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Automobiles

Subaru Debuts Next-Generation Hybrid System

-To be introduced on the Subaru Crosstrek (Japan model)-

Tokyo, October 17, 2024 – Subaru Corporation announces the debut of the next-generation hybrid system. The next-generation hybrid system will first be equipped to the Subaru Crosstrek (Japan model), scheduled for release in December 2024.



Subaru Next-Generation Hybrid System



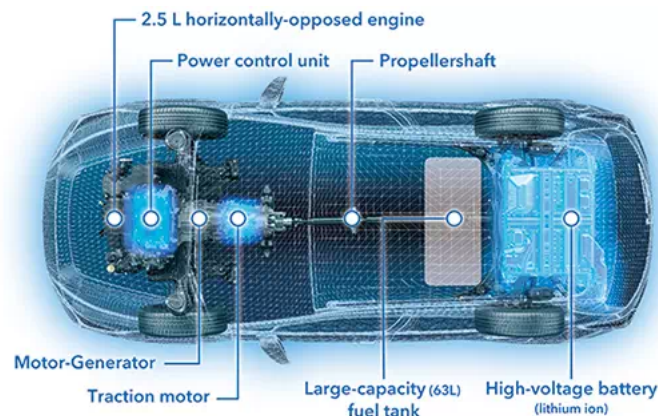
Subaru Crosstrek equipped with next-generation hybrid system (Japan model, prototype)

This newly developed hybrid system is designed to achieve a superior balance between driving enjoyment and environmental performance.

The next-generation hybrid is equipped with a newly developed 2.5-liter horizontally-opposed engine and transaxle. It adopts a series-parallel system that efficiently uses either the engine or motor as the power source depending on the situation. The engine's generous dynamic performance and smooth acceleration further enhance driving enjoyment. Subaru's Symmetrical AWD delivers reliable driving and offroad performance thanks to precise control of the mechanically coupled front and rear wheels through the propeller shaft.

Moreover, the compact horizontally-opposed engine allows for, a large high-voltage battery and large-capacity fuel tank. The larger fuel tank and approximately 20% improvement in fuel consumption over the current hybrid system have achieved in a cruising range of over 1,000km on a single tank*¹, the longest range of any Subaru vehicle in history. In addition, the extended EV driving also improved the quietness.

Features of Subaru Next-Generation Hybrid System



Next-Generation Hybrid System Configuration

- 2.5-liter Subaru BOXER (Horizontally-Opposed) engine

The newly developed 2.5-liter horizontally-opposed engine, specially designed for the next-generation hybrid system, offers both dynamic performance and low fuel consumption thanks to high thermal efficiency.

In addition, an integrated power control unit located on top of the engine, controls electric power supplied from the high-voltage battery, improving electricity consumption performance.

- Transaxle

Transaxle is newly developed for the next-generation hybrid system, two powerful motors—traction motor and motor-generator—, a front differential gear, and an electronically controlled coupling are integrated into a single package. The traction motor, which generates a maximum output of 88kW, can serve as the vehicle's main source of power in a wide range of situations, with the engine covering areas where the motor is not well suited.

- Mechanical All Wheel Drive (AWD) System

The AWD system, which mechanically couples the front and rear wheels through the propeller shaft, offers stable driving in any road condition.

- High-voltage battery

The newly developed high-voltage lithium-ion battery, characterized by its high density, light weight, and long life, is stored under the cargo floor.

- Large-capacity fuel tank

Fuel tank capacity has increased to 63 liters by moving the power control unit from under the cargo floor to above the engine. The enlarged fuel tank and improved fuel consumption (compared to the current hybrid system) result in a cruising range of over 1,000km on a single tank*¹.

*1: This is a theoretical value calculated by multiplying the fuel consumption rate under the test conditions specified in WLTC (Worldwide harmonized Light vehicles Test Procedure) regulations by the fuel tank capacity of Crosstrek equipped with next-generation hybrid system (Japan model). The actual cruising range varies depending on the driving environment and driving pattern.

Main specifications of Next-Generation Hybrid System (Crosstrek Japan model, in-house measurements)

Engine	Type	2.5-liter Subaru BOXER (Horizontally-Opposed) engine
	Max. Output [kW (PS) / rpm]	118 (160) / 5600
	Max. Torque [N·m (kgf·m) / rpm]	209 (21.3) / 4000-4400
Fuel	Fuel tank capacity (l)	63
	Type	Regular gasoline
Traction Motor	Type	Three phase AC synchronous electric motor
	Max. Output [kW (PS)]	88 (119.6)
	Max. Torque [N·m (kgf·m)]	270 (27.5)
Battery	Type	Lithium-ion battery
	Total power [kWh]	1.1

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