
EFI SYSTEM

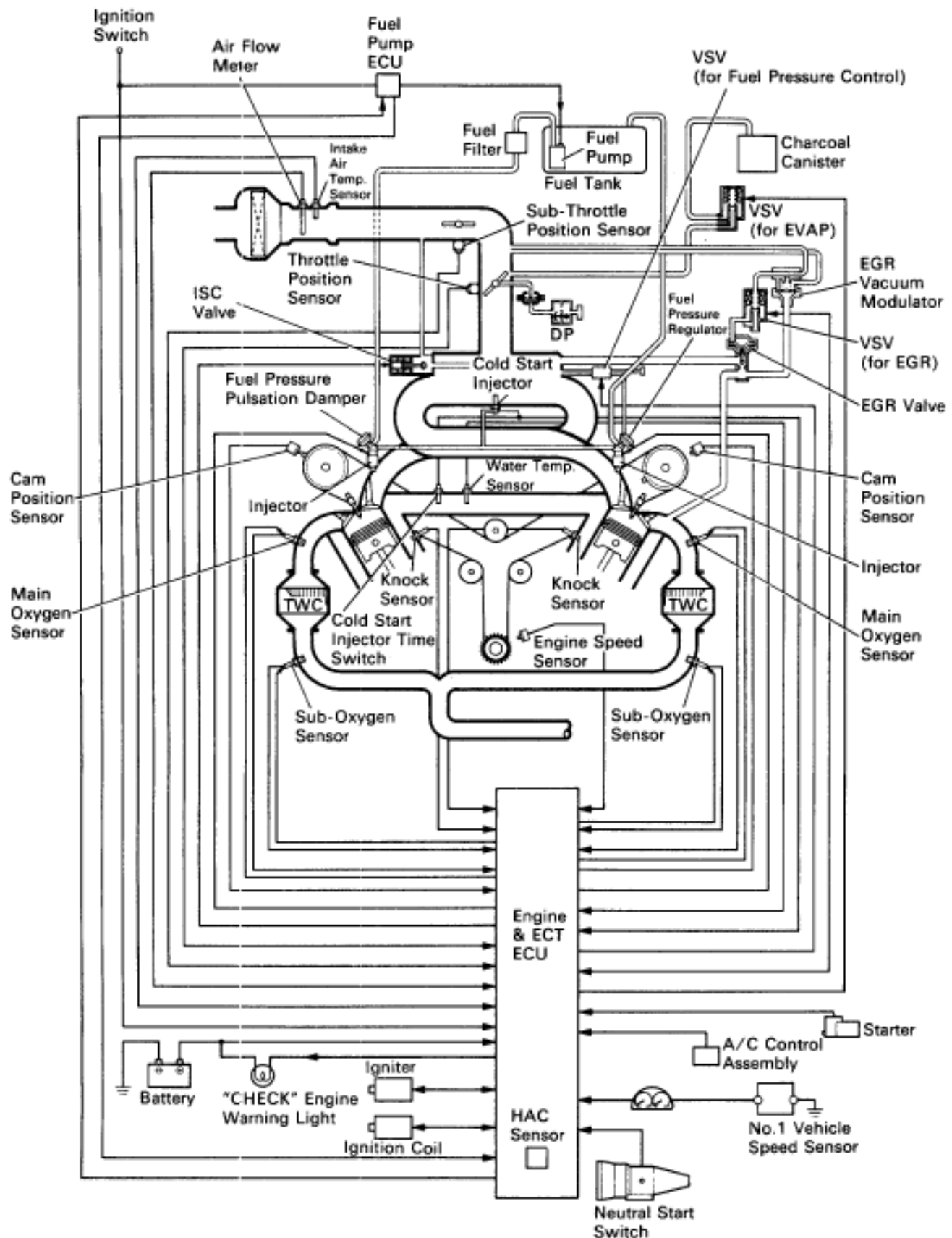
NOTE: The specification descriptions "**USA Spec.**" and "**Exc. USA Spec.**" used in this section indicate the following specifications.

USA Spec.: USA (50 States) Specifications

Exc. USA Spec.: USA (except California) and Canadian Specifications.

USA Spec.

Exc. USA Spec.



The EFI system is composed of three basic sub-systems: Fuel, Air Induction and Electronic Control Systems.

FUEL SYSTEM

An electric pump fuel pressure supplies sufficient fuel, under a constant pressure, to the EFI injectors. In accordance with signals from the ECU (Electronic Control Unit), these injectors inject the quantity of fuel most appropriate for the engine condition into the intake manifold.

AIR INDUCTION SYSTEM

The air induction system provides sufficient air for engine operation.

ELECTRONIC CONTROL SYSTEM

The 1UZ-FE engine (ECU-formerly EFI computer) with a microcomputer centrally controls the EFI, ESA, ISC and Diagnosis system, etc.

The ECU controls the following functions:

1. Electronic Fuel Injection (EFI)

The ECU receives signals from various sensors indicating changing engine operation conditions such as:

- Intake air volume
- Intake air temperature
- Coolant temperature
- Engine rpm
- Acceleration/deceleration
- Exhaust oxygen content etc.

The signals are utilized by the ECU to determine the injection duration necessary for an optimum air-fuel ratio.

2. Electronic Spark Advance (ESA)

The ECU is programmed with data for optimum ignition timing under any and all operating conditions. Using data provided by sensors which monitor various engine functions (rpm, coolant temperature, etc.), the Electronic Control Unit (ECU) triggers the spark at precisely right instant. (See IG section)

3. Idle Speed Control (ISC)

The ECU is programmed with idle speed data for various engine conditions (coolant temperature, air conditioner ON/OFF, etc.).

The air volume flowing through the throttle valve by-pass passage is adjusted according to the signal from each sensor and the idle speed is kept at the set value.

4. Diagnosis Function

When the ECU detects any malfunctions or abnormalities in the sensor network, it lights the "CHECK" engine warning light in the combination meter. At the same time, the trouble is identified and a diagnostic code is recorded by the ECU. The diagnostic code can be read by the number of blinks of the "CHECK" engine warning light when terminals TE1 and E1 are connected. The diagnostic codes are refer to the later page. (See TR section)

5. Self-Correction Function

If any sensor malfunctions, an average value recorded in the back-up circuit is substituted to make driving possible.

If danger is predicted, the engine is stopped and the "CHECK" engine warning light will light up.

6. Fail-Safe Function

Even if an abnormality occurs in the ECU, the back-up circuit uses a specified fuel injection and ignition timing to provide vehicle driveability, and also lightsup the "CHECK" engine warning light.