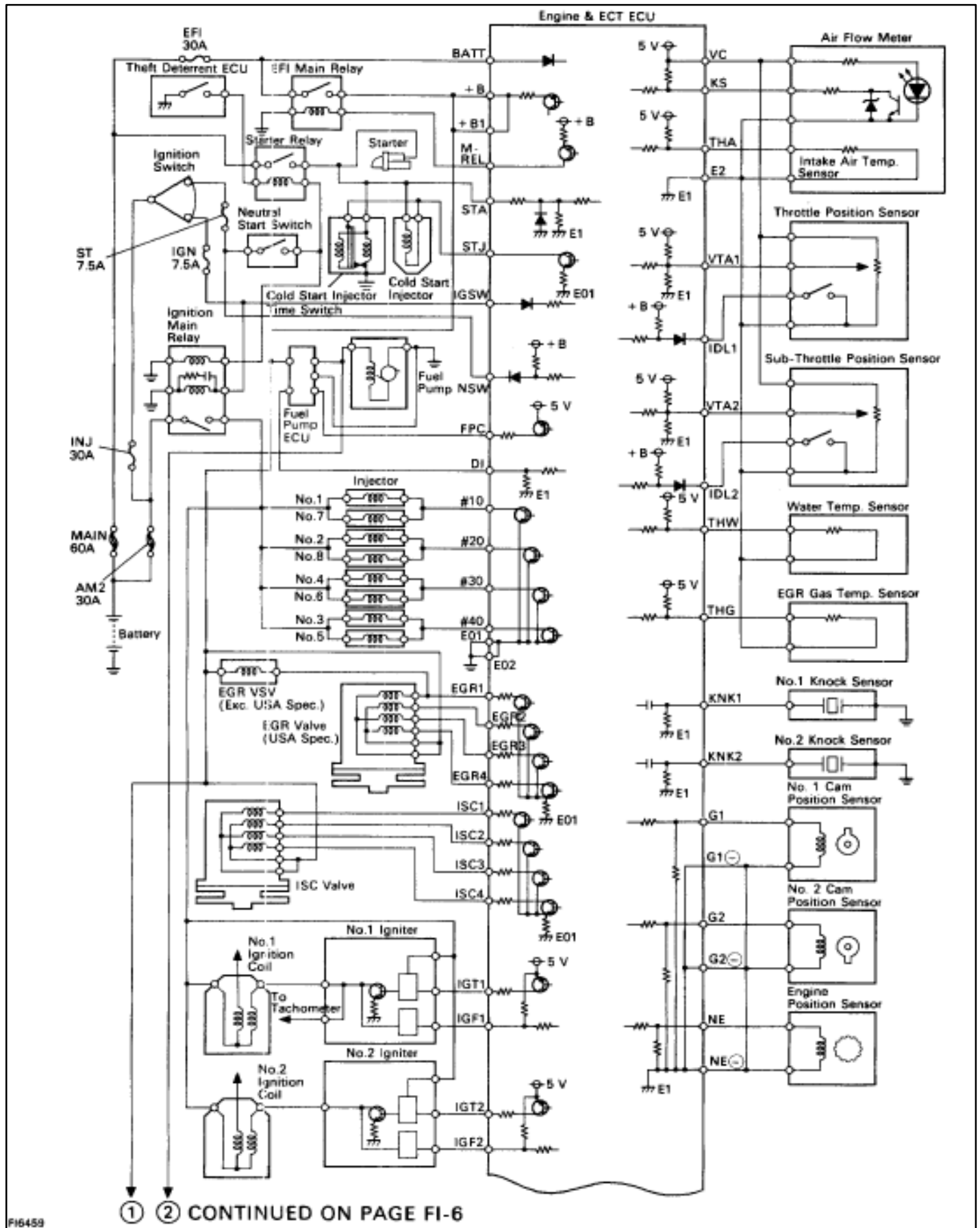
