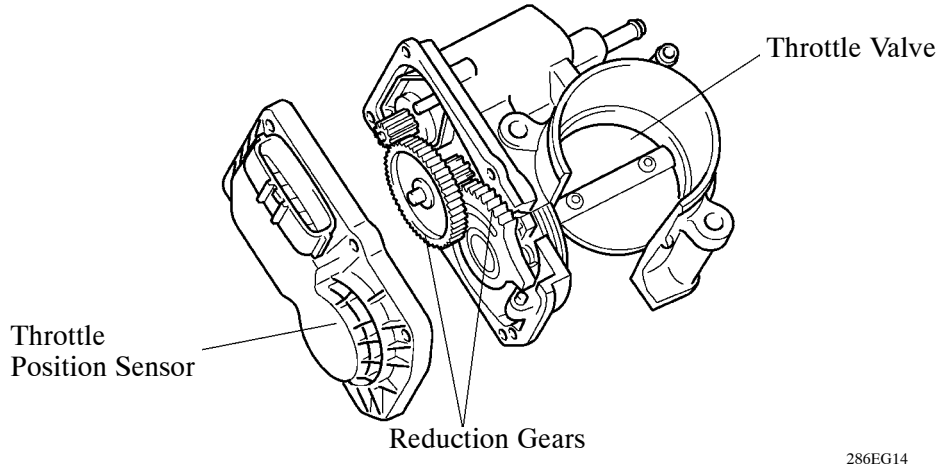
8. Intake and Exhaust System

General

- A plastic intake manifold is used for weight reduction.
- The linkless-type throttle body is used.
- A stainless steel exhaust manifold and exhaust pipe are used for weight reduction and improved rust resistance.
- Two TWCs (Three-Way Catalytic converters) are used in the exhaust pipe of unleaded gasoline models.
- 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 58.

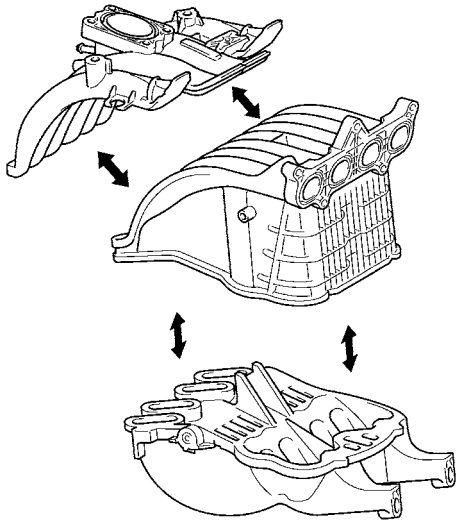
Throttle Body

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



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.
- This intake manifold consists of three parts, which are integrated through vibration welding.



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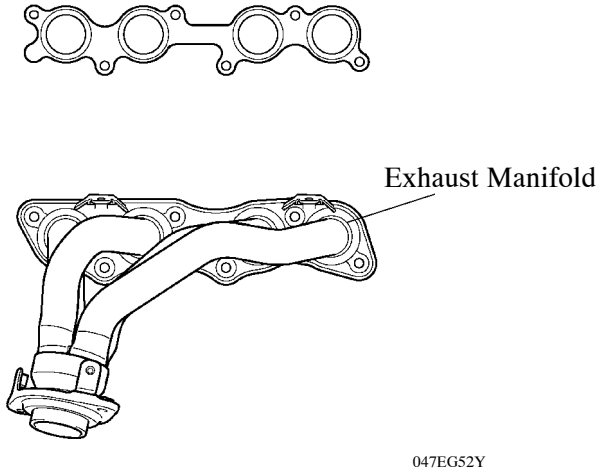
— REFERENCE —

Vibration Welding:

Vibration welding is a type of friction welding. In this process, one part of the work to be welded remains stationary while vibration and pressure are applied to the other part, thus causing the joining surfaces to melt and become welded. This method creates a joint that is stronger than other joining methods, such as those using adhesives.

Exhaust Manifold

A stainless steel exhaust manifold is used for weight reduction.

