

autotechdaily™

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hybrids

GREEN BLING: GM READIES HYBRID ESCALADE

General Motors Corp. will begin selling a hybrid version of the Cadillac Escalade full-size SUV next summer. The vehicle, which was announced previously, was publicly unveiled at the South Florida auto show in Miami.

The Escalade Hybrid utilizes the same dual-mode system that debuts later this year in the Chevrolet Tahoe and GMC Yukon SUVs. GM developed the hybrid system in partnership with BMW and the former Daimler-Chrysler. The vehicle has special styling cues picked up from the Cadillac Sixteen concept car, including a unique grille, vent ports and layers of chrome accents.



2009 Cadillac Escalade Hybrid

Available in two- and four-wheel-drive configurations, the Escalade's hybrid system provides up to a 30% improvement in fuel economy—including a 50% gain on the highway—over the standard model. A 332-hp, 6.0-liter V-8 replaces the 403-hp, 6.2-liter V-8 in the gasoline-only Escalade. The engine uses GM's cylinder deactivation system and late intake valve closing (described as a modified Atkinson-cycle combustion process) for reduced pumping losses and better fuel economy.

The engine is combined with an electrically variable transmission (EVT), a pair of 60kW electric motors and a 300-volt nickel-metal-hydride battery. The electric system is used to launch the vehicle and at low speeds. At higher power loads, the gasoline engine is used in combination with the electric system and on its own.

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Talk Back

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Who will be first to market with a production fuel cell-powered passenger vehicle?

The dual-mode system includes a continuously variable operation for low-load situations and fixed-gear operation for towing or highway driving. Towing capacity is listed at 6,000 lbs for 2WD models and 5,700 lbs for 4WD vehicles. The EVT can activate any of its four hydraulic clutches to allow power transfer via the fixed-gear ratios at higher loads.

A sophisticated control system constantly receives data from the powertrain and other vehicle systems to determine the most efficient means of propelling the vehicle. When the engine is operating in four-cylinder mode, it is teamed with a 30-hp boost of electric power to allow it to run this way longer to maximize fuel economy.

The battery pack, which is located under the second-row seats, also provides power to the air-conditioning compressor. An accessory power module converts the high-voltage supply to 42 volts for the electric power steering system and 12 volts for the vehicle battery and other 12-volt electrical accessories. GM says the variable-assist power steering reduces vibration and provides up to a 0.5-mpg fuel economy improvement.

product planning

TOYOTA'S EUROPEAN EXPANSION TO INCLUDE SMALL SUV, NEW MICROCAR

Toyota Motor Corp. plans to enter the fast-growing small-SUV market in Europe next year with a heavily modified version of the Japan-only Ist, *Automotive News Europe* reports. It will take the wraps off the five-door crossover next March at the Geneva auto show.

The European model will resemble the Urban Cruiser concept that Toyota unveiled at last year's Geneva show. It will be more rugged looking than the Ist, which shares a platform with the Yaris small car.

Toyota also is planning a new European microcar. *AN Europe* says the car, based on the IQ concept unveiled at the Frankfurt auto show in September, will be introduced in January 2009. Annual sales are pegged to be about 80,000 units.

The two new vehicles are part of Toyota's plans to grow sales in Europe and Russia from just under 1.1 million units last year to more than 1.3 million Toyota-badged models by the end of the decade. The company has long been the leading seller of midsize SUVs in Europe, and sales of the RAV4 jumped 15% last year to more than 106,000 units.

acquisitions

DON'T TOUCH THAT DIAL: JCI MAY BUY AUDIO EQUIPMENT COMPANY

Automotive interiors giant Johnson Controls Inc.'s next business move may be to buy an audio specialist. At a recent meeting with analysts, company officials indicated future acquisitions likely would focus on interior electronic suppliers, including makers of audio equipment.

Automotive News speculates that Harman International Industries Inc. and Visteon Corp.'s audio arm might be on JCI's list.

Analysts figure the company could spend up to \$4 billion on an acquisition. *AN* points out that Harman's stock is trading at about two-thirds the price shareholders had hoped to get in a \$7.8 billion proposed buyout by Goldman Sachs Group Inc. and Kohlberg Kravis Roberts & Co. That deal fell apart in September due to tightening financial markets.

Harman posted sales of \$3.55 billion in the most recent fiscal year ending June 30,

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about 70% of the total to the auto industry. Daimler and BMW are its largest customers.

Visteon has been divesting businesses in recent years. But it repeatedly has said electronics is a core operation. The company is one of the top four automotive electronics suppliers worldwide along with Delphi, Continental/Siemens and Alpine. Former parent Ford Motor Co. remains Visteon's largest customer.

hybrids

MITSUBISHI FUSO TO BRING DIESEL-ELECTRIC TRUCK TO EUROPE

Daimler AG's Mitsubishi Fuso Truck & Bus Corp. plans to begin testing its diesel-electric Canter commercial light truck in Britain later this year with the intent of selling the vehicle in Europe in the future. It launched the hybrid model in Japan last year.

The Canter hybrid trucks will be imported from Japan, where Mitsubishi Fuso will tweak the drivetrain and exhaust systems to meet European emission regulations. Fuso, which is 85% owned by Daimler, has delivered 200 hybrid trucks and buses in Japan. The vehicles, which feature a 3.0-liter intercooled engine and a 35kW electric motor, are 20% more fuel efficient than the company's diesel-only models.

materials

JAPANESE MATERIALS SUPPLIER TARGETS LIGHTWEIGHT CAR

Japanese textile supplier Teijin Ltd. unveiled its PU_PA concept car yesterday in Tokyo to showcase lightweight materials such as carbon fiber and bioplastics. The company claims such materials would allow automakers to halve the weight of a 2,200-lb vehicle to 1,100 lbs within five years.

The Japanese supplier has developed a new process to make parts out of "green" plastics that it plans to commercialize next year, starting with biofiber seats for Mazda Motor Corp. Teijin hopes to double its automotive materials business from about \$630 million last year to \$1.3 billion in 10 years.

product development

TESLA REVS UP WITH NEW PLM DEAL

Dassault Systemes Inc. says it will provide additional product lifecycle management services to Tesla Motors Inc. in the development of a future electric sedan. The CATIA PLM Express system is expected to provide improved design performance, quality and efficiency.

Phase one of the PLM program, consisting of 30 design stations, was completed at the end of 2006. Another 15 seats were added early this year, and 20 more seats will be added later this year. Dassault says the next phase will cover a multi-site design-to-manufacture program that involves engineering data integration with Tesla's enterprise resource planning system. The system will enable advanced data sharing between Tesla locations and with its suppliers.

Tesla also has expanded the data management capabilities found in CATIA PLM Express and will deploy ENOVIA SmarTeam's multi-site data replication system between engineering facilities in San Carlos, Calif., and Rochester Hills, Mich. Training and implementation support for Tesla will be provided by Wooster, Ohio-based TechniGraphics Inc.