

■ ENGINE CONTROL SYSTEM

1. General

The engine control system of the 1MZ-FE engine has following system.

System	Outline	'02 ES300	'01 ES300
SFI (Sequential Multiport Fuel Injection) (For details, see page EG-38)	An L-type SFI system directly detects the intake air mass with a hot wire type mass air flow meter.	○	←
ESA (Electronic Spark Advance) (For details, see page EG-38)	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) (For details, see page EG-39)	Optimally controls the throttle valve opening in accordance with the amount of accelerator pedal effort and the condition of the engine and the vehicle.	○	—
VVT-i (Variable Valve Timing-intelligent) (For details, see page EG-41)	Controls the intake camshaft to an optimal valve timing in accordance with the engine condition.	○	←
ACIS (Acoustic Control Induction System) (For details, see page EG-42)	The intake air passages are switched according to the engine speed and throttle valve opening angle to provide high performance in all speed ranges.	○	←
Air Intake Control System (For details, see page EG-46)	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.	○	—
Fuel Pump Control	Fuel pump operation is controlled by signal from the ECM.	○	←
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.	○	←
Evaporative Emission Control (For details, see page EG-47)	● The ECM controls the purge flow of evaporative emission (HC) in the charcoal 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 the charcoal canister through the changes in the tank pressure.	○	←
Active Control Engine Mount (For details, see page EG-29)	The damping characteristic of the front engine mount is controlled variably to reduce idling vibration.	○	←
Air Conditioning Cut-off Control	By turning the air conditioner compressor ON or OFF in accordance with the engine condition, drivability is maintained.	○	←
Engine Immobiliser	Prohibits fuel delivery and ignition if an attempt is made to start the engine with an invalid ignition key.	○	←
Diagnosis (For details, see page EG-52)	When the ECM detects a malfunction, the ECM diagnoses and memorizes the failed section.	○	←
	To increase the speed for processing the signals, the 32-bit CPU of the ECM has been adopted.	○	—
Fail-Safe (For details, see page EG-53)	When the ECM detects a malfunction, the ECM stops or controls the engine according to the data already stored in the memory.	○	←