■ENGINE CONTROL SYSTEM

1. General

The engine control system of the 3MZ-FE engine on the '04 RX330 has following system.

System	Outline	3MZ-FE	1MZ-FE
SFI (Sequential Multiport Fuel Injection) (See page EG-45)	An L-type SFI system directly detects the intake air mass with a hot wire type mass 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-46)	• Optimally controls the throttle valve opening in accordance with the amount of accelerator pedal effort and the condition of the engine and the vehicle. • A link-less type is used, without an accelerator cable. • An accelerator pedal position sensor is provided on the accelerator pedal. • A no-contact type throttle position sensor and accelerator pedal position sensor are used.	○	—
VVT-i (Variable Valve Timing-intelligent) (See page EG-51)	Controls the intake camshaft to an optimal valve timing in accordance with the engine condition.	○	○
ACIS (Acoustic Control Induction System) (See page EG-55)	The intake air passages are switched according to the engine speed and throttle valve opening angle to provide high performance in all speed ranges.	○ (2-stage)	○ (3-stage)
Air Intake Control System (See page EG-58)	The intake air duct is divided into two areas, and the ECM controls the air intake control valve and the actuator that are provided in one of the areas to reduce the amount of engine noise.	○	—
Active Control Engine Mount (See page EG-31)	The damping characteristic of the front engine mount is controlled variably to reduce idling vibration.	○	○
Air Fuel Ratio Sensor, Oxygen Sensor Heater Control	Maintains the temperature of the air fuel ratio sensor or oxygen sensor at an appropriate level to increase accuracy of detection of the oxygen concentration in the exhaust gas.	○	○
Air Conditioning Cut-off Control	By turning the air conditioning compressor ON or OFF in accordance with the engine condition, drivability is maintained.	○	○
Cooling Fan Control (See page EG-59)	The ECM steplessly controls the speed of the fans in accordance with the engine coolant temperature, vehicle speed, engine speed, and air conditioning operating conditions. As a result, the cooling performance has been improved.	○	—
Fuel Pump Control (See page EG-61)	Fuel pump operation is controlled by signal from the ECM.	○	○
	A fuel cut control is adopted to stop the fuel pump when the airbag is deployed during front or side collision.	○	○

(Continued)

System	Outline	3MZ-FE	1MZ-FE
Evaporative Emission Control (See page EG-62)	The ECM controls the purge flow of evaporative emission(HC) in the charcoal canister in accordance with engine conditions.	○	○
	A pressure gauge is attached to the service port, which is provided between the charcoal canister and the VSV (for purge valve), in order to detect an evaporative emission leakage.	○	○
	System construction and control logic have been made to comply with LEV-II evaporative emission regulation.	○	—
Engine Immobiliser	Prohibits fuel delivery and ignition if an attempt is made to start the engine with an invalid ignition key.	○	○
Diagnosis (See page EG-72)	When the ECM detects a malfunction, the ECM diagnoses and memorizes the failed section.	○	○
	All the DTCs (Diagnostic Trouble Codes) have been made to correspond to the SAE controlled codes.	○	—
Fail-Safe (See page EG-72)	When the ECM detects a malfunction, the ECM stops or controls the engine according to the data already stored in the memory.	○	○