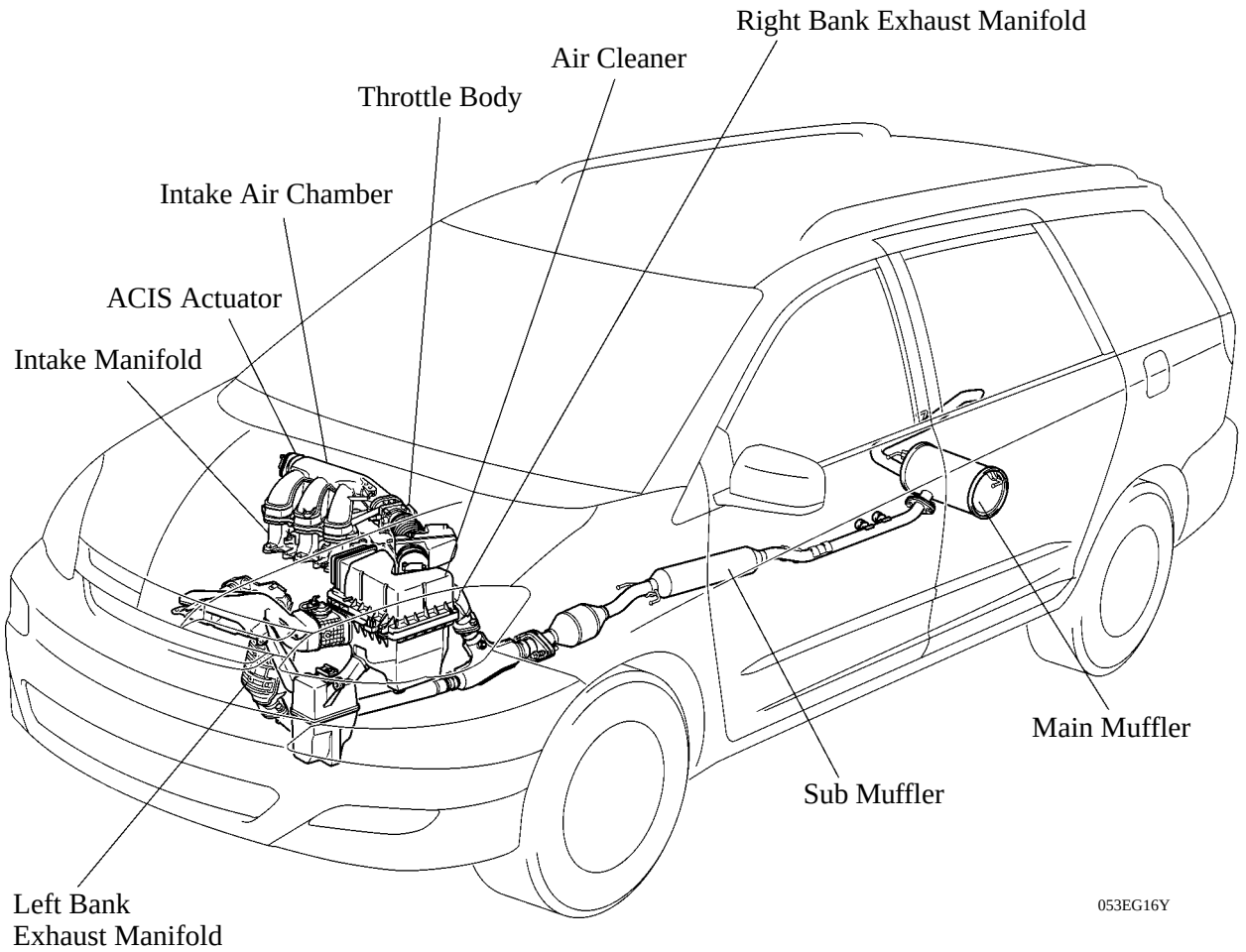
■INTAKE AND EXHAUST SYSTEM

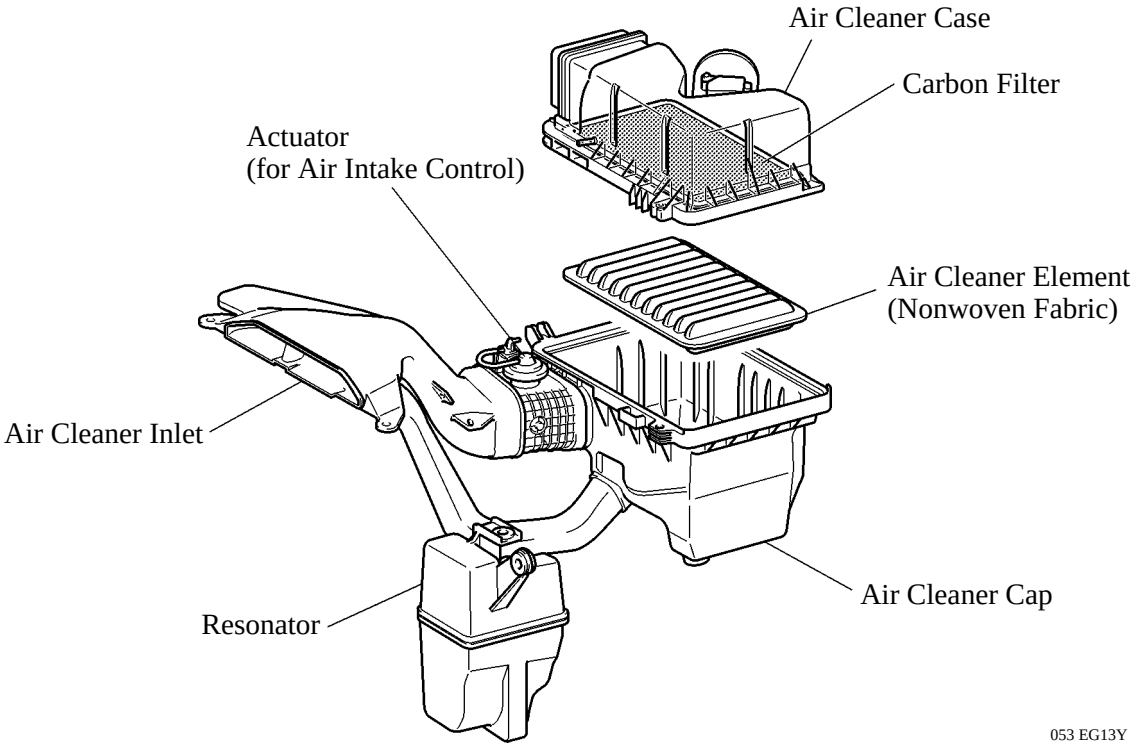
1. General

- The link-less type throttle body is used and it realizes excellent throttle control.
- The intake air chamber made of plastic is used.
- A stainless steel exhaust manifold is used for weight reduction.
- ETCS-i (Electronic Throttle Control System-intelligent) provides excellent throttle control. For details, see page 66.
- ACIS (Acoustic Control Induction System) has improved the engine performance. For details, see page 77.
- The air intake control system is used to reduce engine noise. For details, see page 79.



