# 1. System Overview

There are three emission control systems which are as follows:

- Crankcase emission control system
- Exhaust emission control system
  - Three-way catalyst system
  - Air/fuel (A/F) control system
  - Ignition control system
- Evaporative emission control system
  - On-board refueling vapor recovery (ORVR) system

| Item | | | Main components | Function |
|---|---|---|---|---|
| Crankcase emission control system | | | Positive crankcase ventilation (PCV) valve | Draws blow-by gas into intake manifold from crankcase and burns it together with air-fuel mixture. Amount of blow-by gas to be drawn in is controlled by intake manifold pressure. |
| Exhaust emission control system | Catalyst system | Front | Three-way catalyst | Oxidizes HC and CO contained in exhaust gases as well as reducing NOx. |
| | | Rear | | |
| | A/F control system | | Engine control module (ECM) | Receives input signals from various sensors, compares signals with stored data, and emits a signal for optimal control of air-fuel mixture ratio. |
| | | | Front oxygen (A/F) sensor | Detects quantity of oxygen contained exhaust gases. |
| | | | Rear oxygen sensor | Detects density of oxygen contained exhaust gases. |
| | | | Throttle position sensor | Detects throttle position. |
| | | | Intake air temperature and pressure sensor | Detects absolute pressure of intake manifold. |
| | | | | Detects intake air temperature of intake manifold. |
| | Ignition control system | | ECM | Receives various signals, compares signals with basic data stored in memory, and emits a signal for optimal control of ignition timing. |
| | | | Crankshaft position sensor | Detects engine speed (Revolution). |
| | | | Camshaft position sensor | Detects reference signal for combustion cylinder discrimination. |
| | | | Engine coolant temperature sensor | Detects coolant temperature. |
| | | | Knock sensor | Detects engine knocking. |
| Evaporative emission control system | | | Canister | Absorbs evaporative gas which occurs in fuel tank when engine stops, and releases it to combustion chambers for a complete burn when engine is started. This prevents HC from being discharged into atmosphere. |
| | | | Purge control solenoid valve | Receives a signal from ECM and controls purge of evaporative gas absorbed by canister. |
| | | | Pressure control solenoid valve | Receives a signal from ECM and controls evaporative gas pressure in fuel tank. |
| ORVR system | | | Vent valve | Controls evaporation pressure in fuel tank. |
| | | | Drain valve | Closes the evaporation line by receiving a signal from ECM to check the evaporation gas leak. |

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