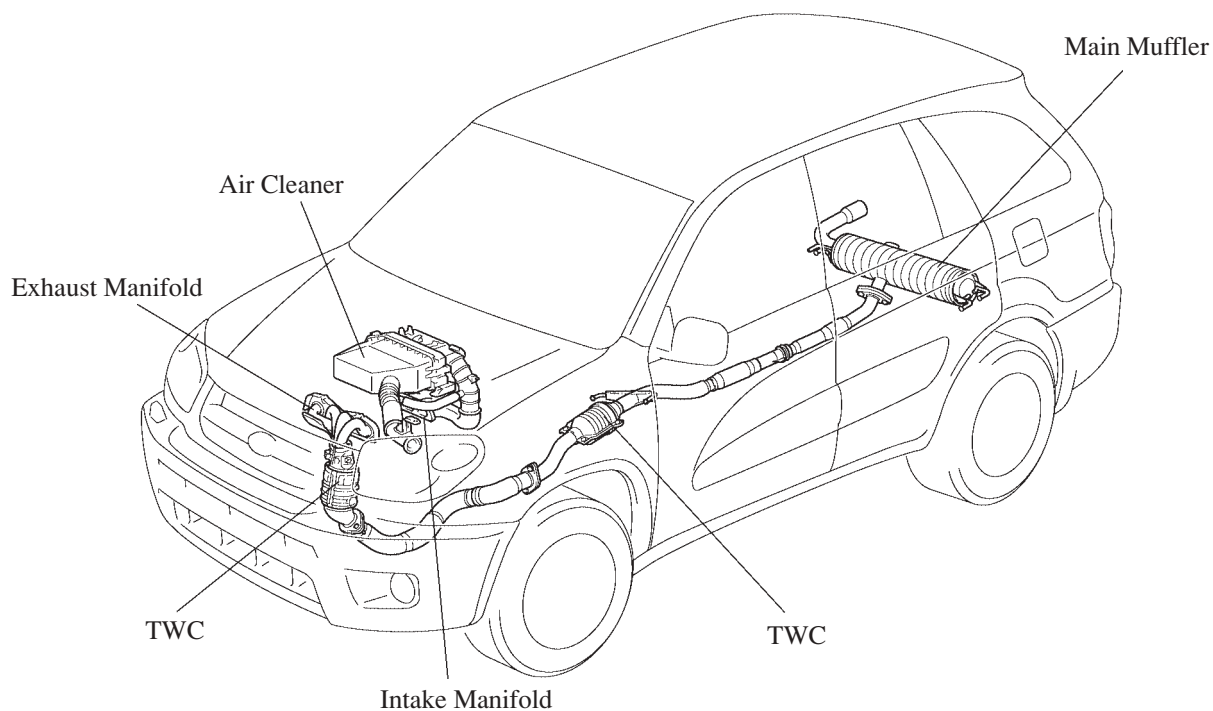


8. Intake and Exhaust System

General

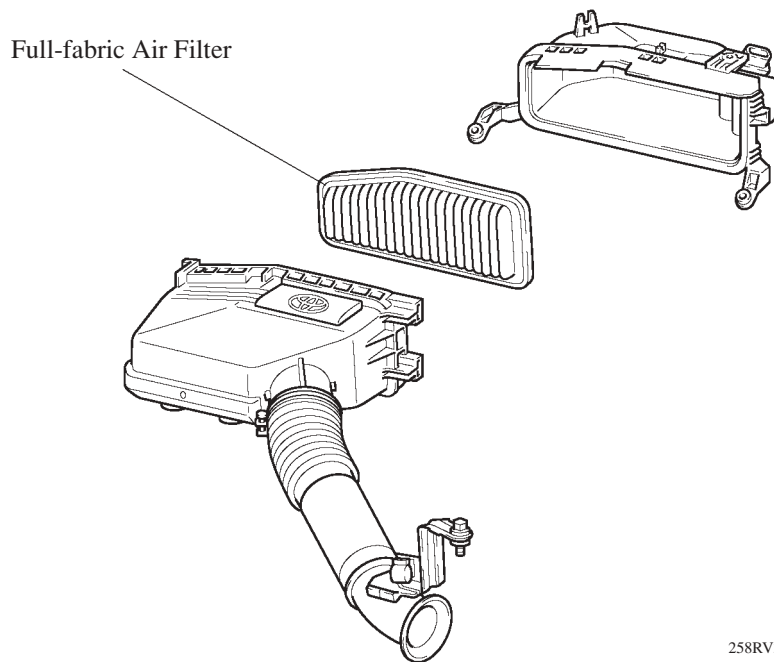
- The adoption of ETCS-i (Electronic Throttle Control System-intelligent) has realized excellent throttle control.
- The intake manifold has been made of plastic to reduce the weight and the amount of heat transferred from the cylinder head.
- 2-way exhaust control system is provided to reduce noise and vibration in the main muffler.