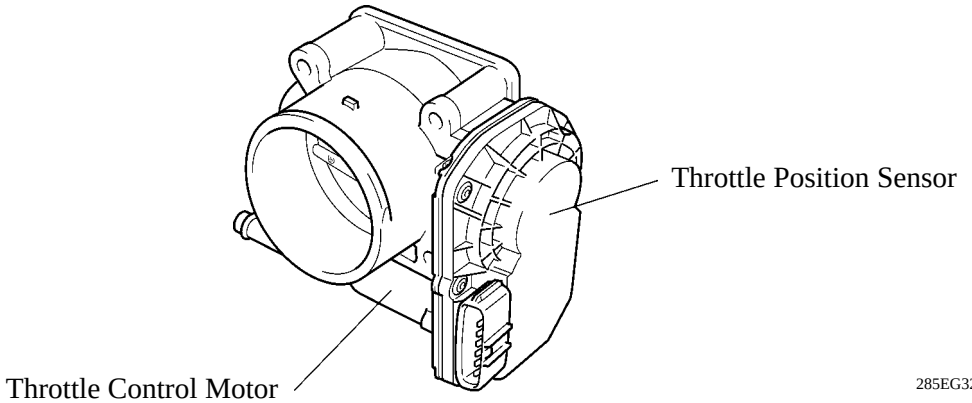
2. Air Cleaner

- A nonwoven, full-fabric type air cleaner element is used.
- A carbon filter, which adsorbs the HC that accumulates in the intake system when the engine is stopped, is used in the air cleaner case in order to reduce evaporative emissions. This filter is maintenance-free.
- Along with the use of the air intake control system, the air cleaner inlet has been divided into two areas, and an air intake control valve and an actuator have been provided in one of the areas.
- Resonators have been provided to reduce the amount of intake air sound.



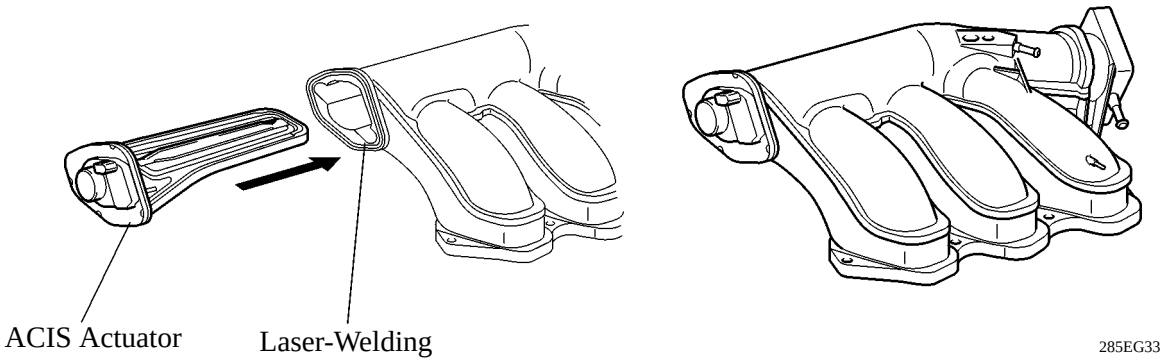
3. Throttle Body

- 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 66.
- In the throttle control motor, a DC motor with excellent response and minimal power consumption is used. The ECM 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.



4. Intake Air Chamber

- The intake air chamber is made of plastic to realize lightweight.
- The air intake chamber consists of upper and lower section and contains an intake air control valve. This valve is activated by ACIS (Acoustic Control Induction System) and is used to alter the intake pipe length to improve the engine performance in all speed range. For details, see page 77.
- The ACIS actuator has used an electric actuator and is laser-welded onto the intake air chamber. Many of the components are made of plastic for weight reduction.

