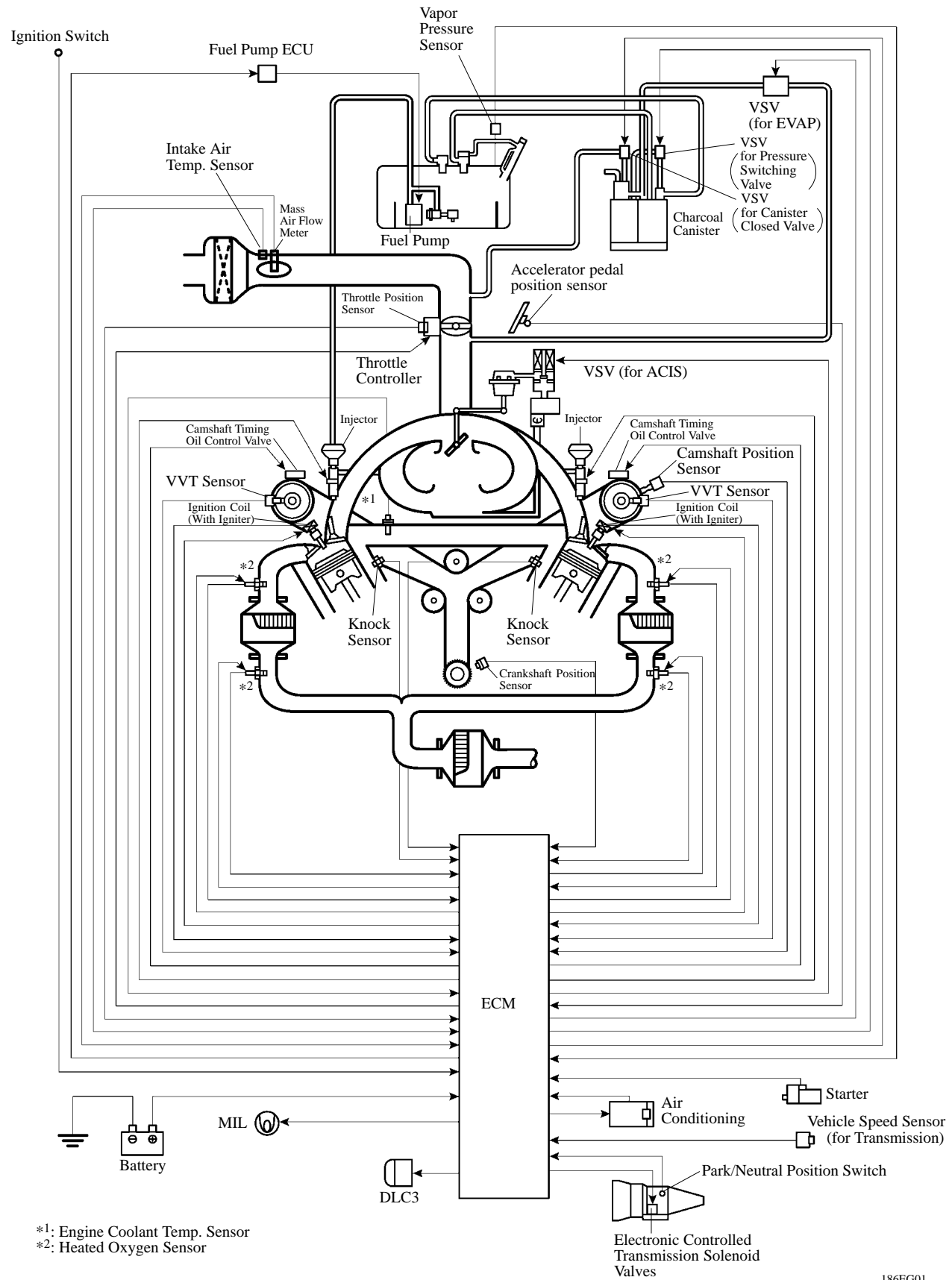
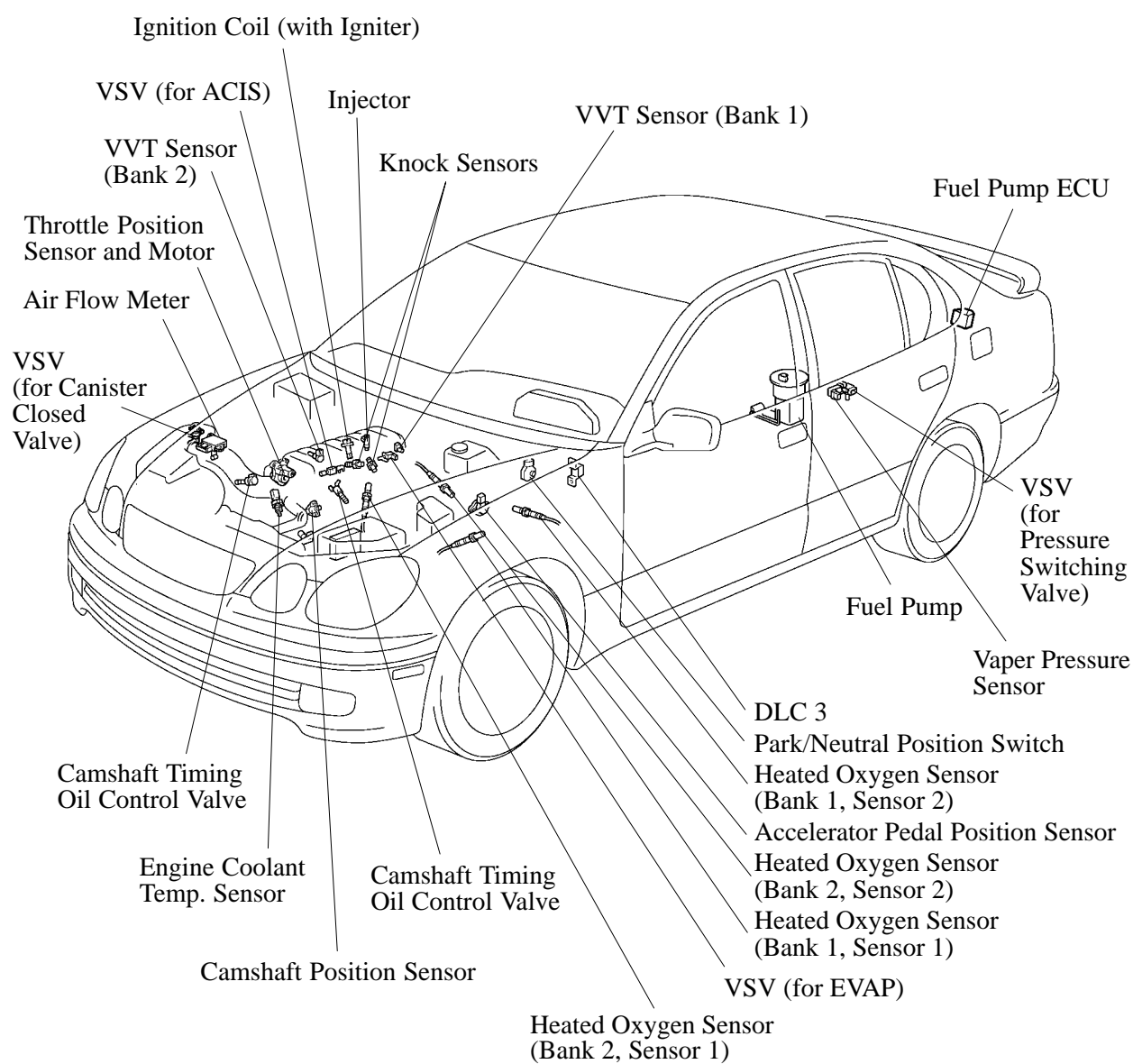


