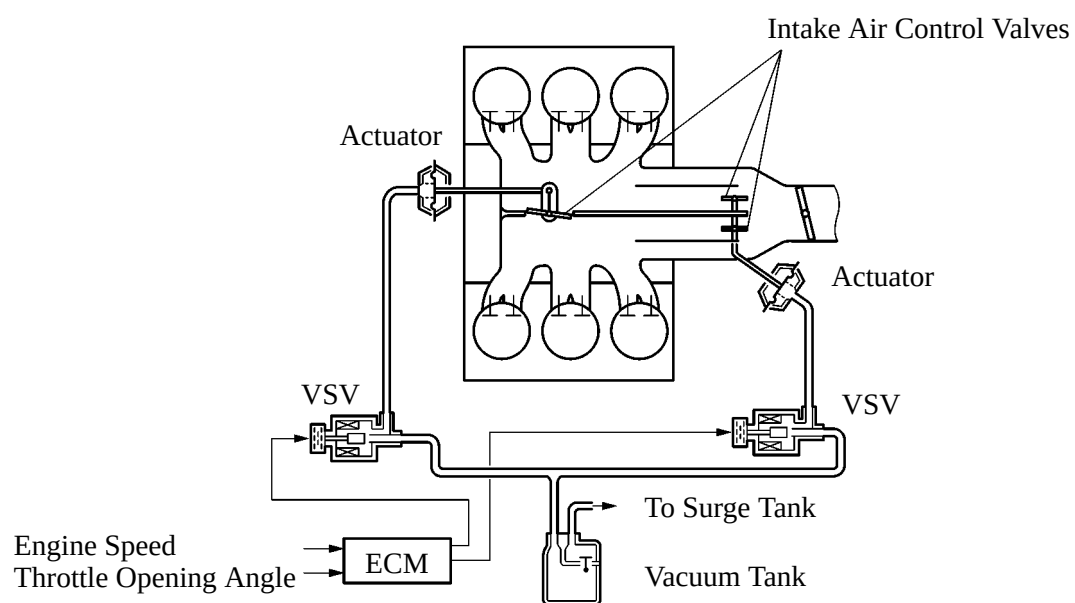


## 10. ACIS (Acoustic Control Induction System)

### General

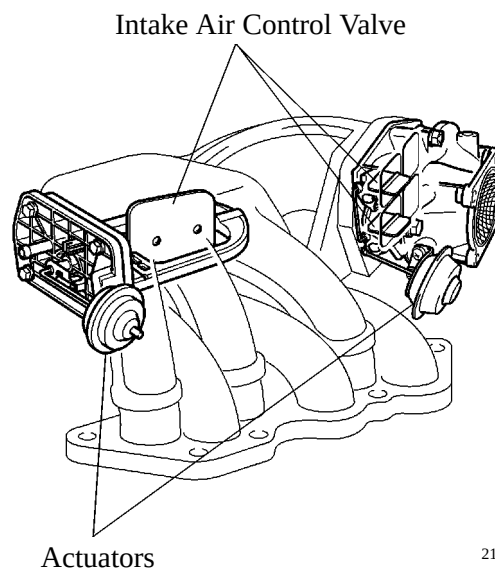
The ACIS is realized by using a bulkhead to divide the intake manifold into 3 stages, with an intake air control valves in the bulkhead being opened and closed to vary the effective length and intake area of the intake manifold in accordance with the engine speed and throttle valve opening angle. This increases the power output in all ranges from low to high speed.

