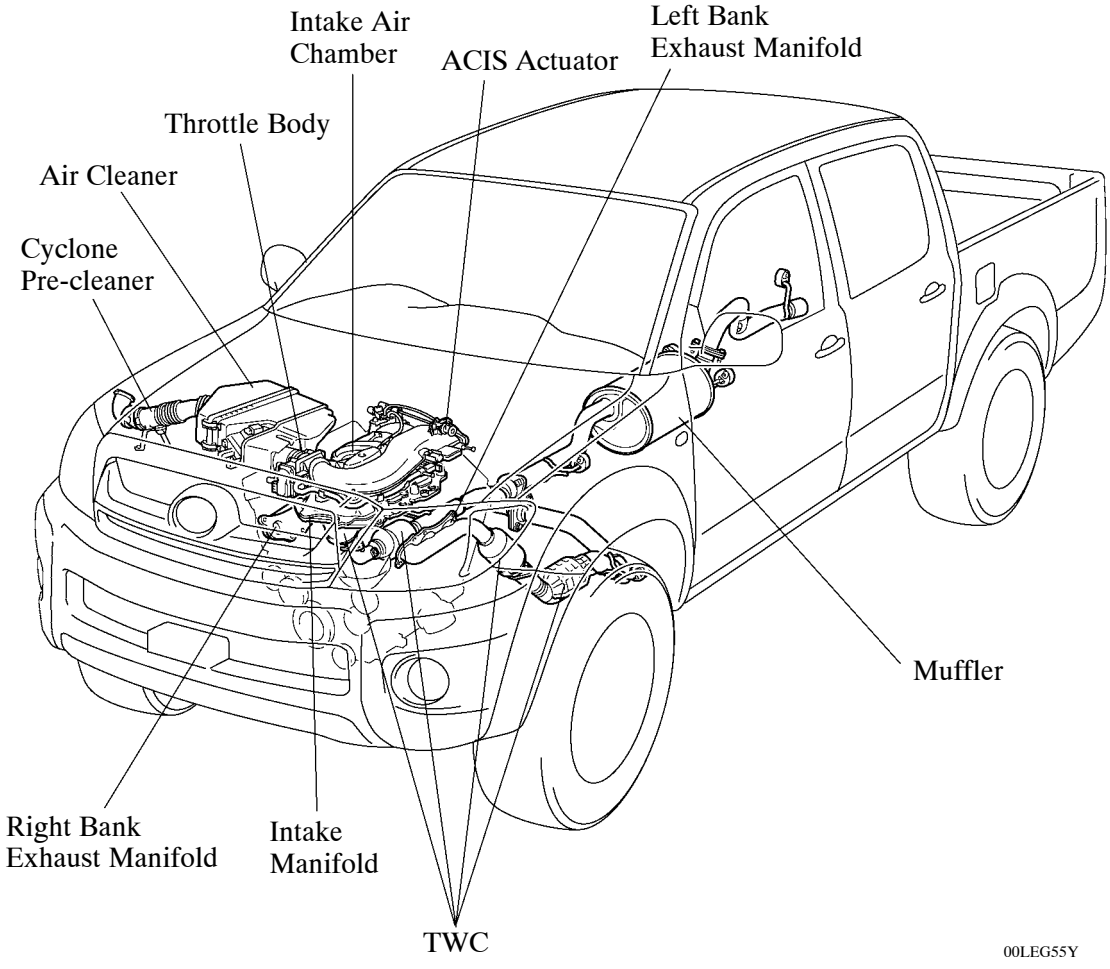
■INTAKE AND EXHAUST SYSTEM

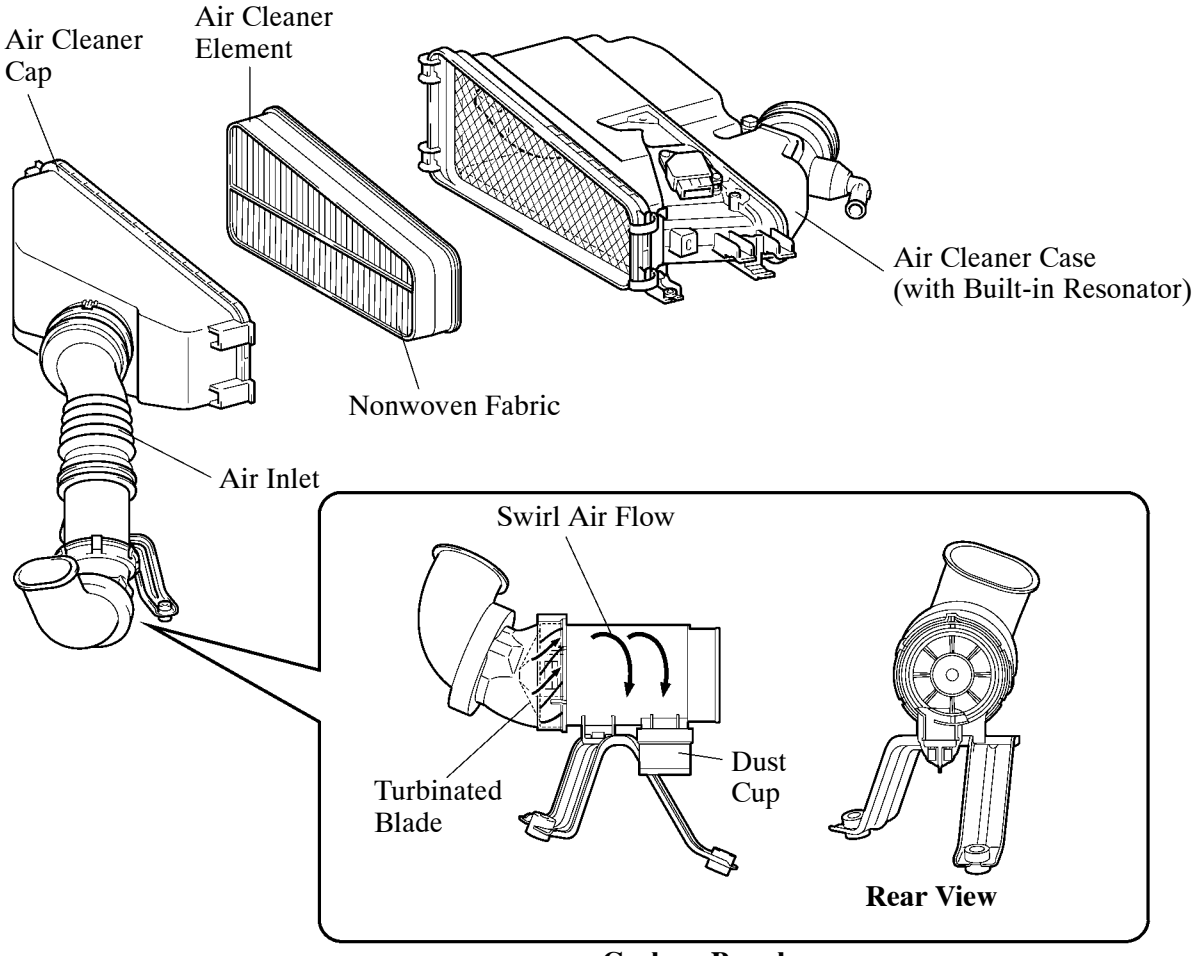
1. General

- A cyclone pre-cleaner has been provided in the air cleaner inlet.
- The linkless-type throttle body is used.
- A plastic intake air chamber is used for weight reduction.
- A stainless steel exhaust manifold and exhaust pipe are used for weight reduction and rust resistance.
- TWCs (Three-Way Catalytic converters) have been provided in the exhaust manifold of each bank and in the front exhaust pipe.
- The ETCS-i (Electronic Throttle Control System-intelligent) is used to ensure excellent throttle control in all operating ranges. For details of ETCS-i control, see page EG-124.
- The ACIS (Acoustic Control Induction System) is used to improve the engine performance in all speed ranges. For details of ACIS control, see page EG-131.



2. Air Cleaner

- A nonwoven, full-fabric type air cleaner element is used.
- A resonator has been provided in the air cleaner case to reduce the amount of intake air sound.
- A cyclone pre-cleaner has been provided in the air cleaner inlet. This cyclone pre-cleaner has a screw shape and gathers large-sized dust particles in a dust cup by swirling the inlet air. The dust cup is removable, so the dust gathered can be disposed of.

