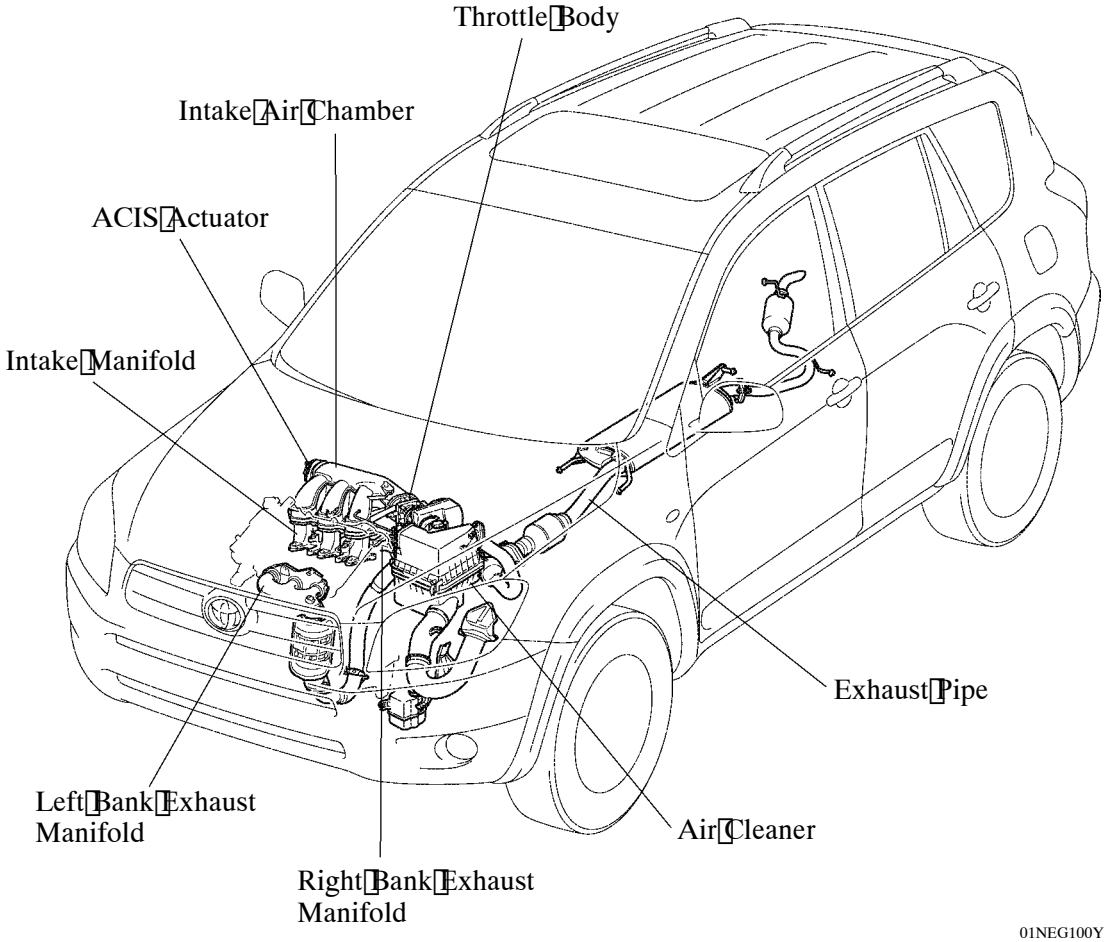
7. Intake and Exhaust System

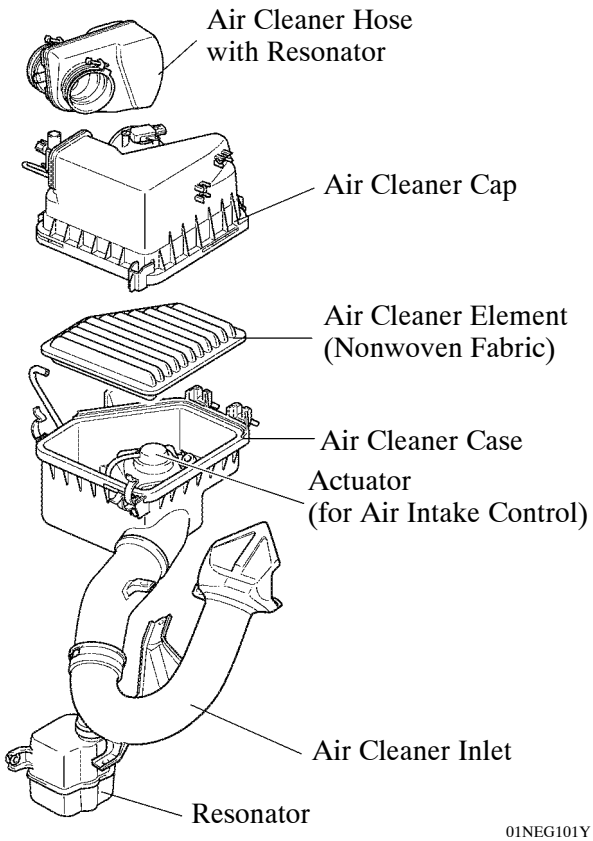
General

- The linkless-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 65.
- ACIS (Acoustic Control Induction System) has improved the engine performance. For details, see page 75.
- The air intake control system is used to reduce engine noise. For details, see page 77.



Air Cleaner

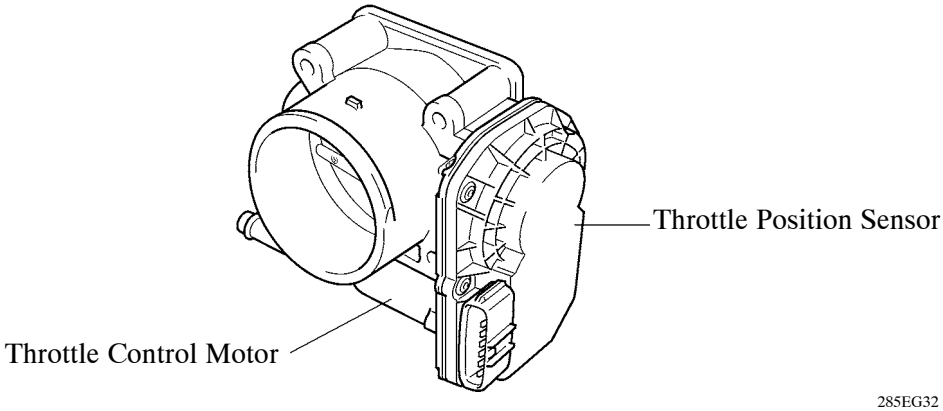