Engine Control System Diagram



Layout of Components

1



Main Components of Engine Control System

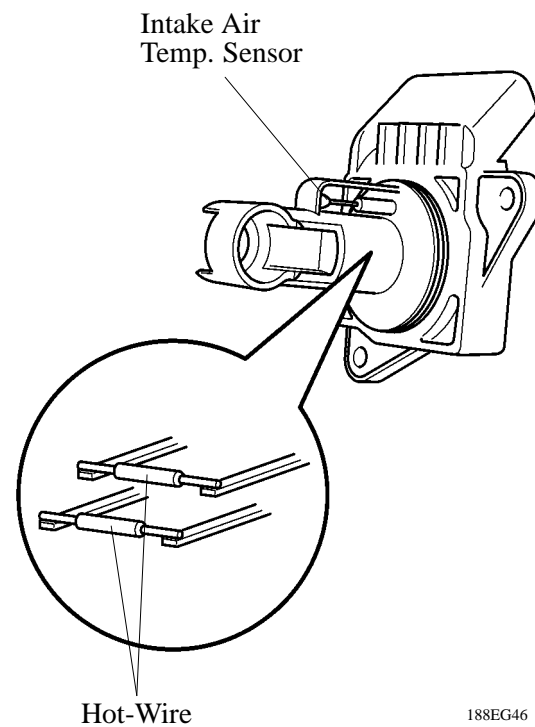
1) General

The following table compares the main components of the 3UZ-FE engine on the '01 GS430 and 1UZ-FE engine on the GS400.

