AUTOMOTIVE

Hybrid Cars Are Hot, But What Are They?

NewsUSA

(NU) - Even if you drive a hybrid car, you probably don't know some basic facts about your car and what makes it work.

Hybrid cars use two separate engines for propulsion, usually an electric motor and a gasoline-powered engine. And while auto companies usually act as if hybrids are all the same, they come in three main forms: series hybrids, plug-ins and parallel hybrids.

Series hybrids use an electric motor to power a car's movement – the gas engine just recharges the electric battery. In plug-in hybrids, the electric engine's battery can be charged directly through an electric outlet. The car is propelled by the electric motor alone, and most plug-ins also include a combustion engine for battery regeneration.

In parallel hybrids, the electric motor and the internal combustion engine can work both individually or in unison, powering the vehicle for peak performance. For example, Porsche, a company known for building high-performance cars, has developed two completely different hybrid systems – one for the racetrack and one for the road. The road-going vehicle, the Cayenne S Hybrid, uses an advanced full parallel hybrid design with the electric motor between the combustion engine and the transmission.

The Cayenne S Hybrid, a high-performance SUV, is as fast as the V8-powered Cayenne, but is the most fuel-efficient version in the model line-up. The 47 horsepower electric motor is an ideal partner for the 333 horsepower supercharged engine, providing a considerable amount of high torque at low speeds. When working in unison, the two units deliver a maximum system output of 380 brake horsepower and a peak torque of 427 pounds per foot at just 1,000 revolutions per minute.

Parallel hybrids use an electric motor and a gas engine individually or in unison.

Given a reserved, moderate style of motoring, for example, in a residential area, the Hybrid Manager allows the driver to cover short distances on electric power alone and therefore absolutely free of emissions, driving at speeds of up to nearly 40 mph. The combustion engine may be completely switched off at speeds of up to 97 mph, being fully disengaged from the drivetrain when no further power is required. In this so-called "sailing mode," the drag forces exerted by the combustion engine are eliminated in the interest of lower drive resistance and fuel consumption. The Cayenne S Hybrid is the only hybrid capable of this driving mode.