■ ENGINE CONTROL SYSTEM

1. General

The engine control system for the N04C-TQ engine has the following features. The basic construction and operation are the same as that of the previous models.

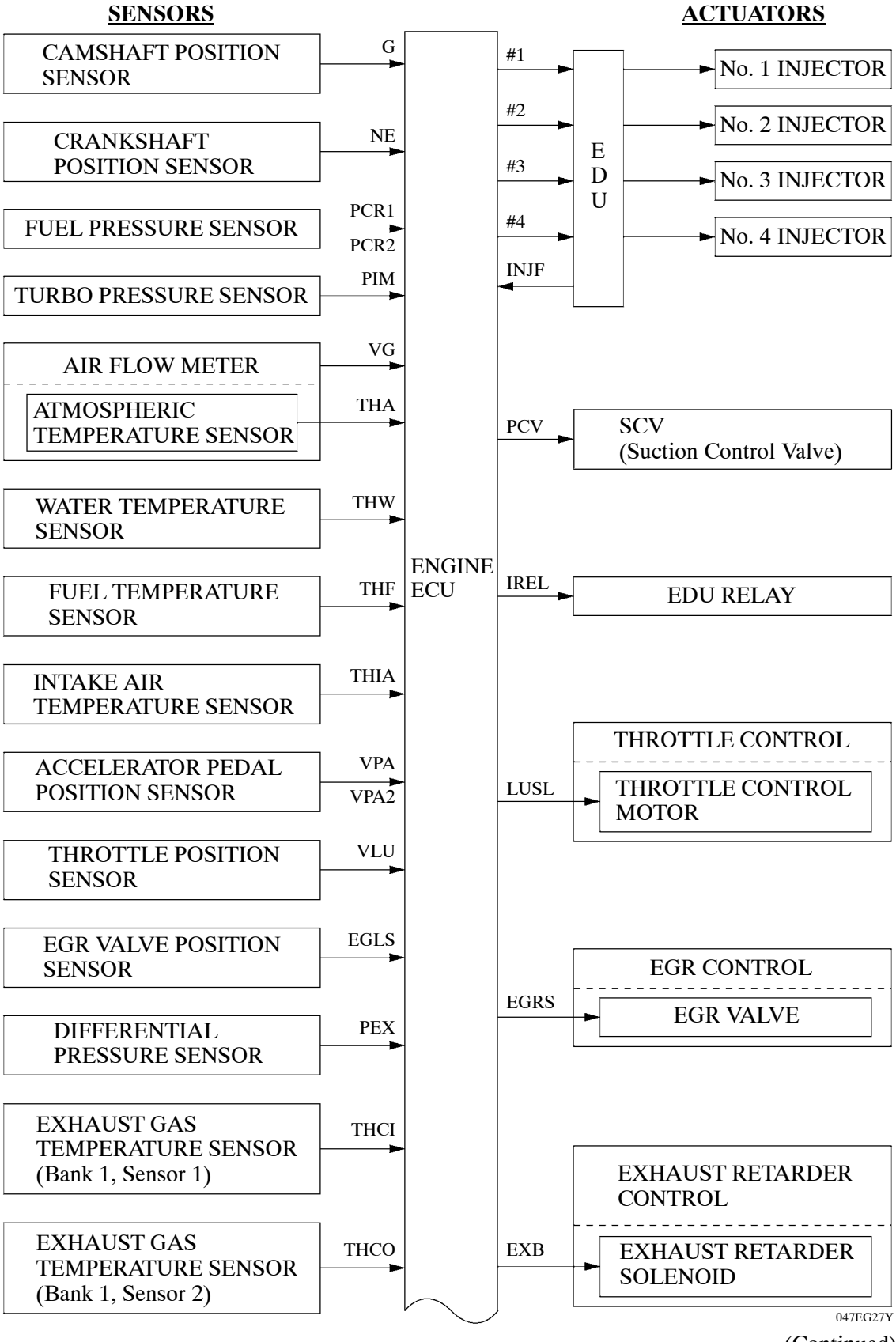
System	Outline
Fuel Injection Volume Control	Controls the injection volume by calculating an optimal level in accordance with the conditions of the engine.
Engine Torque Control	Controls the engine torque when driving in the 1st or reverse gear.
Pilot Injection Control	Provides an auxiliary fuel injection.
Fuel Injection Timing Control	Controls the injection timing by calculating optimal fuel injection timing in accordance with the conditions of the engine.
Fuel Pressure Control	Controls the fuel pressure by sending signals to the suction control valve of the supply pump in accordance with the operating conditions of the engine.
Throttle Control	Controls the extent of the opening of the throttle valve in accordance with the engine conditions.
	Controls the intake throttle mechanism, which is provided upstream of the EGR valve, to an opening that is suited to the driving conditions.
Idle Speed Control	Controls the idle speed by calculating the target speed in accordance with the conditions of the engine.
Idle Speed Fluctuation Stabilization Control	Detects the fluctuations of the engine speed for each cylinder and makes injection volume corrections.
Air Conditioner Cut-off Control	Cuts off the air conditioner during acceleration to ensure proper drivability.
EGR Control	Controls the volume of exhaust gas recirculation in accordance with the driving conditions.
Exhaust Retarder Control (See page 16)	Closes the exhaust retarder valve in order to apply the engine brake.
	Closes the exhaust retarder valve when the engine is idling for a long time, in order to reduce the HC in the DPR catalytic converter.
DPR (Diesel Particulate Reduction) Control	Based on the signals received from various sensors, the engine ECU controls the common-rail system in order to burn the PM that is captured in the filter with catalyst.
Diagnosis	If a malfunction occurs in the system, this function illuminates an indicator light to alert the driver. Also, it is possible to diagnose the area of the malfunction by shorting the terminals.
Fail-Safe	If a failure occurs in the sensor signals, this function continues control through the use of the standard values stored in the engine ECU, or causes the engine to stop.

