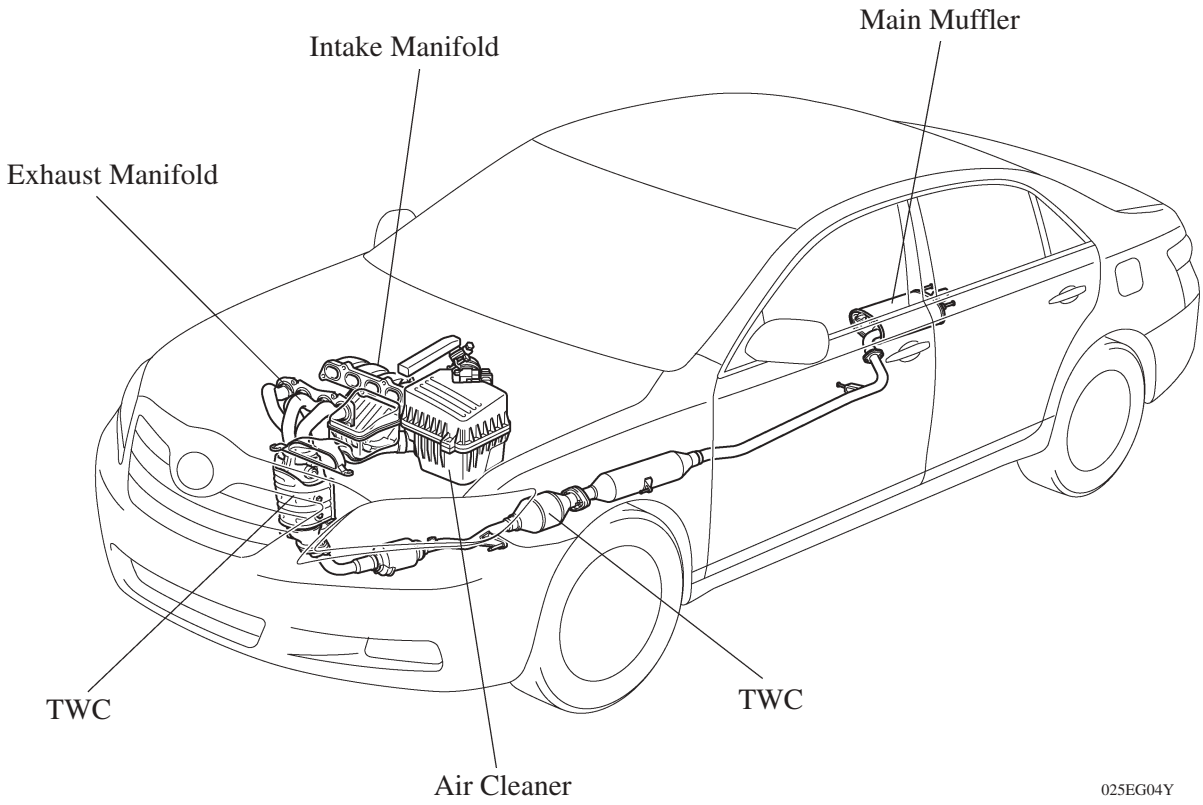
■INTAKE AND EXHAUST SYSTEM

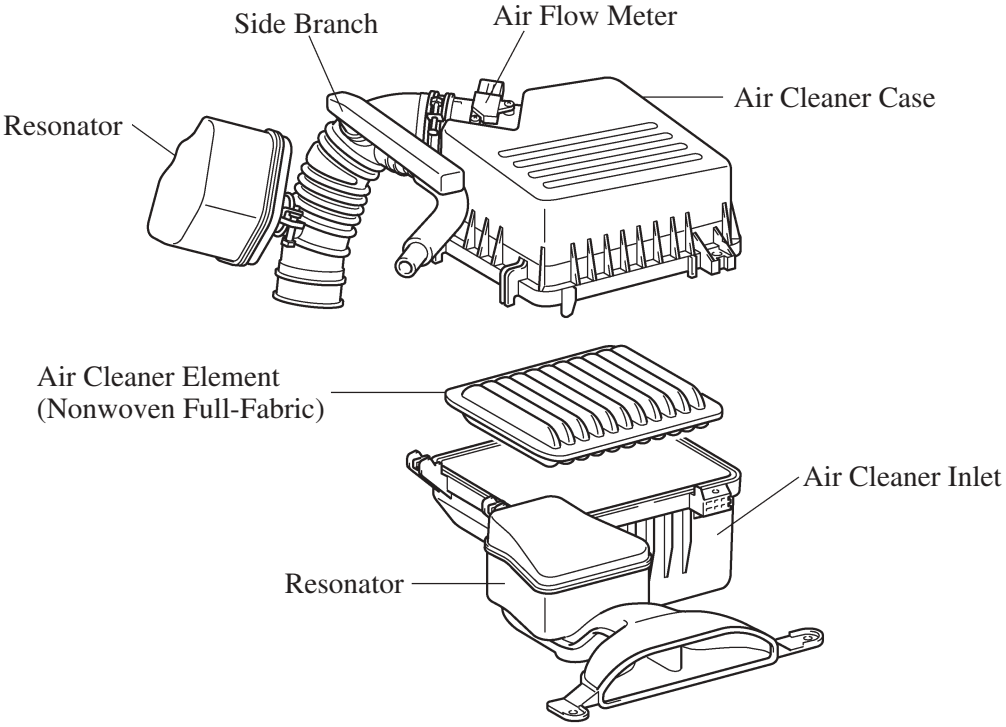
1. General

- The link-less type throttle body is used and it realizes excellent throttle control.
- The intake manifold is made of plastic to reduce the weight and the amount of heat transferred from the cylinder head.
- The adoption of the ETCS-i (Electronic Throttle Control System-intelligent) has realized excellent throttle control, For details of throttle body, refer to page EG-46.
- 2-way exhaust control system is provided to reduce noise and vibration in the main muffler.



2. Air Cleaner

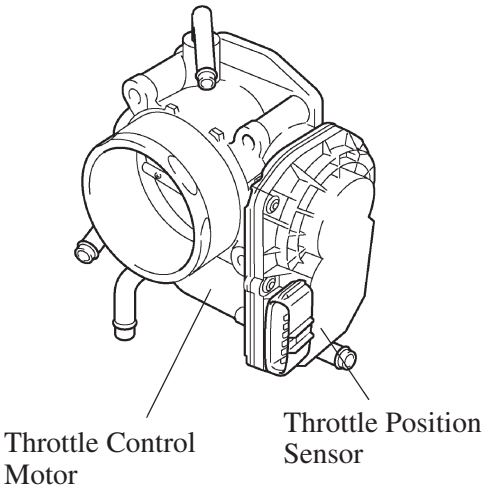
- A nonwoven, full-fabric type air cleaner element is used.
- Resonators have been provided to reduce the amount of intake air sound.



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3. Throttle Body

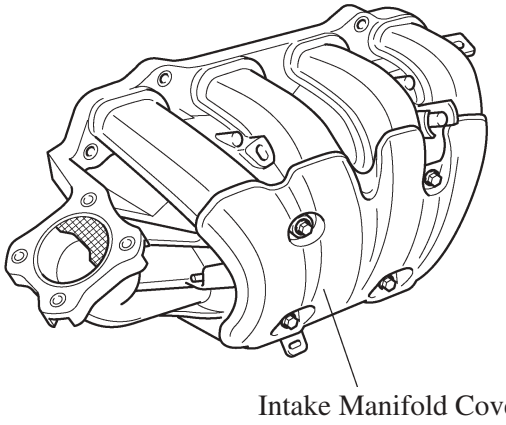
- A link-less type throttle body in which the throttle position sensor and the throttle control motor are integrated is used. It realizes excellent throttle valve control. For details, see page EG-41.
- In the throttle control motor, a DC motor with excellent response and minimal power consumption is used. The engine ECU performs the duty ratio control of the direction and the amperage of the current that flows to the throttle control motor in order to regulate the throttle valve angle.



