GENERATOR CONTROL [SKYACTIV-D 2.2]

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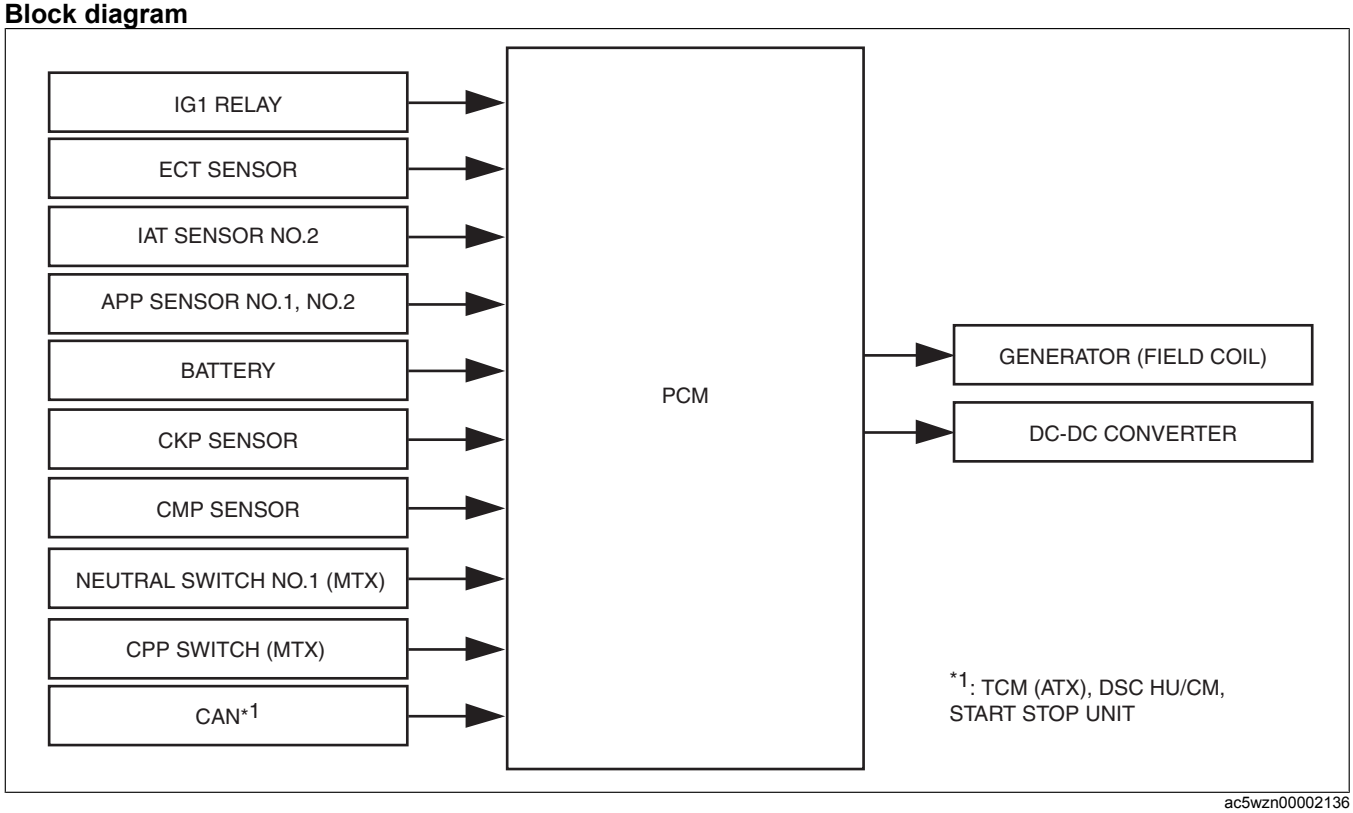
Outline

- Idling stability has been improved by optimum control of the generator voltage according to the engine operation and electrical load conditions.
- The PCM determines the engine operation and electrical load conditions based on the input signals from each control part to control the energization time of the generator field coils.

Block diagram



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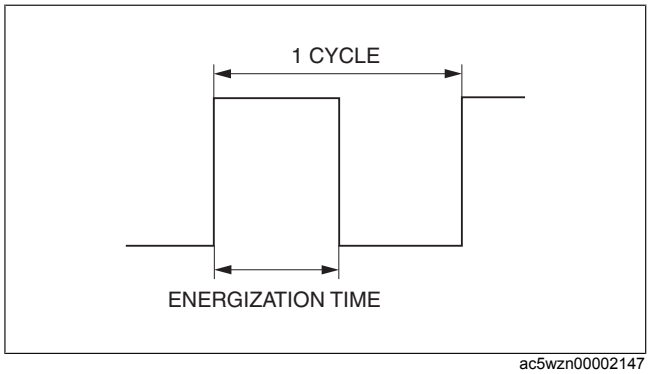
Operation

Determination method for target excitation current

- The battery condition is determined based on the current sensor signal, and the target excitation current is calculated according to the battery condition.
- If the current sensor is malfunctioning, the target excitation current is calculated from the generator target output amount (determined by intake air temperature, engine speed, and vehicle speed), and the actual generator rotation speed.

Determination method for field coil excitation time

- The field coil excitation current is increased and decreased by sending a duty signal to the power transistor built into the generator.
- The field coil energization current changes according to changes in the power transistor excitation time by changing the duty signal duty ratio. For example, when the battery positive voltage drops, the duty ratio of the duty signal sent to the power transistor is larger, increasing the field coil excitation current.
- During deceleration fuel-cut, the PCM increases the generator voltage and stores electricity in the battery. At times other than deceleration, the PCM enables electric discharge from the battery to reduce the generator load.
- Directly after the engine is started, the generator load is decreased by charging only to the necessary level according to the battery conditions without charging the battery to the maximum.



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