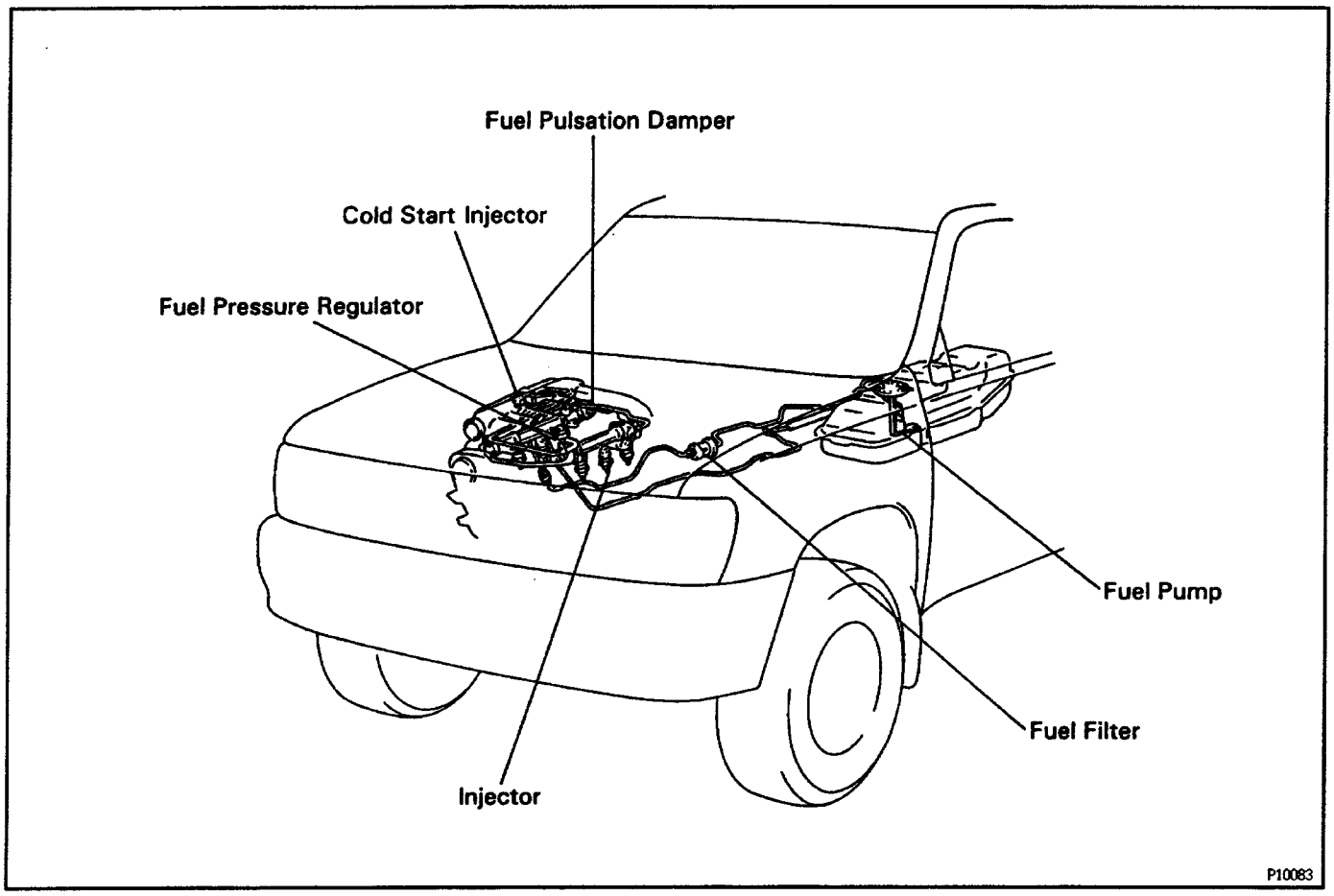
