2010 Prius Plug-in Hybrid Makes North American Debut at Los Angeles Auto Show

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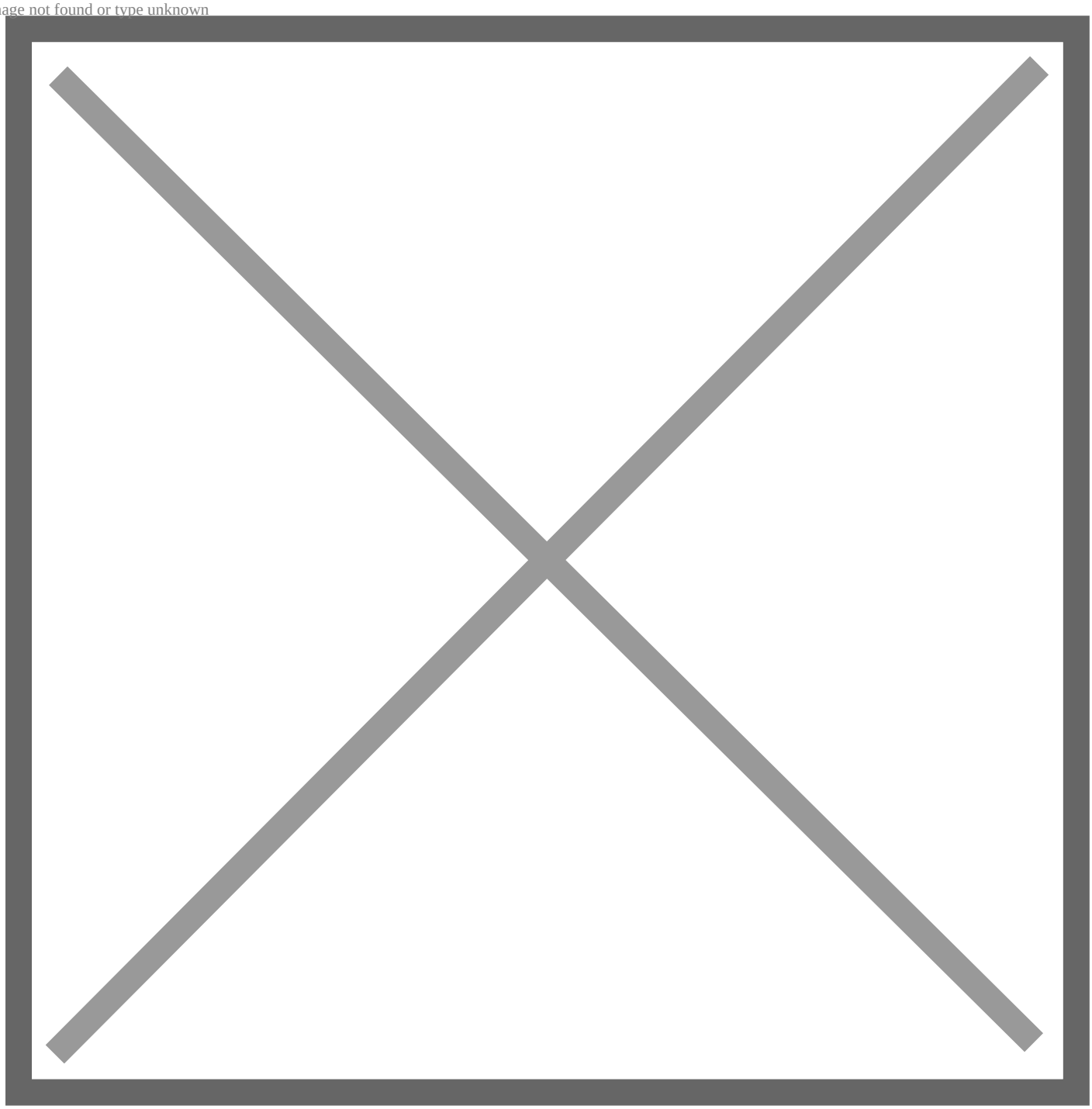

Toyota Prius Plug-In Hybrid Demonstration Program Vehicle 003

Global Demonstration Program Starts this Month in Japan
Assembly Line Production of 500 Lithium-ion Batteries Begins

TORRANCE, Calif., December 2, 2009 — The 2010 Toyota Prius Plug-in Hybrid vehicle (PHV) will make its North American debut today at the Los Angeles Auto Show.
Built specifically to support a global demonstration program that begins this month, the Prius PHV is based on the third-generation Prius. The vehicle expands Toyota's Hybrid Synergy Drive technology with the introduction of a first generation lithium-ion battery that enables all-electric operation at higher speeds and longer distances than the conventional Prius hybrid. When fully charged, the vehicle is targeted to achieve a maximum electric-only range of approximately 13 miles and will be capable of achieving highway speeds up to 60 mph in electric-only mode. For longer distances, the Prius PHV reverts to "hybrid mode" and operates like a regular Prius. This ability to utilize all-electric power for short trips or hybrid power for longer drives alleviates the issue of limited cruising range encountered with pure electric vehicles.

