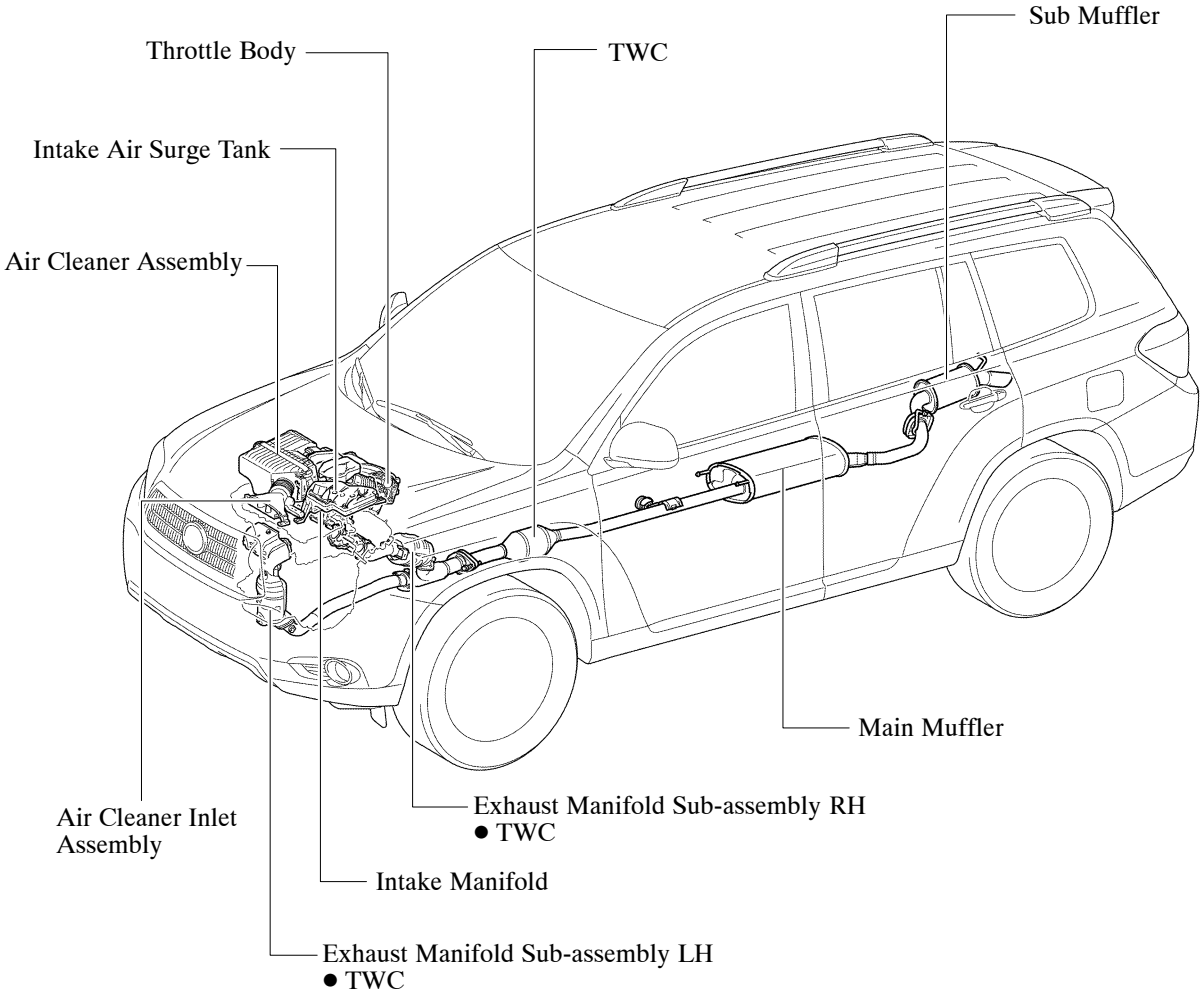
■INTAKE AND EXHAUST SYSTEM

1. General

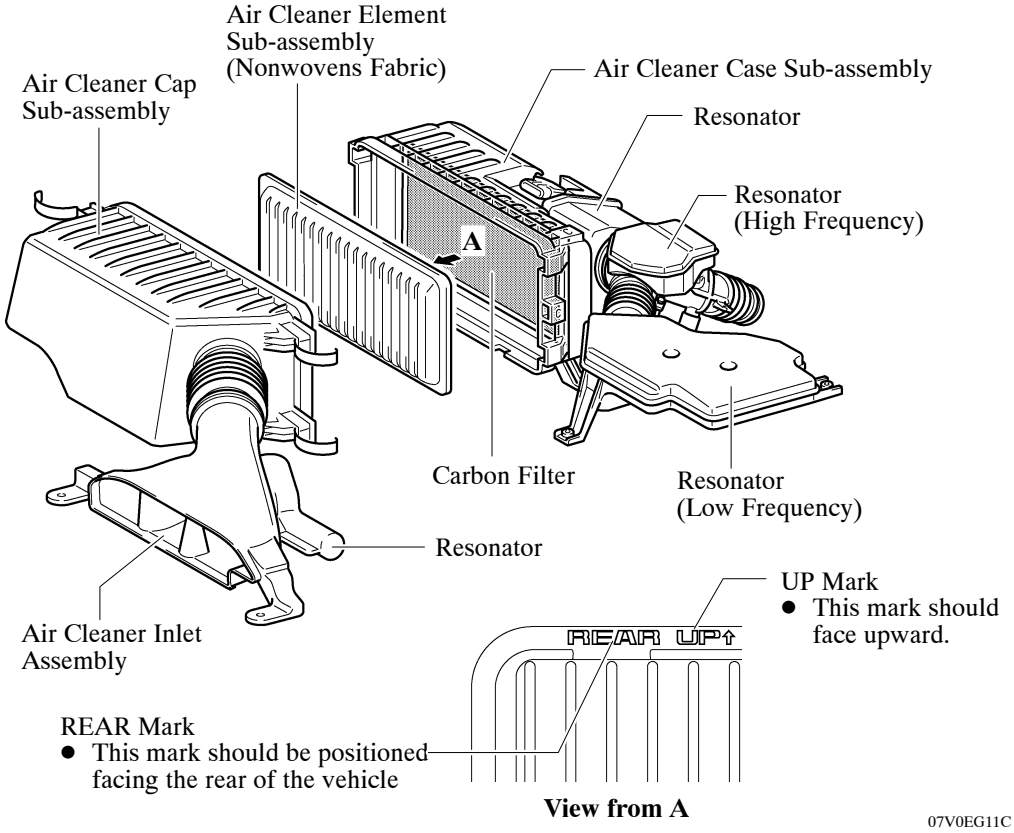
- A cable-less type throttle body is used which realizes excellent throttle control.
- An intake air surge tank made of plastic is used.
- Stainless steel exhaust manifolds are used for weight reduction.
- The ETCS-i (Electronic Throttle Control System-intelligent) is used to ensure excellent throttle control in all operating ranges. For details, see page EG-47.
- TWCs (Three-Way Catalytic converters) are provided in the exhaust manifold of each bank and also in the exhaust center pipe assembly.



