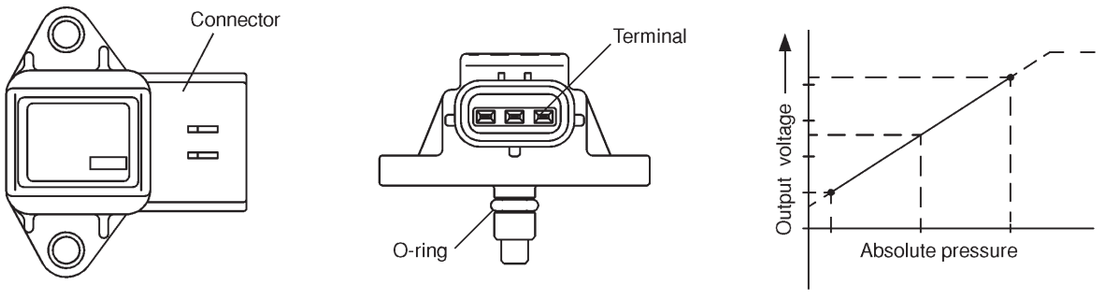
2. Air Line (MT Vehicles)

A: GENERAL

Air which is drawn in and filtered by the air cleaner is metered and sent to the throttle body. From the throttle body, the air is regulated by the open-close operation of the throttle valve and is delivered to the intake manifold. It is then distributed to the respective cylinders to mix with fuel injected by the fuel injectors. Thus, the air-fuel mixture is delivered into the cylinder. Part of the air branched at the upstream of the throttle body is sent to the idle air control solenoid valve which regulates engine idle speed.

B: INTAKE MANIFOLD PRESSURE SENSOR

● The intake manifold pressure sensor is connected directly to the throttle body, and constantly measures the absolute pressure of the intake manifold. The pressure that is measured is converted into an electrical signal, and is sent to the ECM. The ECM controls the fuel injection and ignition timing based on the intake manifold absolute pressure signal from the pressure sensor.



B2H1966A

C: THROTTLE BODY

In response to the depressing stroke of the accelerator pedal, the throttle body opens/closes its valve to regulate the air volume to be taken in the combustion chamber.

During idling, the throttle valve is almost fully closed and the air flow through the throttle body is less than that passing through the carburetor.

More than half of the air necessary for idling is supplied to the intake manifold via the idle air control solenoid valve.

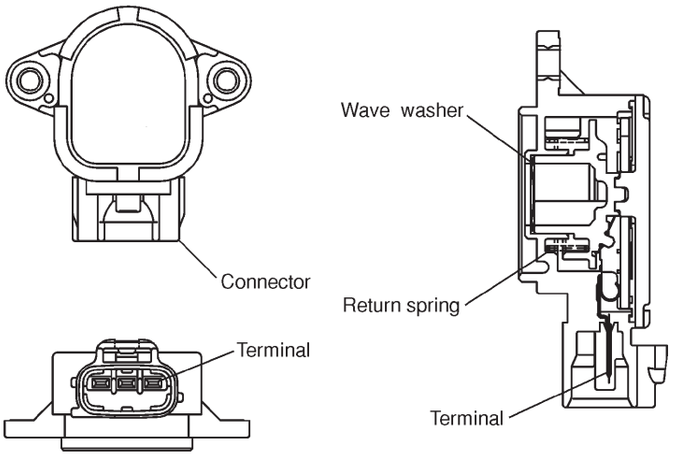
And the idle air control solenoid valve properly controls the engine idle speed, so it does not need to be adjusted.

D: THROTTLE POSITION SENSOR

● A throttle position sensor is provided with a potentiometer which is interlocked with the throttle valve shaft.

● This throttle position sensor sends the ECM a potentiometer output signal corresponding to the opening of the throttle valve. When the level of this signal exceeds a predetermined value, the ECM interprets it as complete closure of the throttle valve and makes a control most suitable for the engine operation with the throttle valve fully closed. For correcting error of this signal, the ECM is provided with a learning function.

● Thus, the ECM precisely controls the air-fuel ratio during acceleration and deceleration as well as engine idling.

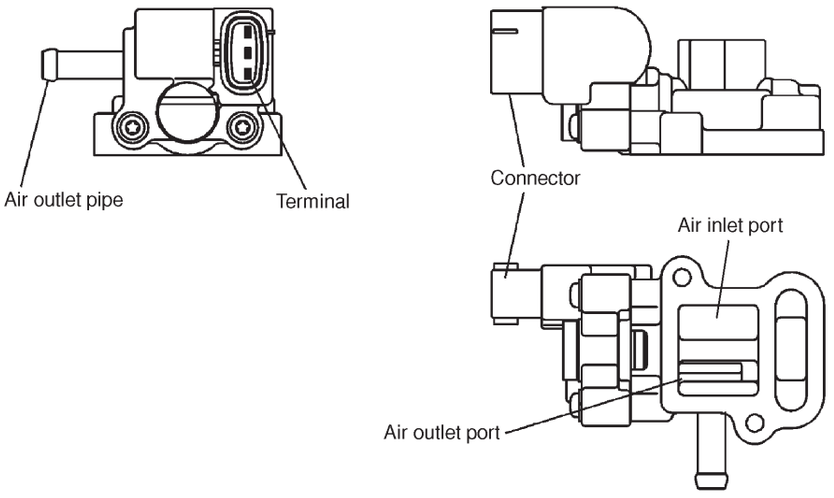


B2H1967A

E: IDLE AIR CONTROL SOLENOID VALVE

● The idle air control solenoid valve is incorporated in the throttle body and regulates the amount of intake air which bypasses the throttle valve built into the throttle body. It is activated by a signal sent from the ECM to mainly maintain engine idle speed to the target engine speed.

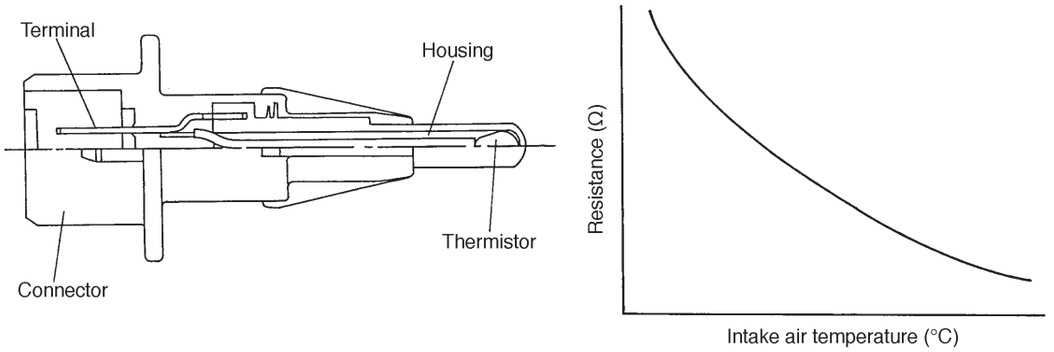
● The idle air control solenoid valve is a rotary valve solenoid type which consists of a coil, rotary valve, spring and housing. The housing is integral with the throttle body and is provided with the opening area of bypass air port which is changed by the rotary valve.



B2H1968B

F: INTAKE AIR TEMPERATURE SENSOR

● The intake air temperature sensor is mounted on the air cleaner case for detecting the temperature of the intake air introduced through the air intake duct. The ECM uses the resistance signal from the sensor to correct the fuel injection amount.



B2H1428