- A nonwoven, full-fabric type air cleaner element is used.
- Along with the use of the air intake control system, an air intake control valve is provided on the air cleaner case.
- Resonators have been provided to reduce the amount of intake air sound.



Throttle Body

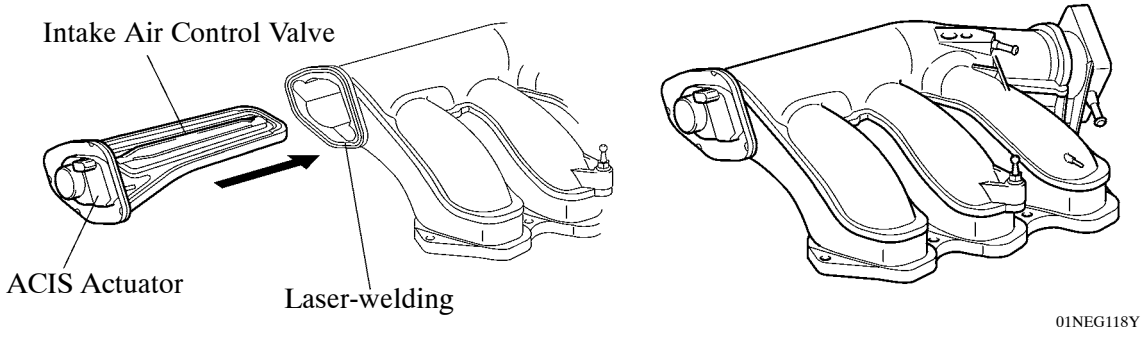
A linkless-type throttle body in which the throttle position sensor and the throttle control motor are integrated is used. It realizes excellent throttle valve control.