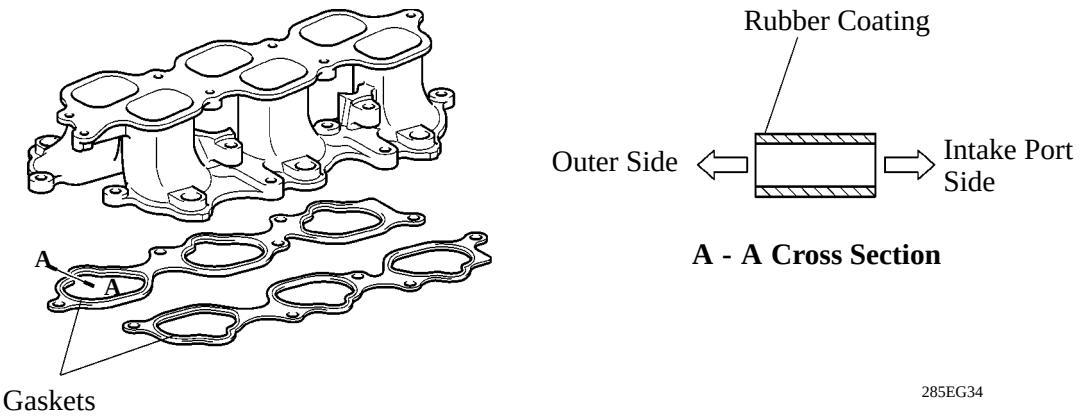


— REFERENCE —

Laser-Welding:
In laser-welding, a laser-absorbing material (for the intake air chamber) is joined to a laser-transmitting material (for the ACIS actuator). Laser beams are then irradiated from the laser-transmitting side. The beams penetrate the laser-transmitting material to heat and melt the surface of the laser-absorbing material. Then, the heat of the laser-absorbing material melts the laser-transmitting material and causes both materials to become welded.

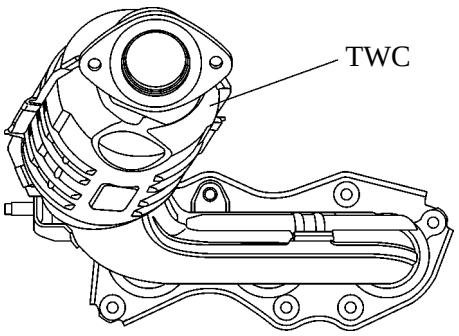
5. Intake Manifold

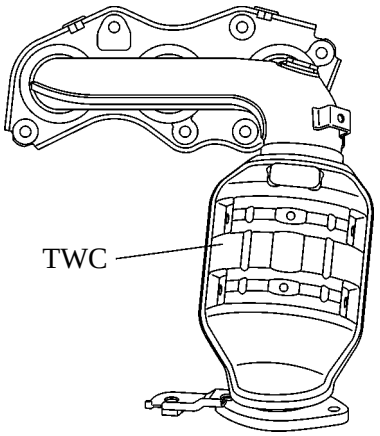
- Light weight aluminum alloy is used for the intake manifold.
- The intake manifold gaskets has rubber coating applied onto surface, and provide superior durability.

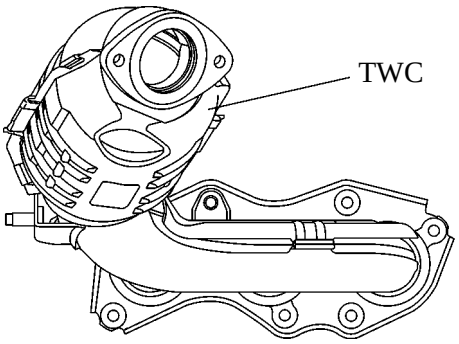


6. Exhaust Manifold

- A stainless steel exhaust manifold with an integrated TWC (Three-Way Catalytic converter) is used for warm-up of the TWC and for weight reduction.
- A ceramic type TWC is used. This TWC is incorporated on each of the right and left banks.
- This TWC enables to reduce exhaust emissions by optimizing the cells density and the wall thickness.

<table>
<tr><th>Bank
Drive Type</th><th>Right</th><th>Left</th></tr>
<tr><td>2WD</td><td>