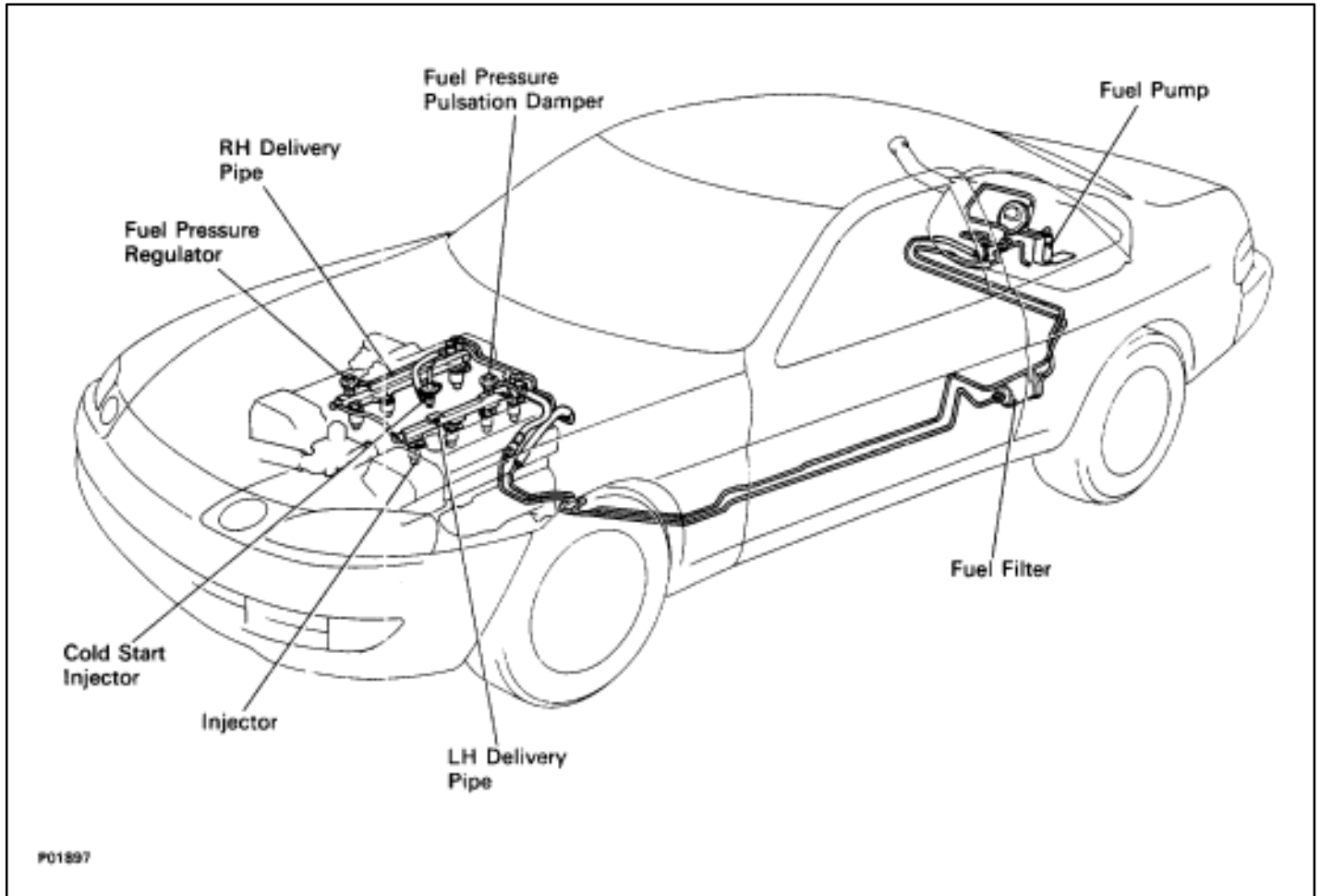