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2. Air Cleaner Assembly

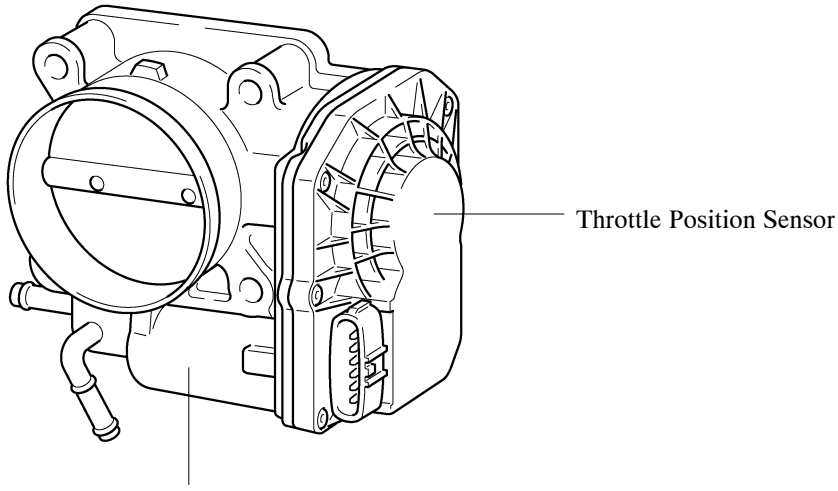
- A nonwoven, full-fabric type air cleaner filter element sub-assembly is used.
- A carbon filter, which adsorbs the HC that accumulates in the intake system when the engine is stopped, is used in the air cleaner cap sub-assembly in order to reduce evaporative emissions. This filter is maintenance-free.
- A resonator is used in the air cleaner case sub-assembly. A low-frequency resonator and a high-frequency resonator are used in the air cleaner hose. Furthermore, a resonator is used in the air cleaner inlet assembly. As a result, the sound level of the intake air is reduced and engine performance is improved.
- By locating the inlet port for the air cleaner assembly in the center of the upper radiator support, a structure with good intake efficiency is assured. The structure also assures that the entry of water and snow is made difficult.



3. Throttle Body

A cable-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-47.

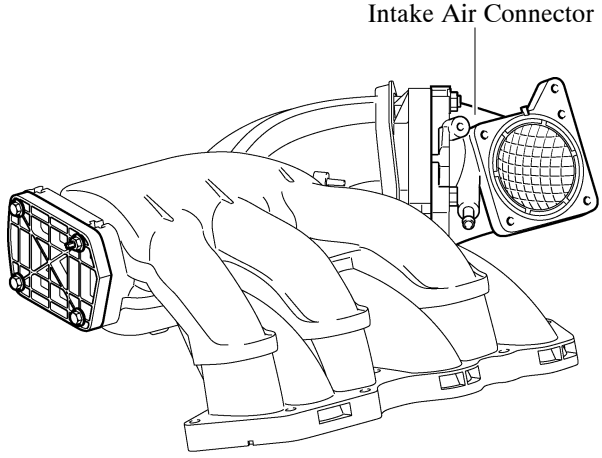
- The throttle control motor uses a DC motor with excellent response and minimal power consumption. The hybrid vehicle control ECU performs duty ratio control of the direction and the amperage of the current that flows to the throttle control motor in order to regulate the throttle valve angle.



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4. Intake Air Surge Tank

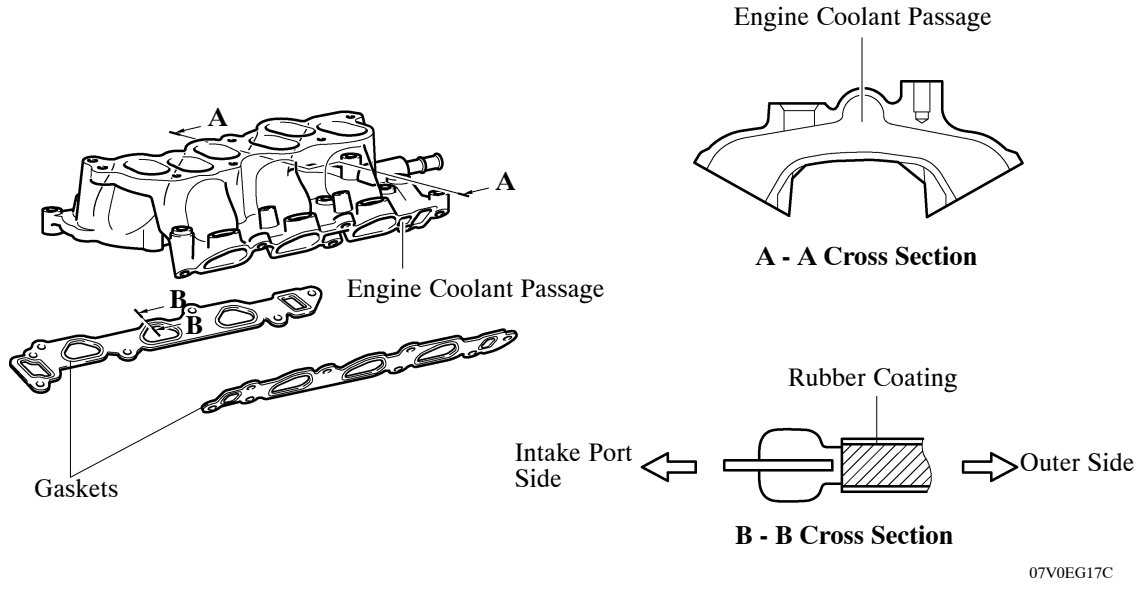
- The intake air surge tank is made of plastic to realize a lightweight construction.
- The intake air connector is made of aluminum alloy to realize a lightweight construction.