053EG05Y</td><td rowspan="2">

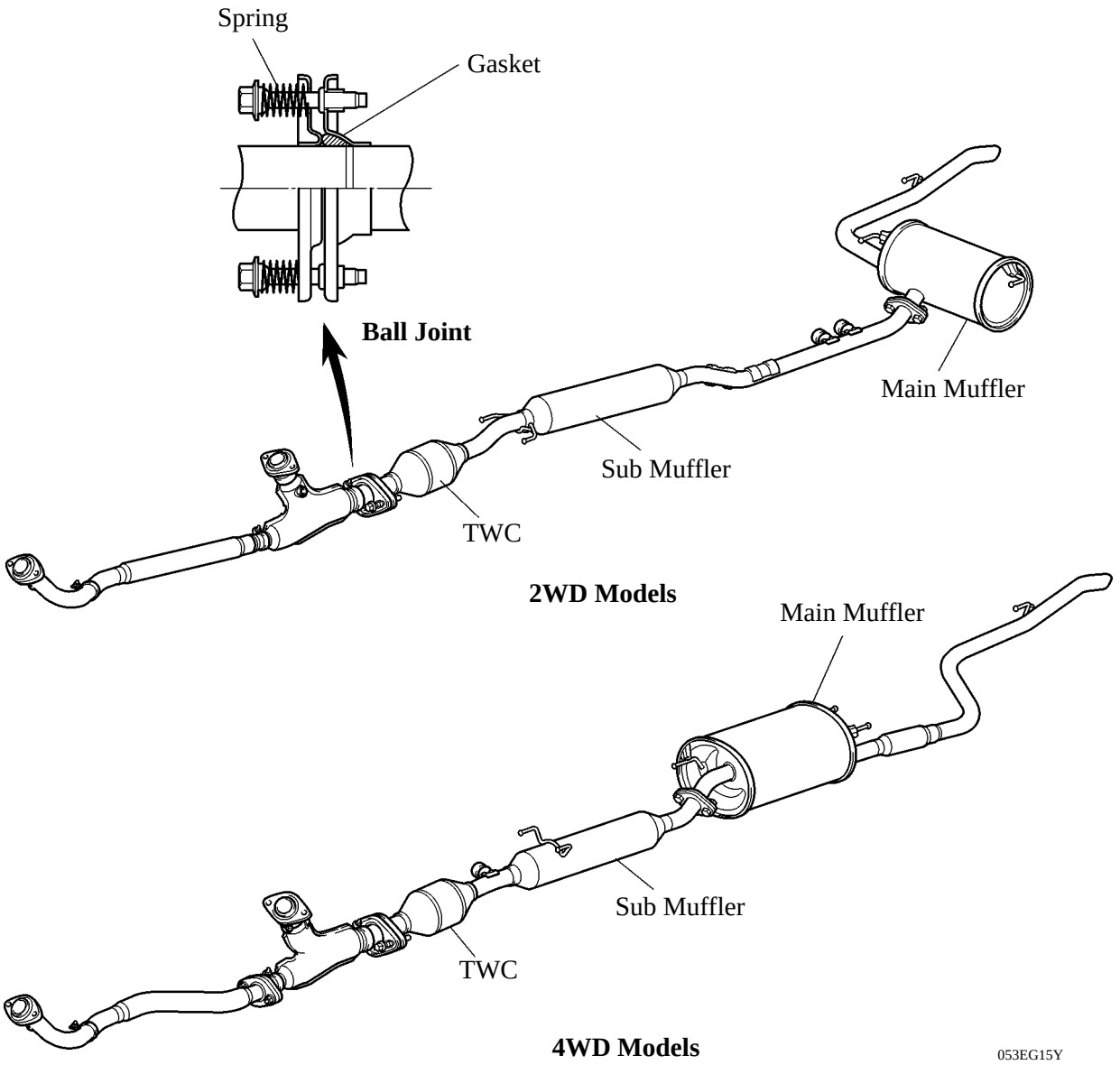
053EG07Y</td></tr>
<tr><td>4WD</td><td>

053EG06Y</td></tr>
</table>

7. Exhaust Pipe

General

- The exhaust pipe is made of stainless steel for improved rust resistance.
- A ceramic type TWC is used.
- 2-way exhaust control system is used to reduce noise and back pressure in the main muffler.



