well, it slows down much more quickly than a gas-powered vehicle when they took their foot off the accelerator, as energy is captured back into the battery through a process known as regenerative braking. Conversely, the ability to instantly generate power also means instant acceleration.

“Those characteristics of an electric drive-train would require some adjustments in the operators' driving habits; consequently, our engineers have developed programs and controllers that try to match the feel of a gas engine powered vehicle. That’s important for the training process in that they are not uncomfortable when they first drive the hybrid,” Traa explained.

Hybrid vehicles are easier to introduce into fleets than other alternative-fuel vehicles because electric-gas models don't require major changes to the infrastructure of the fleet facilities. Alternative fuels such as CNG, LPG, and hydrogen, require special fuelling infrastructure which can be expensive. Even all-electric vehicles have some demand on facilities because they require recharging stations.

Hybrids offer all the benefits of electric vehicles—no harmful emissions, no fuel consumption, very quiet operation—while running in electric mode, but also have the advantage of flexibility in route planning and range of operation. Routes on which a hybrid is being driven do not have to be planned so that the vehicles are back at a charging station after a certain number of miles or hours of operation, as is the case with all-electric vehicles.

In response to the greening of municipal operations throughout the United States, Westward began development of the Interceptor Hybrid four years ago. Beta model

field testing and evaluation will be the prelude to the official production launch in 2010. San Francisco, Santa Monica, Seattle, Denver, and New York are all cities that Westward has targeted for testing.

Initial testing of four Beta models will last about 3 months with feedback being provided regularly during that time.

According to Traa, there is no shortage of fleet managers, police chiefs, municipal managers and parking authorities eager to buy products which meet criteria outlined in civic environmental policies and fleet rebate programs available to cities that embrace alternative fuel technologies. Interest in the hybrid was so great, in fact, that Westward received more requests from cities wanting to be involved in the testing process than it had Beta models available to test.

“Customers with different geographic and environmental conditions will test the units, operating them on different types of roads, to make sure we get really good feedback—both on-going reports and documentation regarding overall performance. The cities involved welcome the chance to be in on the ground floor and provide input that will ensure their requirements are taken into account in final design adjustments,” Traa said.

“It’s a real partnership with the cities where we will do this testing. They are really committed to the development of alternative fuel technology,” Traa notes.



Interceptor Officers: The Interceptor hybrid offers flexibility in route planning and range of operation which managers and operators will appreciate. The vehicle runs on electricity from a battery pack that is recharged—as needed and on the go—by a gas-fueled generator. As a result, the Interceptor Hybrid's range is limited only by the amount of fuel that the vehicle carries.

Northcott checks: Danny Northcott, Westward Industries' lead engineer on the hybrid project, checks out a hybrid prototype being assembled at the company's facility. He believes success in satisfying customers' needs will snowball into new and exciting opportunities for Westward down the road—both in parking enforcement and other applications.

Initial testing of four Beta models will last about 3 months with feedback being provided regularly during that time. If variations to the original components are warranted, Westward engineers will be on stand-by to fly down and install a part that could improve or enhance the operational experience. The variation would then undergo further testing by the partner city.

Even when the first generation of the hybrid is sold in the marketplace, refinements and testing with new technologies, particularly with battery technology, will continue so that each subsequent generation is even better than the last. Committing to a constant developmental process is the same method used over the years by the production engineer responsible for the Interceptor gas-engine model. The engineer is constantly building a file of upgrades for the next model change so when that time comes, the research is done and market acceptance is assured.

Danny Northcott, Westward Industries' lead engineer on the hybrid project, began working on the initiative as a graduate student at the University of Manitoba. He has since earned a master's degree in electrical engineering.

Based on input from customers regarding their needs and wants, Northcott set about defining technical specifications, performing calculations, conducting experiments and performing bench and field testing to bring the Interceptor Hybrid from concept to reality.

Simulations of performance under various conditions were first done in the shop to test the performance of the motor, engine, battery and generator. Field testing of prototypes was conducted on a nearby, circular track owned by a tractor manufacturer.

In reference to the rapidly-evolving battery technology, Traa said candidly, "It's been like trying to hit a moving target. When we hit the market we want to make sure we have what people are expecting in terms of incorporating

the latest, proven technology. We will use technology that is functional and that we know is going to last a long time for our customers.

"There's a real balancing act that goes into developing a product like this in an industry that's developing so rapidly," he added.

Operation in winter conditions—cold temperatures and heavy snow—is also part of the testing process and the Canadian prairie, where Westward's facility is located, is the perfect place for that.

With the transmission mounted over the rear drive wheels, the Interceptor has always had great traction—a fact appreciated in cities such as New York where winter weather can slow traffic to a crawl.

NYC actually has more Interceptors on the road than any other city with 500 now in use and more on order.

Northcott, who heads up a young, energetic team of ten, is proud of how far the small company has come every year in developing the technology to drive the Interceptor Hybrid which boasts comparatively low life-cycle costs. He believes that success in satisfying their customers' needs will snowball into new and exciting opportunities for the company down the road—both in parking enforcement and other applications.

And, perhaps, even generate a few more offers from environmentally-conscious filmmakers. ↩

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More information about the Interceptor Hybrid will be available at www.westwardindustries.com following completion of the Beta testing phase.