258RV34

Air Cleaner

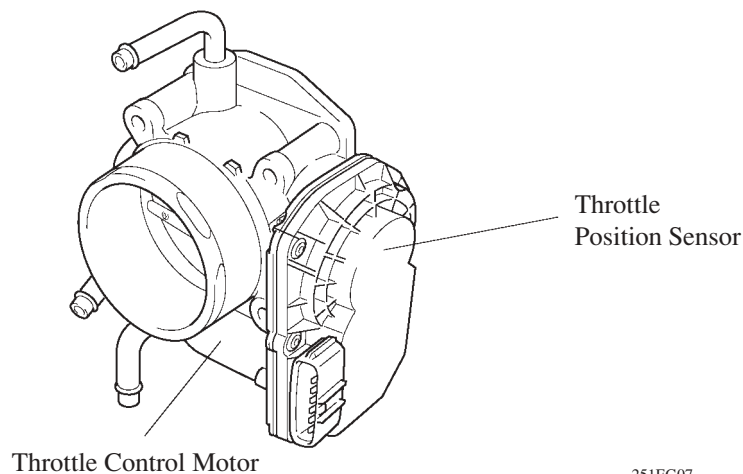
- A flameless, full-fabric air filter has been adopted to reduce weight and to simplify its disposal.



258RV35

Throttle Body

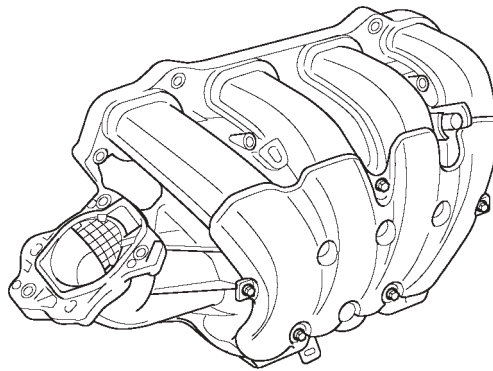
- An electronic throttle body with a built-in throttle position sensor and a throttle control motor has been adopted.
- The adoption of the link-less type ETCS-i has realized excellent throttle control.
For details of ETCS-i control, [refer to page 438](#).
- A DC motor with excellent response and minimal power consumption is used for the throttle control motor. The ECU performs the duty ratio control of the direction and the amperage of the current that flows to the throttle motor in order to regulate the opening angle of the throttle valve.
- For details on the throttle position sensor control, which are the same as on the 1AZ-FE engine, [refer to page 437](#).