### ► System Diagram ◀



**General****1) Intake Air Control Valve**

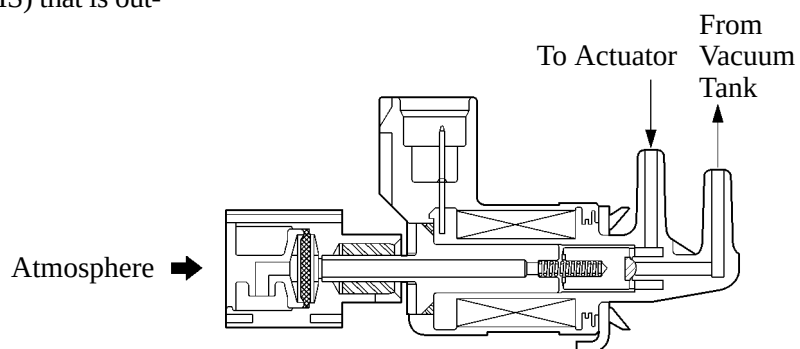
The intake air control valves, which are provided in the intake air chamber, open and close to change the effective length and intake area of the intake manifold in 3 stages.



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**2) VSV (Vacuum Switching Valve)**

Controls the vacuum that is applied to the actuator by way of the signal (ACIS) that is output by the ECM.



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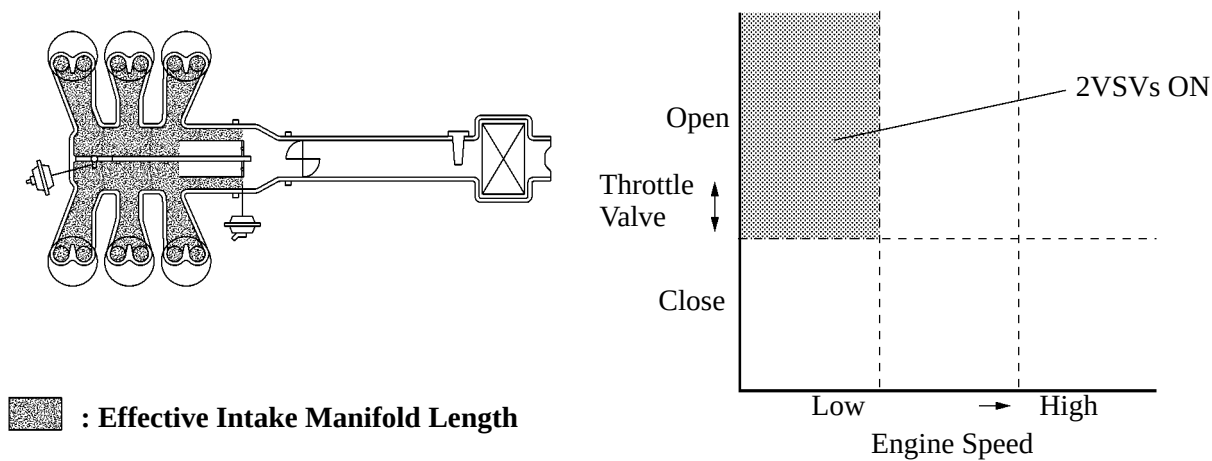
**3) Vacuum Tank**

Equipped with an internal check valve, the vacuum tank stores the vacuum that is applied to the actuator in order to maintain the intake air control valve fully closed even during low-vacuum conditions.