Engine Type	3UZ-FE		1UZ-FE	
Components	Outline	Quantity	Outline	Quantity
Mass Air Flow Meter	Hot-Wire Type	1	←	
Crankshaft Position Sensor (Rotor Teeth)	Pick-Up Coil Type (36-2)	1	←	
Camshaft Position Sensor (Rotor Teeth)	Pick-Up Coil Type (1)	1	←	
VVT Sensor	Pick-Up Coil Type (3)	2	←	
Throttle Position Sensor	Linear Type	2	←	
Accelerator Pedal Position Sensor	Linear Type	2	←	
Knock Sensor	Built-In Piezoelectric Type	2	←	
Oxygen Sensor	Heated Oxygen sensor (Bank 1, Sensor 1) (Bank 2, Sensor 1) (Bank 1, Sensor 2) (Bank 2, Sensor 2)	4	←	
Injector	4-Hole Type with Air Assist	8	←	

2) Mass Air Flow Meter

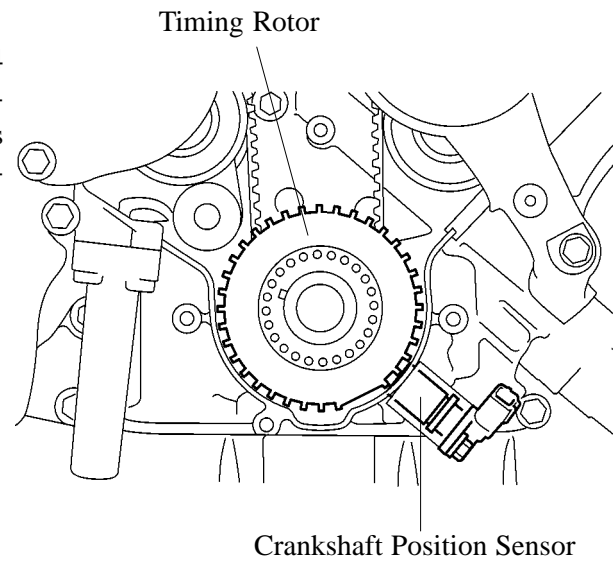
A hot-wire type air flow meter has been adopted. This air flow meter, which is a plug-in type, allows a portion of the intake air to flow through the detection area. By directly measuring the mass and the flow rate of the intake air, the detection precision has been improved and the intake air resistance has been reduced.



188EG46

3) Crankshaft Position Sensor

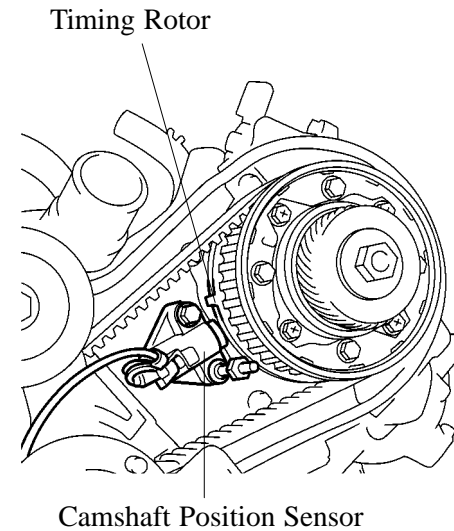
The timing rotor of the crankshaft consists of 34 teeth, with 2 teeth missing. The crankshaft position sensor outputs the crankshaft rotation signals every 10°, and the missing teeth are used to determine the top-dead-center.



151EG18

4) Camshaft Position Sensor

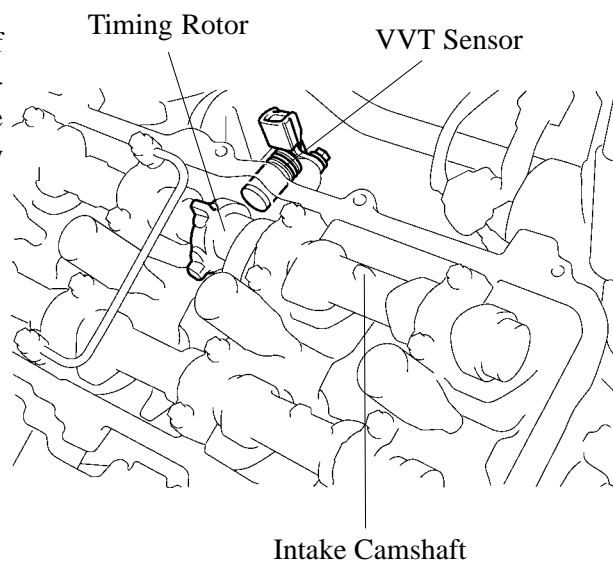
The camshaft position sensor is mounted on the left bank cylinder head. To detect the camshaft position, a protrusion that is provided on the timing pulley is used to generate 1 pulse for every 2 revolutions of the crankshaft.



151EG19

5) VVT Sensor

A VVT sensor is mounted on the intake side of each cylinder head. To detect the camshaft position, a timing rotor that is provided on the intake camshaft is used to generate 3 pulses for every 2 revolutions of the crankshaft.



151EG20