251EG07

Intake Manifold

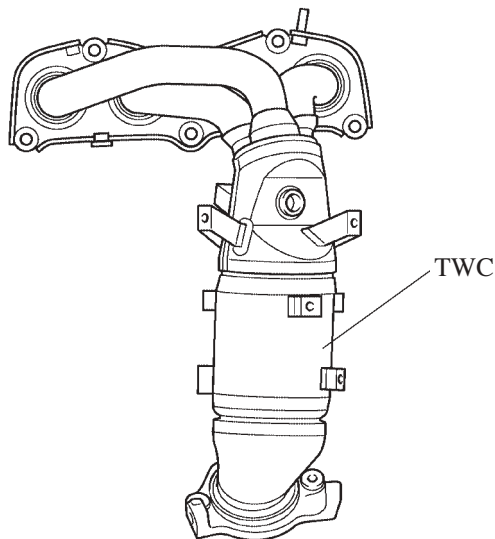
- The intake manifold has been made of plastic to reduce the weight and the amount of heat transferred from the cylinder head. As a result, it has become possible to reduce the intake air temperature and improve the intake volumetric efficiency.
- A resonator is installed inside the air intake chamber which makes use of the intake pulse to improve torque in the mid-speed range.
- The intake manifold cover is used on the intake manifold to reduce intake air noise.



198EG34

Exhaust Manifold

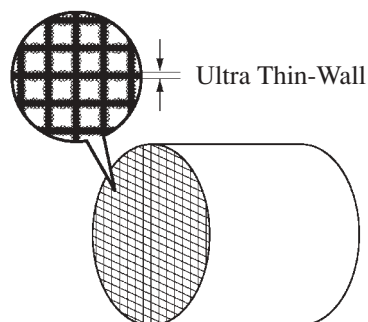
- A stainless steel exhaust manifold is used for weight reduction.
- A single pipe has been adopted for the startup converter case in order to improve the warm-up performance of the catalyst and reduce exhaust emissions during starting.



258RV36

Three-Way Catalytic Converter

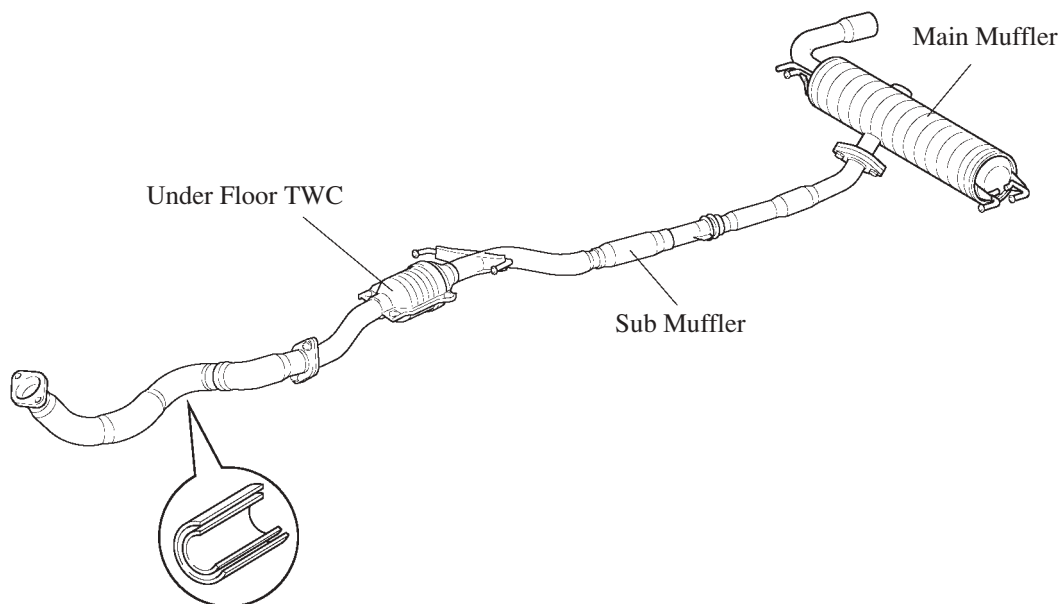
- The ceramic type TWC (Three-Way Catalytic Converter) has been adopted directly below the exhaust manifold and under floor. This TWC enables to improve exhaust emissions by optimizing the cell's density and the wall thickness.



198EG06

Exhaust Pipe

- To comply with the STEP-III exhaust emission regulations, an under floor catalyst has been adopted, and the pipe upstream from the catalyst has been changed to a double-wall construction.
- To improve the power performance of the engine, a 2-way exhaust control system which is same as the 1AZ-FE engine has been adopted in the main muffler.



258RV27