■ENGINE CONTROL SYSTEM

1. General

The engine control system for the 1NZ-FE engine has the following systems.

System	Outline	'06 Model	'05 Model
SFI (Electronic Fuel Injection)	An L-type EFI system detects the intake air mass with a hot-wire type air flow meter.	○	○
ESA (Electronic Spark Advance)	Ignition timing is determined by the ECM based on signals from various sensors. The ECM corrects ignition timing in response to engine knocking.	○	○
ETCS-i (Electronic Throttle Control System-intelligent) See page EG-36	Optimally controls the throttle valve opening in accordance with the amount of accelerator pedal effort and the condition of the engine and vehicle.	○	-
	● A linkless-type is used without an accelerator. ● An accelerator pedal position sensor is provided on the accelerator pedal. ● A non-contact type throttle position sensor and accelerator pedal position sensor are used.	○	-
VVT-i (Variable Valve Timing-intelligent) See page EG-41	Controls the intake camshaft to optimal valve timing in accordance with the engine condition.	○	○
Fuel Pump Control See page EG-45	● Fuel pump operation is controlled by signals from the ECM. ● The operation of the fuel pump will stop when the airbag is deployed.	○	○
Air Fuel Ratio Sensor and Oxygen Sensor Heater Control	Maintains the temperature of the air fuel ratio sensor or oxygen sensor at an appropriate level to realize accuracy of detection of the oxygen concentration in the exhaust gas.	○	-
Oxygen Sensor Heater Control	Maintains the temperature of the oxygen sensor at an appropriate level to realize accuracy of detection of the oxygen concentration in the exhaust gas.	-	○
Evaporative Emission Control See page EG-46	The ECM controls the purge flow of evaporative emissions (HC) in the canister in accordance with engine conditions.	○	○
	Using 3 VSVs and a vapor pressure sensor, the ECM detects any evaporative emission leakage occurring between the fuel tank and charcoal canister through changes in the fuel tank pressure.	-	○
	Approximately five hours after the ignition switch has been turned OFF, the ECM operates the canister pump module to detect any evaporative emission leakage occurring in the evaporative emission control system through changes in the reference orifice pressure.	○	-
Air Conditioner Cut-off Control*1	By turning the air conditioner compressor OFF in accordance with the engine condition, drivability is maintained.	○	○
Cooling Fan Control See page EG-56	Cooling fan operation is controlled by signals from ECM based on the engine coolant temperature sensor signal (THW).	○	○

*1: for Models with Air Conditioning System

System	Outline	'06 Model	'05 Model
Starter Control (Cranking Hold Function) See Page EG-57	Once the ignition switch is turned to the START position, this control continues to operate the starter until the engine is started.	○	-
Engine Immobilizer*2	Prohibits fuel delivery and ignition if an attempt is made to start the engine with an invalid ignition key.	○	○
Diagnosis See Page EG-59	When the ECM detects a malfunction, the ECM diagnoses and memorizes the failed section.	○	○
Fail-Safe See Page EG-59	When the ECM detects a malfunction, the ECM stops or controls the engine according to the data already in memory.	○	○

*2: for Models with Engine Immobilizer System