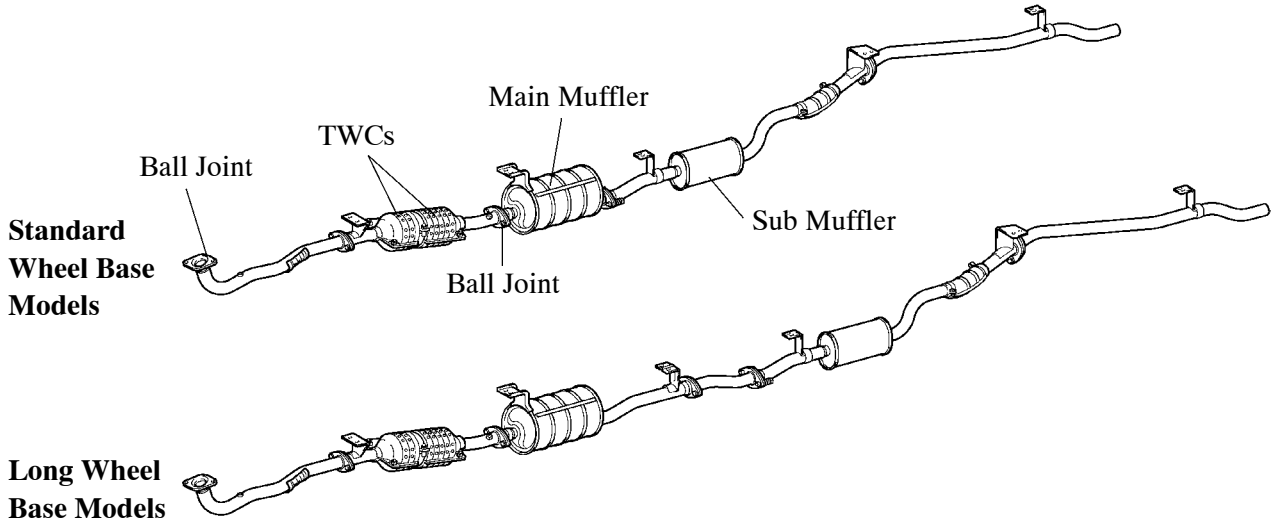


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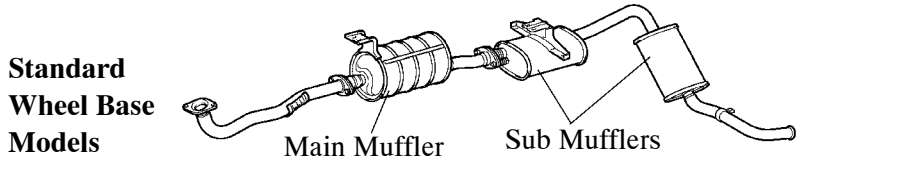
Exhaust Pipe

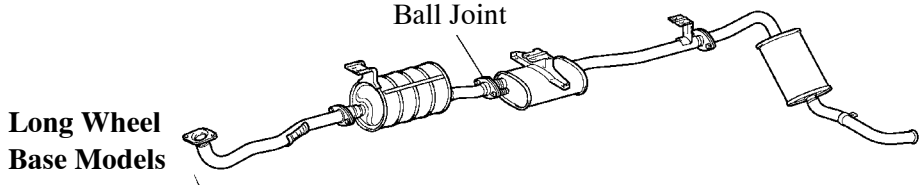
- Two TWCs of a metal type have been provided in the exhaust pipe of all unleaded gasoline models. The exhaust emission performance of the engine is improved as a result of these TWCs. On the leaded gasoline models, a sub muffler has been provided in the exhaust pipe.
- A ball joint is used for the followings: the connection between the exhaust manifold and the exhaust pipe; the connection in the rearward of the TWCs on the unleaded gasoline models; the connection in the rearward of the main muffler on the leaded gasoline models. As a result, a simple and reliable construction for reducing vibration has been realized.

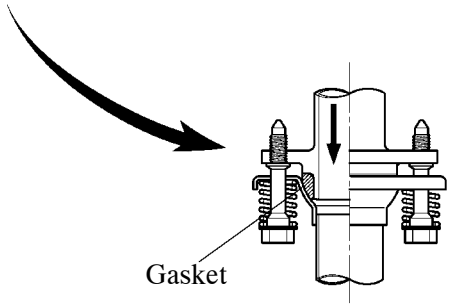
▶ Unleaded Gasoline Models ◀



▶ Leaded Gasoline Models ◀







Ball Joint

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