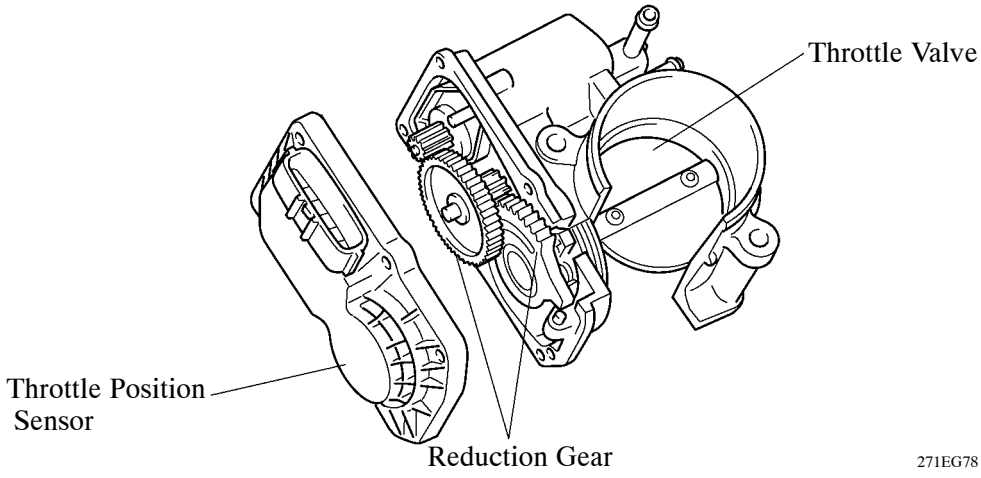


Cyclone Pre-cleaner

271EG126

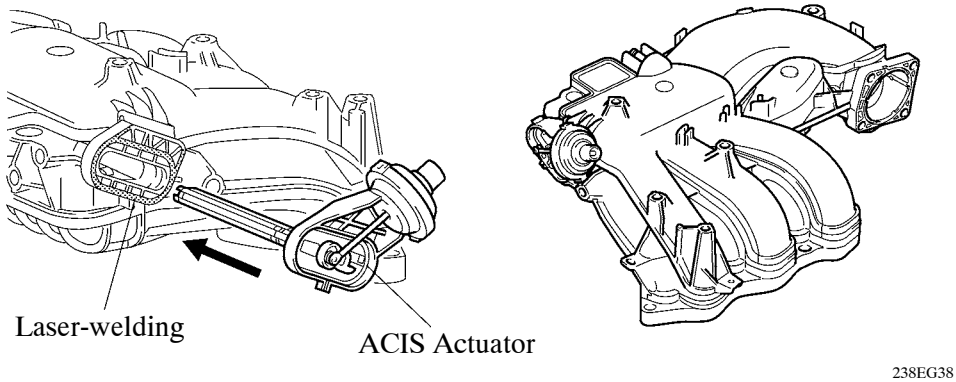
3. Throttle Body

- A DC motor with excellent response and minimal power consumption is used for the throttle control motor. 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 opening angle of the throttle valve.
- The linkless-type throttle body is used, achieving excellent throttle control.



4. Intake Air Chamber

- The intake air chamber is made of plastic to achieve a lightweight construction.
- The air intake chamber consists of upper and lower sections 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 engine performance in all speed ranges.
- The ACIS actuator is laser-welded onto the intake air chamber. Many of the components are made of plastic for weight reduction.