# OPERATION





## FUEL SYSTEM



Fuel is pumped up by the fuel pump, which flows through the fuel filter under pressure through the fuel pipe to the delivery pipe where it is distributed to each injector and the cold start injector.

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/cm<sup>2</sup>, 41 psi) higher than the pressure inside the intake manifold, and excess fuel is returned to the fuel tank through the return pipe.

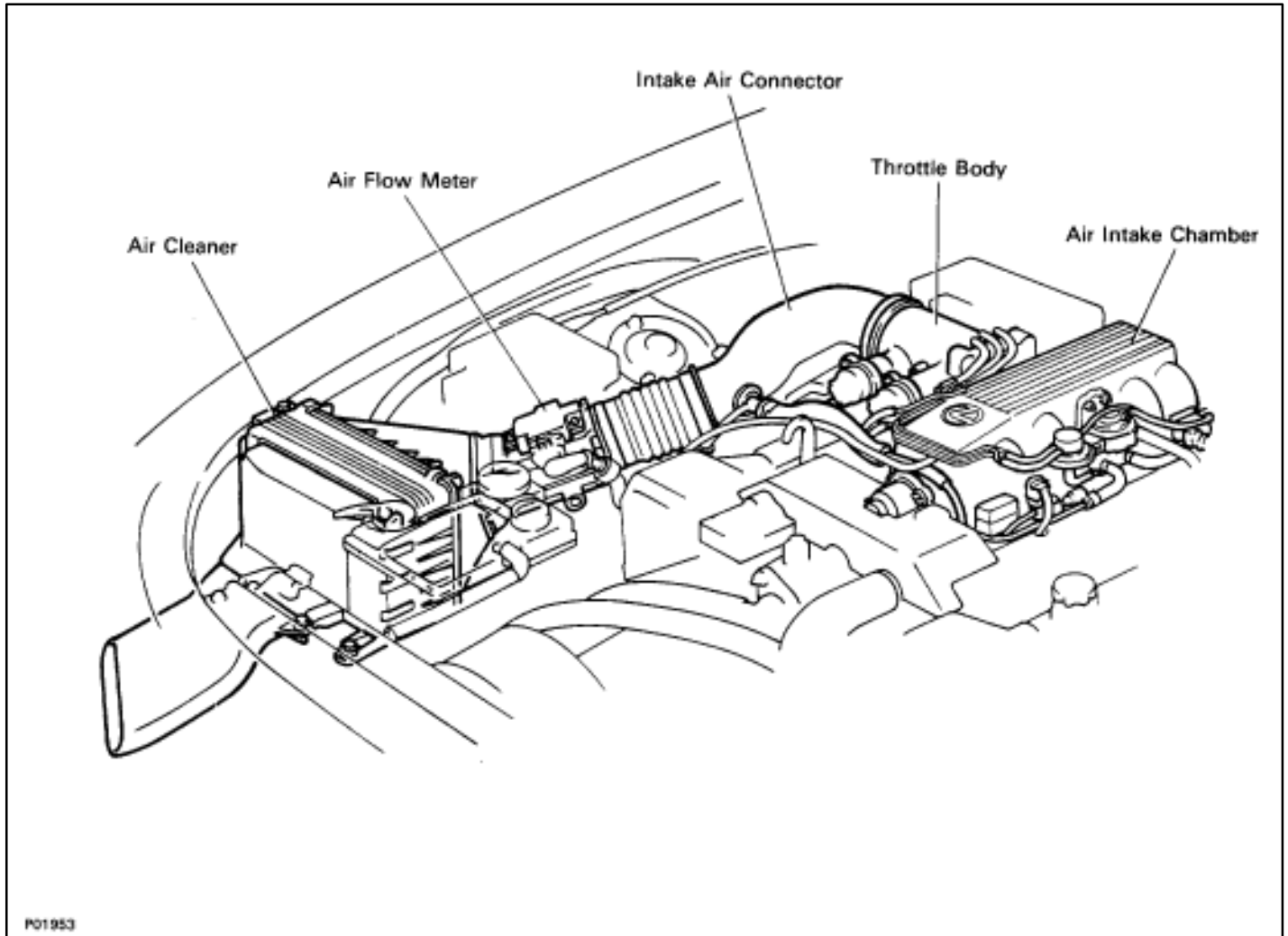
When the engine is hot, the fuel pressure is increased to control percolation in the fuel system and improve restartability and idling stability.

The pulsation damper absorbs the slight fluctuations in fuel pressure caused by the injector.

The injectors operate on input of injection signals from the ECU and inject fuel into the intake manifold.

The cold start injector operates when starting with low coolant temperature or at normal temperature ranges, injecting fuel into the air intake chamber to improve startability.

## AIR INDUCTION SYSTEM



Air filtered through the air cleaner passes through the 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 rpm.

