■FUNCTION OF MAIN COMPONENTS

Item			Outline
Hybrid Transaxle	MG1		• MG1, which is driven by the engine, generates high-voltage electricity in order to operate MG2 or charge the HV battery. Also, it functions as a starter to start the engine. • MG1 operates so that the gear ratio of the power split planetary gear unit will optimally suit the driving conditions of the vehicle.
	MG2		• Driven by electrical power from MG1 or HV battery, and generates motive force for the front wheels. • During braking, or when the accelerator pedal is not depressed, it generates electricity to recharge the HV battery (Regenerative brake control).
	Compound Gear Unit	Power Split Planetary Gear	Distributes the engine's drive force as appropriate to directly drive the vehicle as well as the generator.
		Motor Speed Reduction Planetary Gear	Located between MG2 and the power split planetary gear, the motor speed reduction planetary gear reduces the rotational speed of MG2 in accordance with the characteristics of the planetary gear, in order to increase torque.
Rear Transaxle	MGR		• Driven by electrical power from MG1 or HV battery, and generates motive force for the rear wheels. • During braking, or when the accelerator pedal is not depressed, it generates electricity to recharge the HV battery (Regenerative brake control).
HV Battery			• Supplies electrical power to the MG1, MG2, and MGR in accordance with the driving conditions of the vehicle. • Is recharged by the MG1, MG2, and MGR in accordance with the SOC and the driving conditions of the vehicle.
Inverter Assembly			A device that converts the high-voltage DC (HV battery) into AC (MG1 and MG2) and vice versa (Converts AC into DC).
	Boost Converter		Boosts the maximum voltage of the HV battery from DC 288 to DC 650V and vice versa (drops DC 650 V to DC 288 V).
	DC-DC Converter		Drops the maximum voltage of DC 288 V into DC12 V in order to supply electricity to body electrical components, as well as to recharge the auxiliary battery (DC 12 V).
	MG ECU		• Controls the inverter and boost converter in accordance with the signals received from the THS ECU, thus driving MG1, MG2, or MGR or causing them to generate electricity. • Controls the DC-DC converter in accordance with the signals received from the THS ECU.
THS ECU			Effects comprehensive control of the THS-II system. • Information from each sensor as well as from the ECU (battery smart unit, skid control ECU, and EPS ECU) is received, and based on this the required torque and output power is calculated. The THS ECU sends the calculated result to the inverter assembly and skid control ECU. • Activates the ETCS-i (Electronic Throttle Control System-intelligent) in accordance with the target engine speed and required engine motive force. • Monitors the charging condition of the HV battery. • Controls the cooling fan of the HV battery.

(Continued)

Item	Outline
Battery Smart Unit	• Monitors the conditions of the HV battery and transmits this information to the THS ECU. • Monitors the fault current of the HV battery.
Skid Control ECU	• During braking, it calculates the regenerative brake force that is required for control and transmits it to the THS ECU. • Calculates the motive force that is required for control during the operation of TRAC or VSC and transmits it to the THS ECU. • Transmits a front and rear wheel torque distribution request to the THS ECU for the purpose of 4WD system control.
Accelerator Pedal Position Sensor	Converts the accelerator pedal position into an electrical signal and outputs it to the THS ECU.
Shift Position Sensor	Converts the shift position into an electrical signal and outputs it to the THS ECU.
SMR (System Main Relay)	Connects and disconnects the high-voltage power circuit between battery and inverter assembly, through the use of a signal from the THS ECU.
Interlock Switch (for Inverter Cover and Service Plug)	Verifies that the cover of both the inverter and the service plug have been installed.
Circuit Breaker Sensor	Detects the impact that is applied to the vehicle during a collision and transmits a signal to the THS ECU. Upon receiving this signal, the THS ECU operates the SMR (System Main Relay) to shut down the power supply.
Service Plug	Shuts off the high-voltage circuit of the HV battery when this plug is removed for vehicle inspection or maintenance.