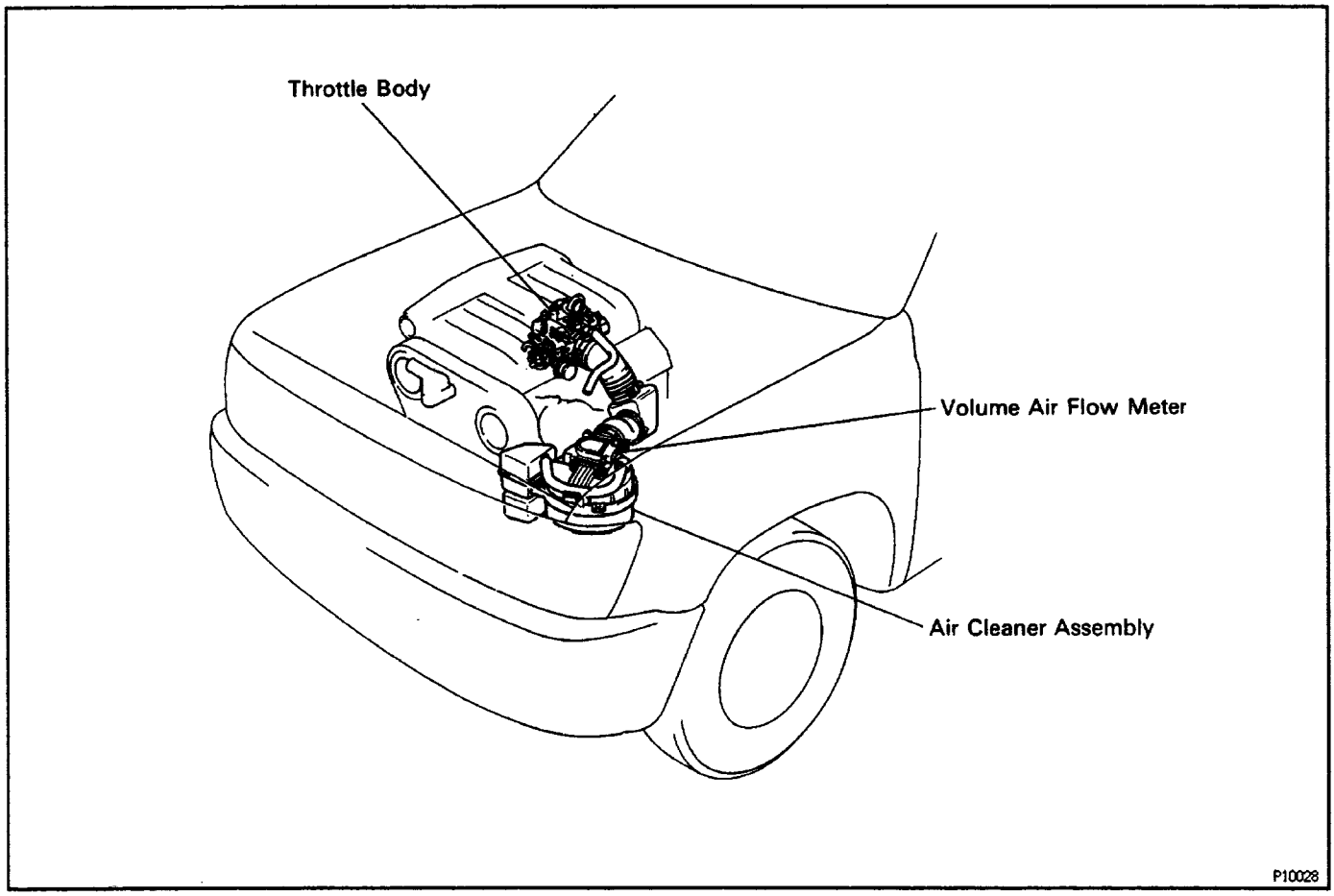
OPERATION
FUEL SYSTEM