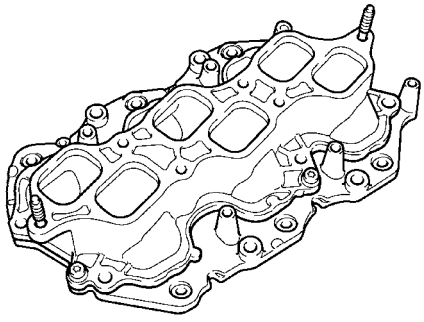
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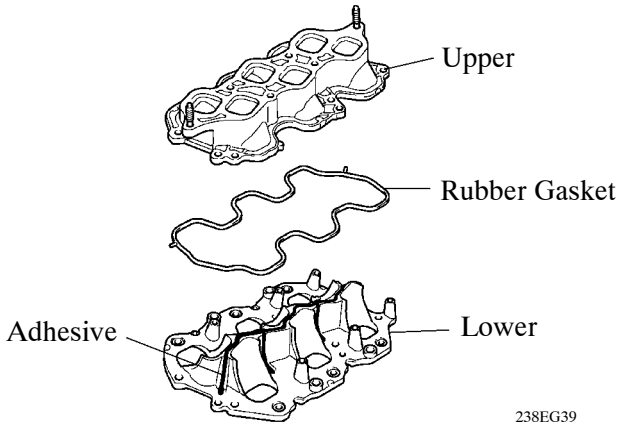
Laser-welding:

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

- Lightweight aluminum alloy is used for the intake manifold.
- This intake manifold consists of two pieces, the upper and lower, which are sealed with a rubber gasket and adhesive.

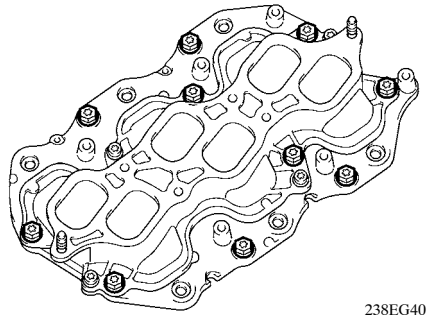




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Service Tip

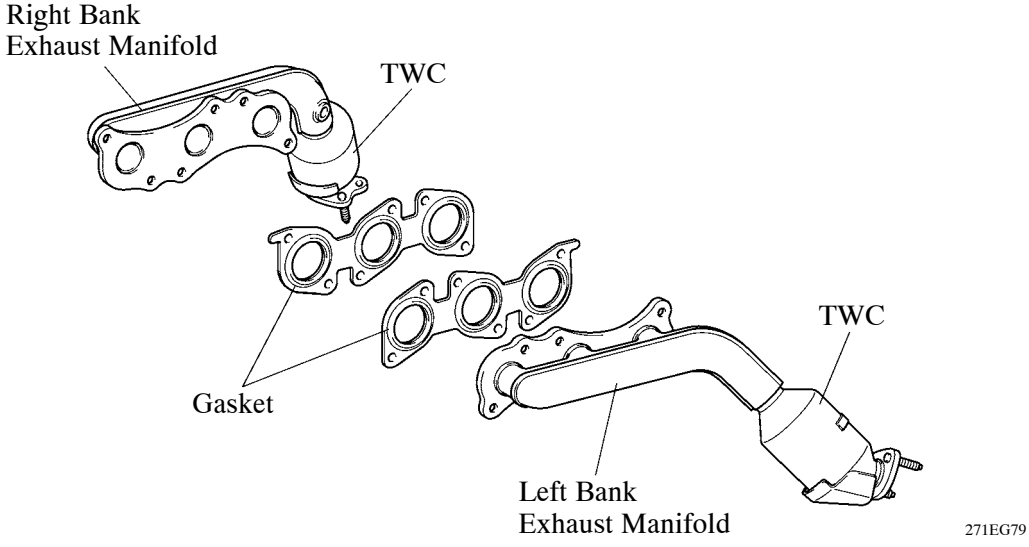
- Do not disassemble the upper and lower portions of the two-piece intake manifold, which are sealed with a rubber gasket and adhesive. To remove the intake manifold, remove the 10 bolts that are shown in the illustration.
- These bolts have hexagon-shape heads.



238EG40

6. Exhaust Manifold

- The exhaust manifolds are made of stainless steel for weight reduction.
- A ceramic type TWC (Three-Way Catalytic converter) is used. This TWC is incorporated on both the right and left banks.



271EG79

7. Exhaust Pipe

- A stainless steel exhaust pipe is used for weight reduction and rust resistance.
- A ceramic type TWC is used.
- A ball joint is used to join the front exhaust pipe and center exhaust pipe. As a result, a simple and reliable construction for reducing vibration has been achieved.