Beginning later this month, a total of 350 vehicles will begin delivery in Japan and Europe in support of model programs with business and government partners aimed at raising societal awareness of, and preparedness for, this important new technology.

Beginning early next year, 150 vehicles will start arriving in the U.S., where they will be placed in regional clusters with select partners for market/consumer analysis and technical demonstration.

On the consumer side, the U.S. program will allow Toyota to gather real world vehicle-use feedback to better understand customer expectations for plug-in technology. On the technical side, the program aims to confirm, in a wide variety of real world applications, the overall performance of first-generation lithium-ion battery technology, while spurring the development of public-access charging station infrastructure.

All vehicles will be equipped with data retrieval devices which will monitor activities such as how often the vehicle is charged and when; whether the batteries are depleted or being topped off during charging; trip duration, all-EV driving range, combined mpg and so on.

"This program is a necessary first step in societal preparation, in that it allows us the unique opportunity to inform, educate and prepare customers for the introduction of plug-in hybrid technology," said Irv Miller, TMS group vice president, environmental and public affairs. "When these vehicles come to market, customers must understand what to expect and if this technology is the right fit for them."
In October, Toyota announced its first regional program partnership with Xcel Energy's SmartGridCity program in Boulder, Colo. Ten PHVs will be placed with Boulder residents who will participate in an interdisciplinary research project coordinated by the University of Colorado at Boulder Renewable and Sustainable Energy Institute (RASEI), a new joint venture between the U.S. Department of Energy's National Renewable Energy Laboratory (NREL) and the University of Colorado at Boulder.

RASEI, Xcel Energy and TMS will use this program to gather data on vehicle performance and charging patterns, consumer behavior and preferences, as well as electric utility/customer interactions. The locale offers the additional benefit of monitoring high altitude, cold climate performance of Toyota's first generation lithium-ion battery.

Additional partners will be announced soon. Regional programs are currently slated for California, Washington D.C., New York, Oregon and Pennsylvania. Each placement scenario will have a variety of 'use cases' or driving conditions to gain maximum input to vehicle performance and customer needs.

To assist with customer education, Toyota has launched a PHV demonstration program website – www.priusphv.com. At the site, visitors can learn more about the technology, follow the program's progress and, once the vehicles are deployed, track the performance of the demonstration program fleet. This transparent communication of vehicle performance and real world data will allow customers to make informed decisions when considering the purchase of a plug-in hybrid vehicle.

It's All About The Battery

The battery powering the Prius PHV is the first lithium-ion drive-battery developed by Toyota and its joint venture battery production company, Panasonic Electric Vehicle Energy (PEVE). In early November, PEVE began producing the first of more than 500 lithium batteries on a dedicated assembly line at its Teiho production facility in Japan.

PEVE is the world's leading producer of nickel-metal hydride batteries for automotive drive applications, having surpassed two million units in total production volume. Nickel-metal batteries are ideal for mass producing affordable conventional hybrid vehicles due to their low cost, excellent quality, high reliability and moderate-demand charge-sustaining operation. Lithium-ion batteries, on the other hand, are more promising for pure electric and plug-in hybrid applications which require higher energy density to meet the higher demands of charge-depleting operation (large swings in charge/discharge). And, although lithium-ion batteries are less expensive in terms of materials, they are more expensive than nickel-metal in terms of production costs.

This first-generation lithium battery has undergone more than three years of coordinated field testing in Japan, North America and Europe in a wide variety of climatic environments and driving conditions. Using approximately 150 conventional hybrids (mostly Prius), the field test vehicles logged well over a million combined miles. In the end, the battery was deemed both reliable and durable, confirming that it could indeed be used in conventional hybrid applications in the future, depending on further developments in cost reduction.

The battery will now be placed into service in the 500 Prius PHVs dedicated to Toyota's global demonstration program which begins in December. Operating in a more severe charge-depleting mode, the battery's overall performance in a broad range of vehicle-use applications will be confirmed.

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NOTE TO EDITORS: Photography to accompany this story is available and can be retrieved in digital form by media at http://www.toyotanewsroom.com.

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