Fuel pumped up by the fuel pump flows through the fuel filter and is distributed to each injector and cold start injector at a set pressure maintained by the fuel pressure regulator.
The fuel pressure regulator adjusts the pressure of the fuel from the fuel line (high pressure side) to a pressure 284 kPa (2.9 kgf/cm2, 41 psi) higher than the pressure inside the intake manifold. Excess fuel is returned to the fuel tank through the return pipe. When the engine is hot, the fuel pressure is increased to control percolation in the fuel system and improve restartability and idling stability.
The pulsation damper absorbs the slight fluctuations in fuel pressure caused by fuel injected from the injector.
Fuel is injected into the intake manifold according to signals from the ECM.
When starting, the cold start injector operates when engine coolant temperature is less than 70˚ C (158˚ F), injecting fuel into the air intake chamber to improve startability.

AIR INDUCTION SYSTEM



Air filtered through the air cleaner passes through the volume air flow meter and the amount flowing to the air intake chamber is determined according to the throttle valve opening in the throttle body and the engine speed.

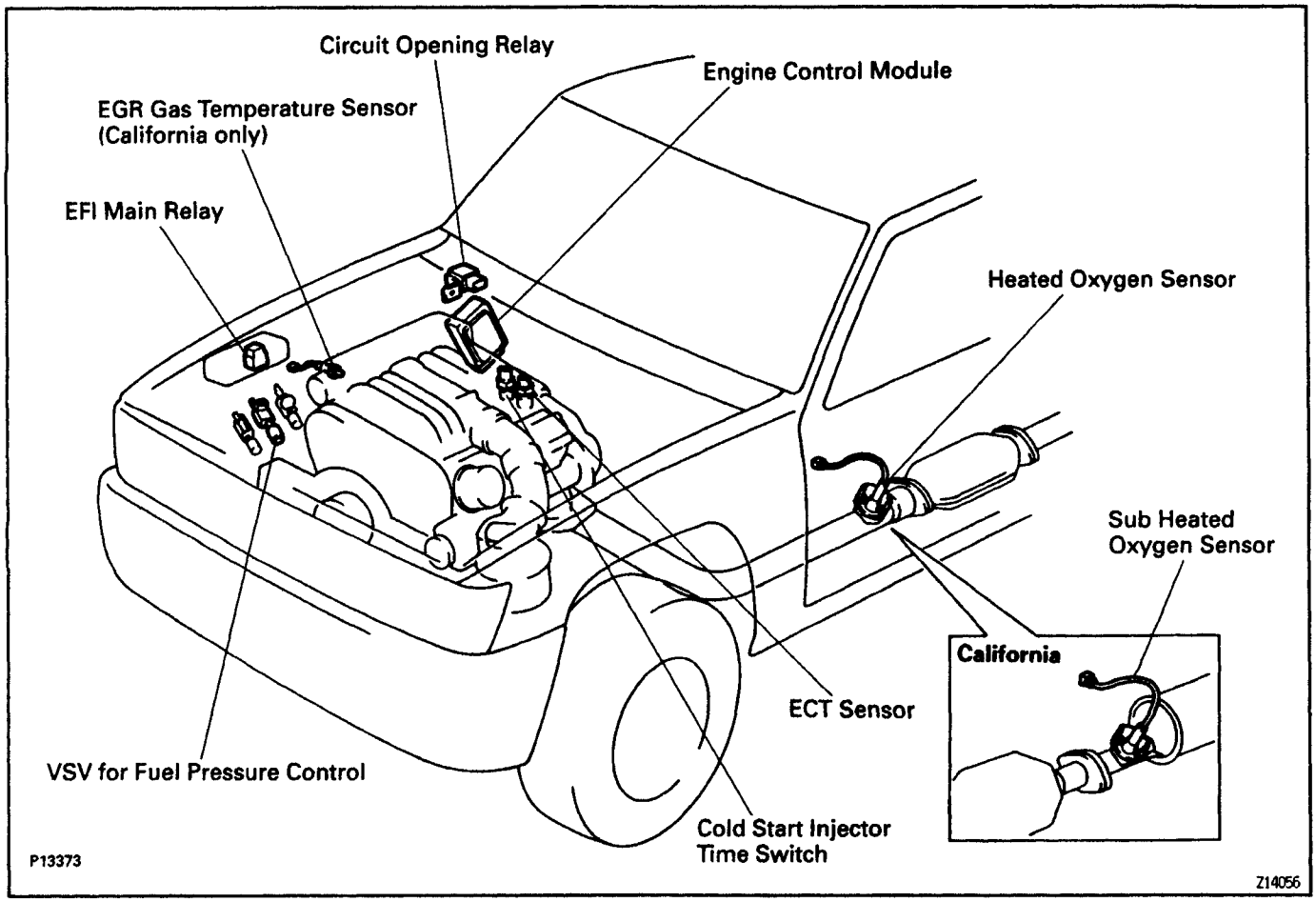
The volume air flow meter measures the intake air flow by the opening of the measuring plate in response to the volume of intake air to the engine.

Located in the throttle body is the throttle valve, which regulates the volume of intake air to the engine. Intake air controlled by the throttle valve opening is distributed from the air intake chamber to the manifold of each cylinder and is drawn into the combustion chamber.

At low temperatures the air valve opens and air flows through the air valve and the throttle body, into the air intake chamber. During engine warming up, even if the throttle valve is completely closed, air flows to the air intake chamber, thereby increasing the idle speed (first idle operation).

The air intake chamber prevents pulsation of the intake air, reduces the influence on the volume air flow meter and increases the accuracy of the measurement of the intake air volume. It also prevents intake air interference in each cylinder.

ELECTRONIC CONTROL SYSTEM



The control system consists of sensors which detect various engine conditions, and an ECM which determines the injection volume (timing) based on the signals from the sensors.

The various sensors detect the intake air volume, engine speed, oxygen density in the exhaust gas, engine coolant temperature, intake air temperature and atmospheric pressure etc. and convert the information into electrical signals which are sent to the ECM. Based on these signals, the ECM calculates the optimum ignition timing for the current conditions and operates the injectors.

The ECM not only controls the fuel injection timing, but also the self diagnostic function which records the occurrence of a malfunction, ignition timing control, idle speed control, fuel pressure control and fuel pump control.