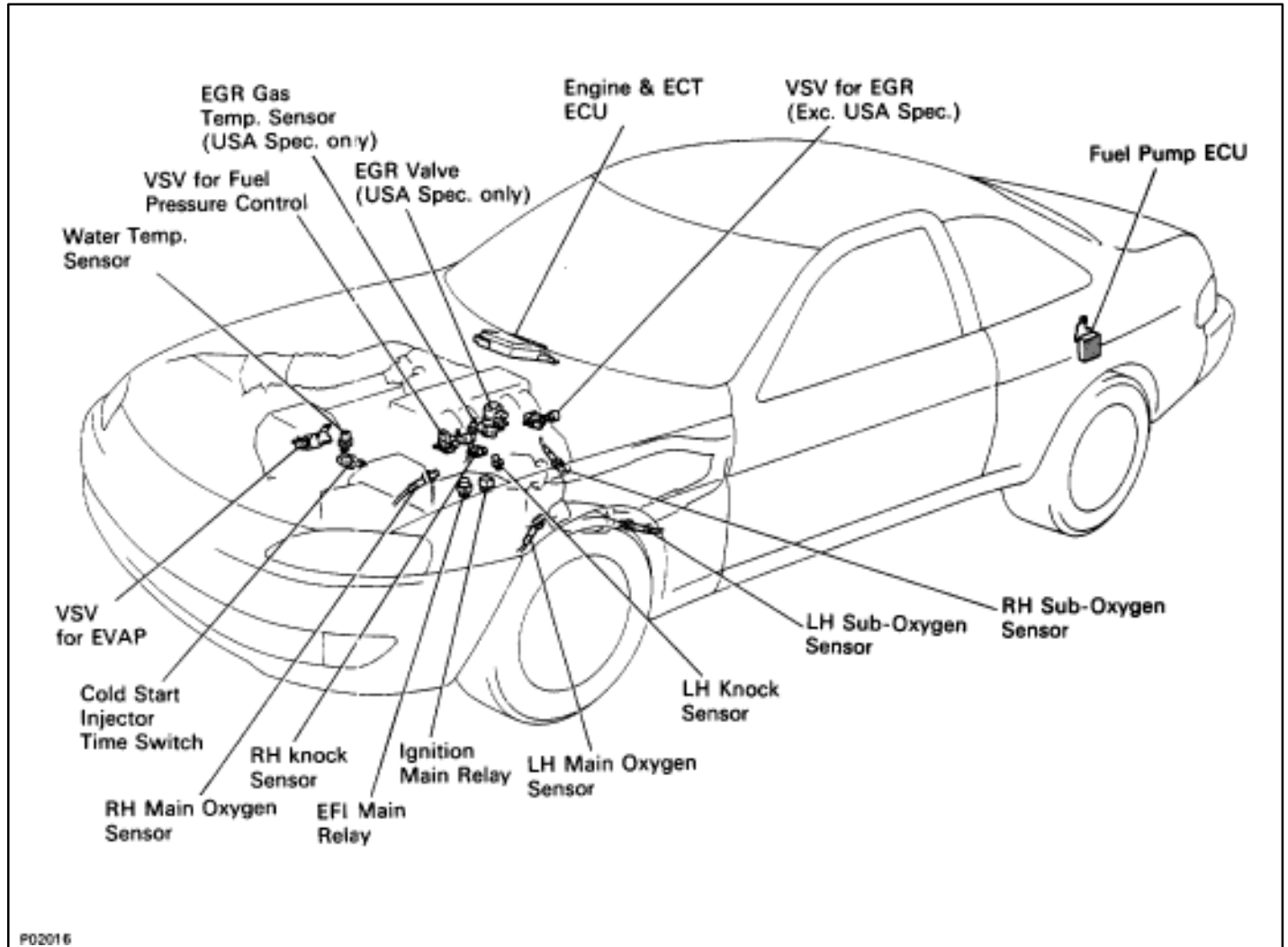
Air flow meter measures the air intake flow to the engine by the swirl frequency.

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

At air low temperature the ISC valve opens and the air flows through the ISC valve, as well as 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 air flow meter and increases the air intake 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 a ECU which determines the injection volume (timing) based on the signals from the sensors.

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

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