## Operation

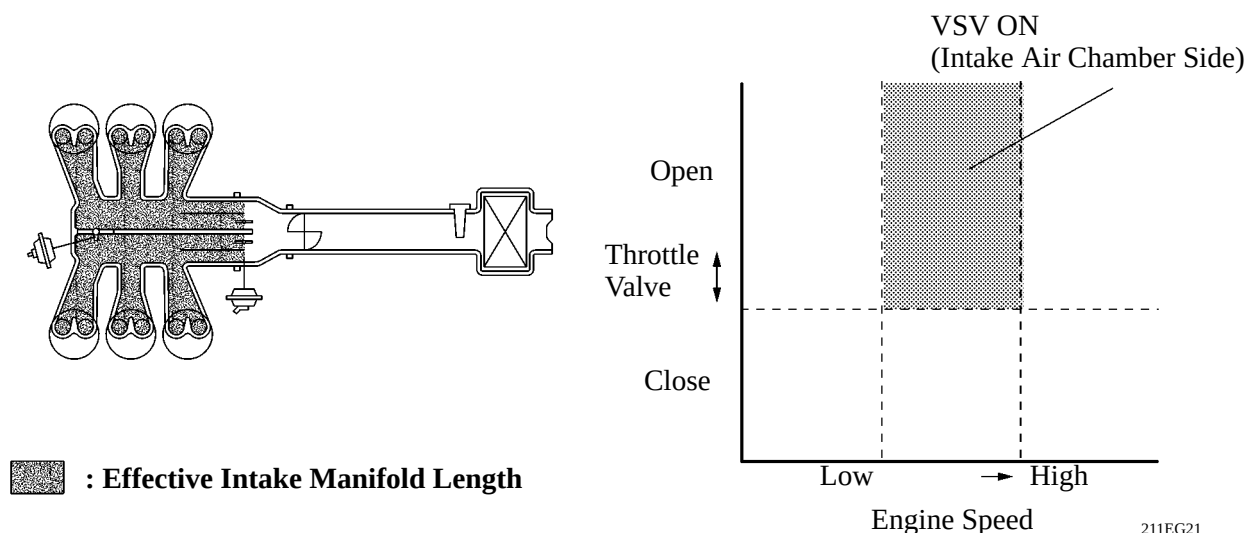
### 1) Heavy Load in the Low-Speed Range

The ECM activates the VSV to match the longest pulsation cycle so that the negative pressure acts on the diaphragm chamber of the actuators. This closes the control valves. As a result, the intake area of the intake manifold is narrowed and the intake efficiency in the low speed range is improved due to the dynamic effect of the intake air, thereby increasing the power output.



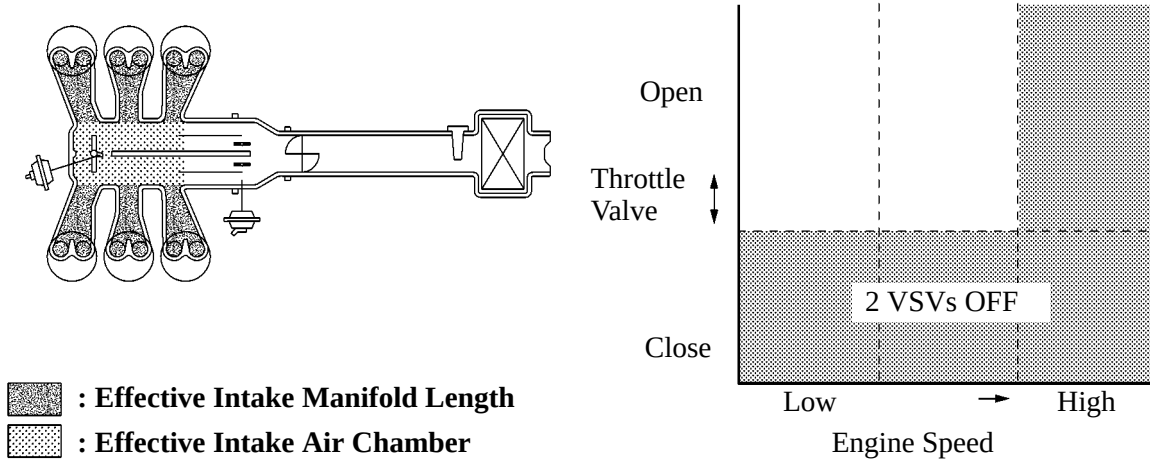
### 2) Heavy Load in the Mid-speed Range

The ECM deactivates the VSV (intake air chamber side) to match the relatively long cycle so that atmospheric air is led into the diaphragm chamber of the actuator and opens the control valve. When the control valve is open, the intake area of the intake manifold is widened and peak intake efficiency is shifted to the mid engine speed range, thus providing greater output at mid engine speeds.



### 3) During Idling, Light Load, and High-Speed Range

The ECM deactivates the VSVs to match the relatively long cycle so that atmospheric air is led into the diaphragm chamber of the actuator and opens the control valves. When the control valves are open, the effective length of the intake air chamber is lengthened most and peak intake efficiency is shifted to the high engine speed range, thus providing greater output at high engine speeds.



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