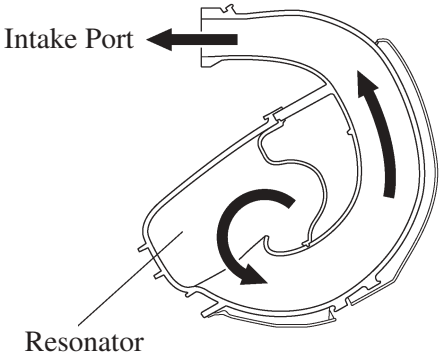
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4. Intake Manifold

- The intake manifold is 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.



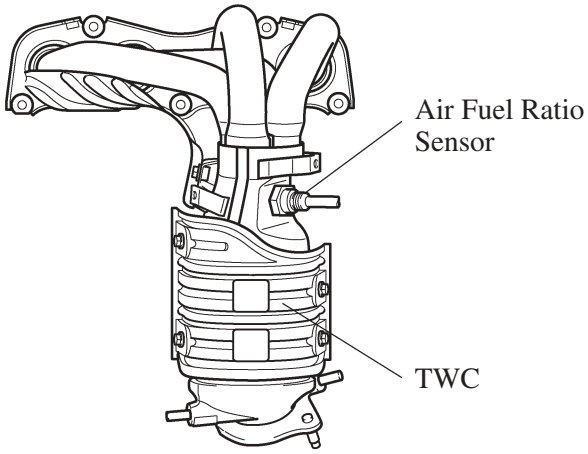
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5. Exhaust Manifold

- A stainless steel exhaust manifold is used for improving the warm-up of TWC and for weight reduction.
- The air fuel ratio sensor is used to the exhaust manifold.
- A ceramic type TWC is used. This TWC improves exhaust emissions by optimizing the cell density.