- In the throttle control motor, a DC motor with excellent response and minimal power consumption is used. The engine ECU performs the duty cycle 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.



Intake Air Chamber

- The intake air chamber is made of plastic to realize lightweight.
- The intake air chamber 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.
- The ACIS actuator uses an electric actuator and is laser-welded onto the intake air chamber. Many of the components are made of plastic for weight reduction.

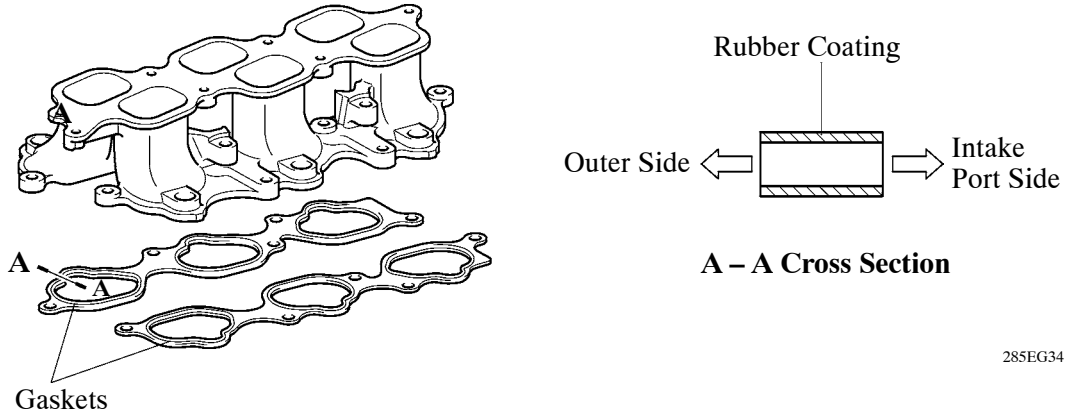


— REFERENCE —

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.

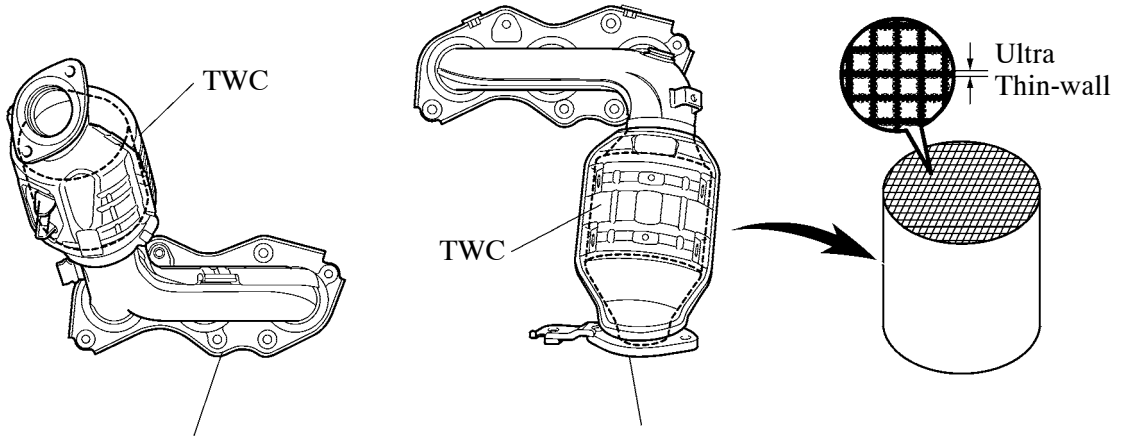
Intake Manifold

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



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.
- An ultra thin-wall, high-cell density, ceramic type TWC is used. This TWC is incorporated on each of the right and left banks.
- This TWC reduces exhaust emissions by optimizing the cells density and the wall thickness.



Exhaust Pipe

- The exhaust pipe is made of stainless steel for improved rust resistance.
- A thin-wall, ceramic type TWC is used.
- Ball joints are used at two places: one at the exhaust center pipe joint, and the other between the exhaust center pipe and the tailpipe. As a result, a simple construction and reliability are realized.