2-way Exhaust Control System

1) General

- A 2-way exhaust control system is used.
- At lower engine speeds, this system enables a quieter operation with control valve close in main muffler.
- The valve opens steplessly in accordance with engine condition and this system reduces the back pressure at higher engine speeds.

2) 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.

3) Operation

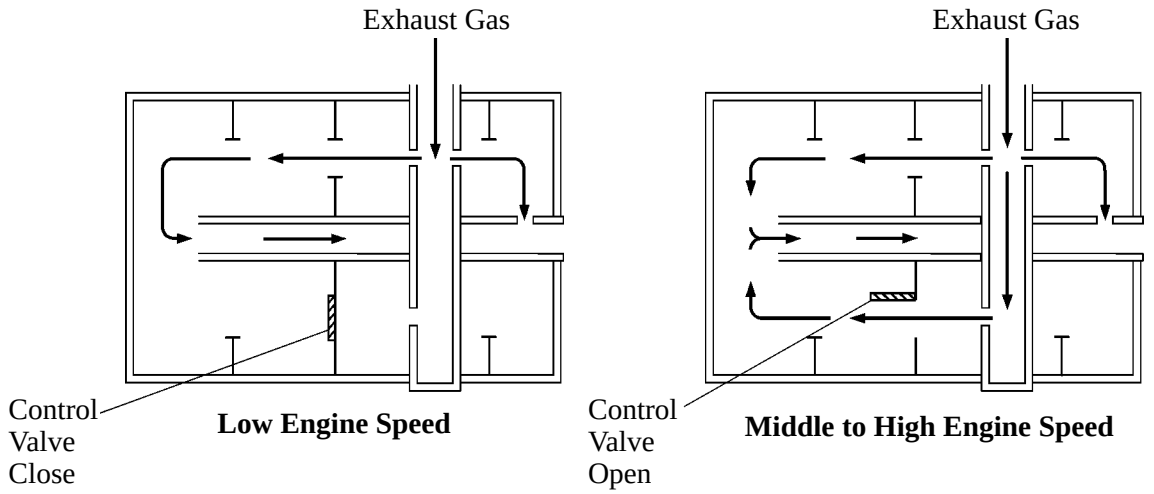
a. When Control Valve is Closed (low engine speed)

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 decreased by the main muffler.

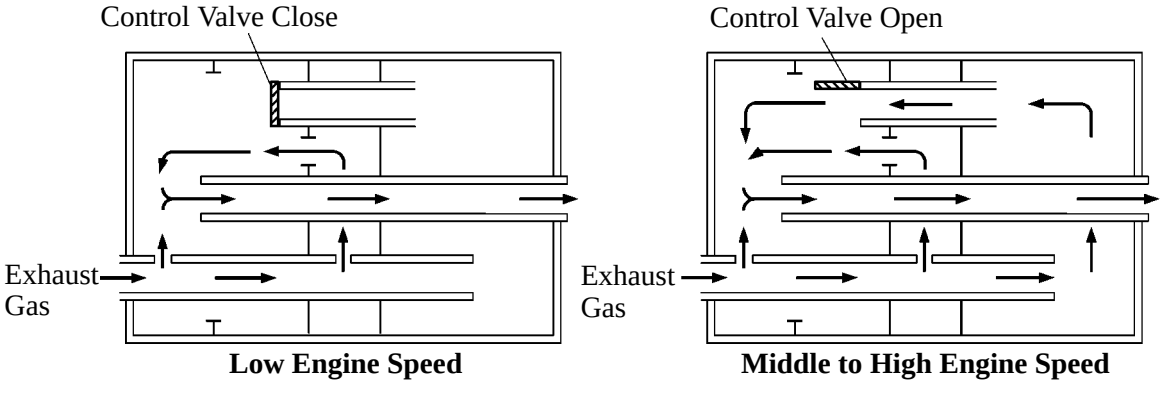
b. When Control Valve is Open (middle to high engine speed)

The valve opens more 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.

▶ 2WD Models ◀



▶ 4WD Models ◀



053EG12Y