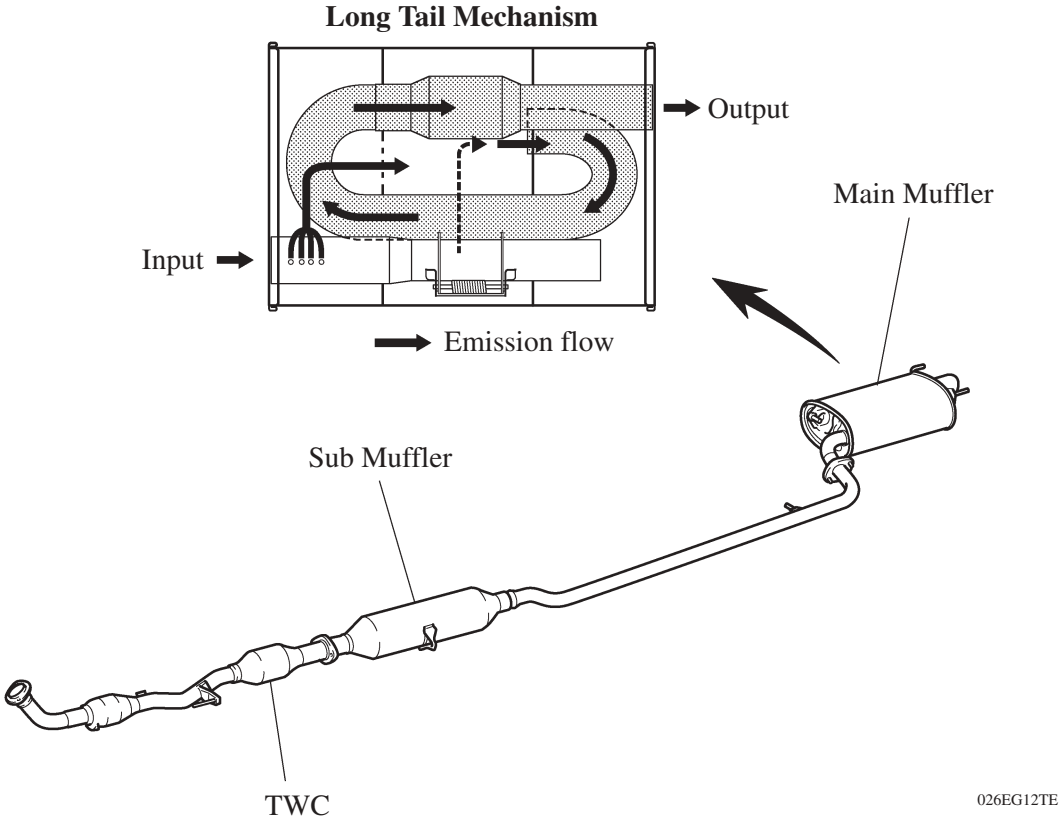


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6. Exhaust Pipe

General

- 2-way exhaust control system is provided to reduce noise and vibration in the main muffler.
- A long tail mechanism is used in the main muffler to aim at reducing exhaust noise while the engine is running in the low speed range.



2-Way Exhaust Control System

- A 2-way exhaust control system is used. This system reduces the back pressure by opening and closing a variable valve that is enclosed in the main muffler, thus varying the exhaust gas pressure.
- The valve opens steplessly in accordance with the operating condition of the engine, thus enabling a quieter operation at lower engine speeds, and reducing back pressure at higher engine speeds.

1) Construction

The control valve is enclosed in the main muffler. When the exhaust gas pressure overcomes the spring pressure, the control valve opens steplessly in accordance with the exhaust gas pressure.

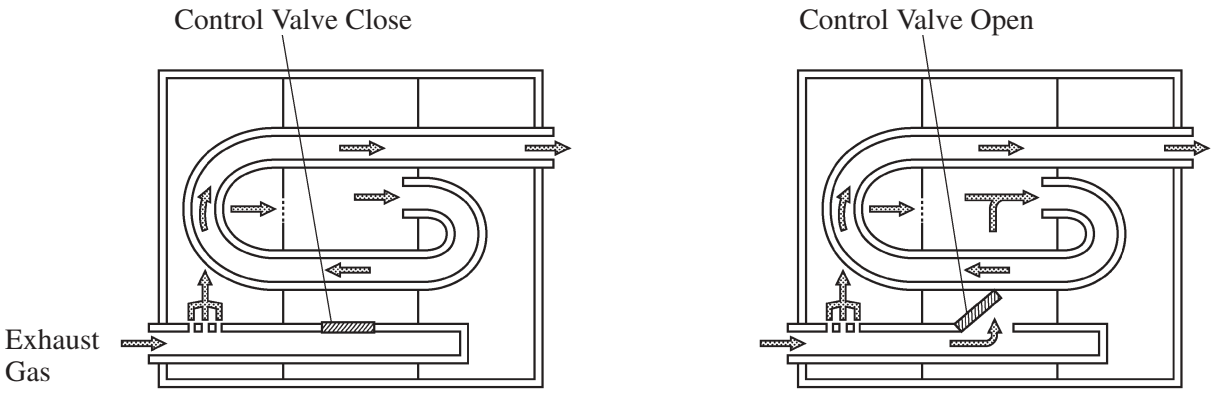
2) Operation

a. When Control Valve is Closed (low engine speed)

Since the pressure in the main muffler is low, the control valve is closed. Hence exhaust gas does not pass the bypass passage, and exhaust noise is decreased in the main muffler.

b. When Control Valve is Open (middle to high engine speed)

The valve opens as the engine speed and the back pressure in the muffler increase. This allows a large volume of exhaust gas to pass the bypass passage, thereby substantially decreasing the back pressure.



Low Engine Speed **Middle to High Engine Speed**

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