07V0EG12C

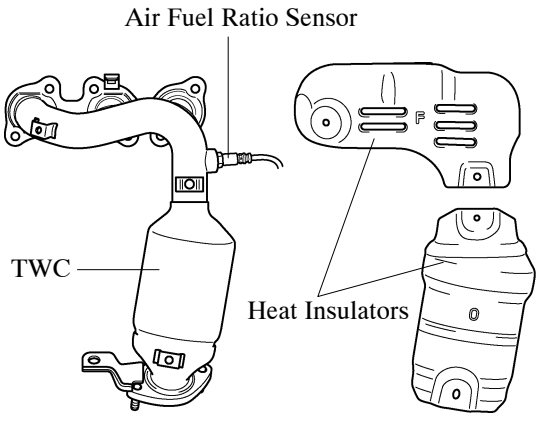
5. Intake Manifold

- The port diameter of the intake manifold and the port length are optimized.
- An engine coolant passage connects the left and right banks at the rear end of the intake manifold.
- The intake manifold gaskets have a rubber coating applied to the surface, and provide superior durability.

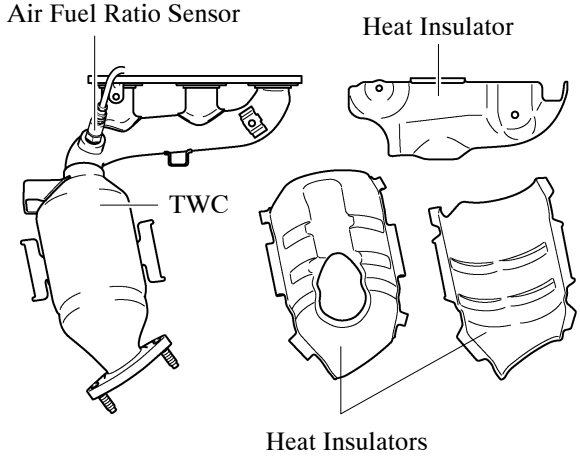


6. Exhaust Manifolds

- A stainless steel type exhaust manifold sub-assembly with an integrated TWC (Three-Way Catalytic converter) is used for quicker warm-up of the TWC and for weight reduction.
- An air fuel ratio sensor is mounted on each exhaust manifold sub-assembly.
- An ultra thin-wall, high-cell density, ceramic type TWC is used. This TWC enables improvement of exhaust emissions by optimizing the converter cell density.



Left Bank 07V0EG13C



Right Bank 07V0EG14C

7. Exhaust Pipe

- The exhaust pipes are made of stainless steel for improved rust resistance.
- A thin-wall, ceramic type TWC is used.
- A main muffler is used to ensure engine performance and reduce exhaust noise.
- A ball joint is used to join the exhaust front pipe assembly, exhaust center pipe assembly and exhaust tail pipe assembly. As a result, in-vehicle sound has been muffled, vibration has been minimized, and weight reduction has been realized.
- An exhaust gas control valve is built into the main muffler to control the exhaust gas according to engine speed. This reduces noise when the engine is running at low speed as well as reducing exhaust back pressure when the engine is running at high speed.