: On the new models, the operating condition of the exhaust brake will differ depending on the presence of an exhaust brake switch.

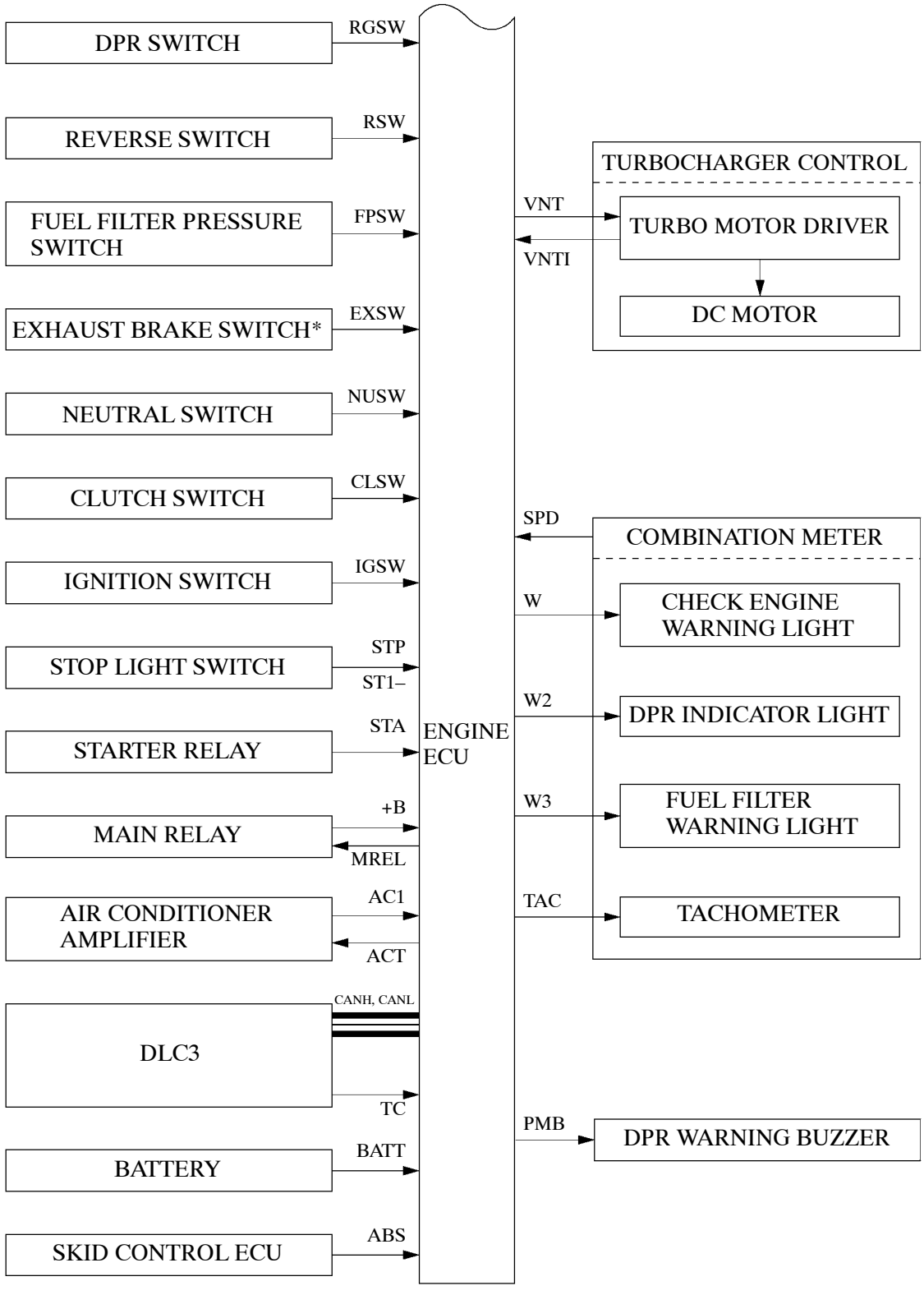
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2. Construction

The configuration of the engine control system in the N04C-TQ engine on the new Coaster is as shown in the following chart.



(Continued)



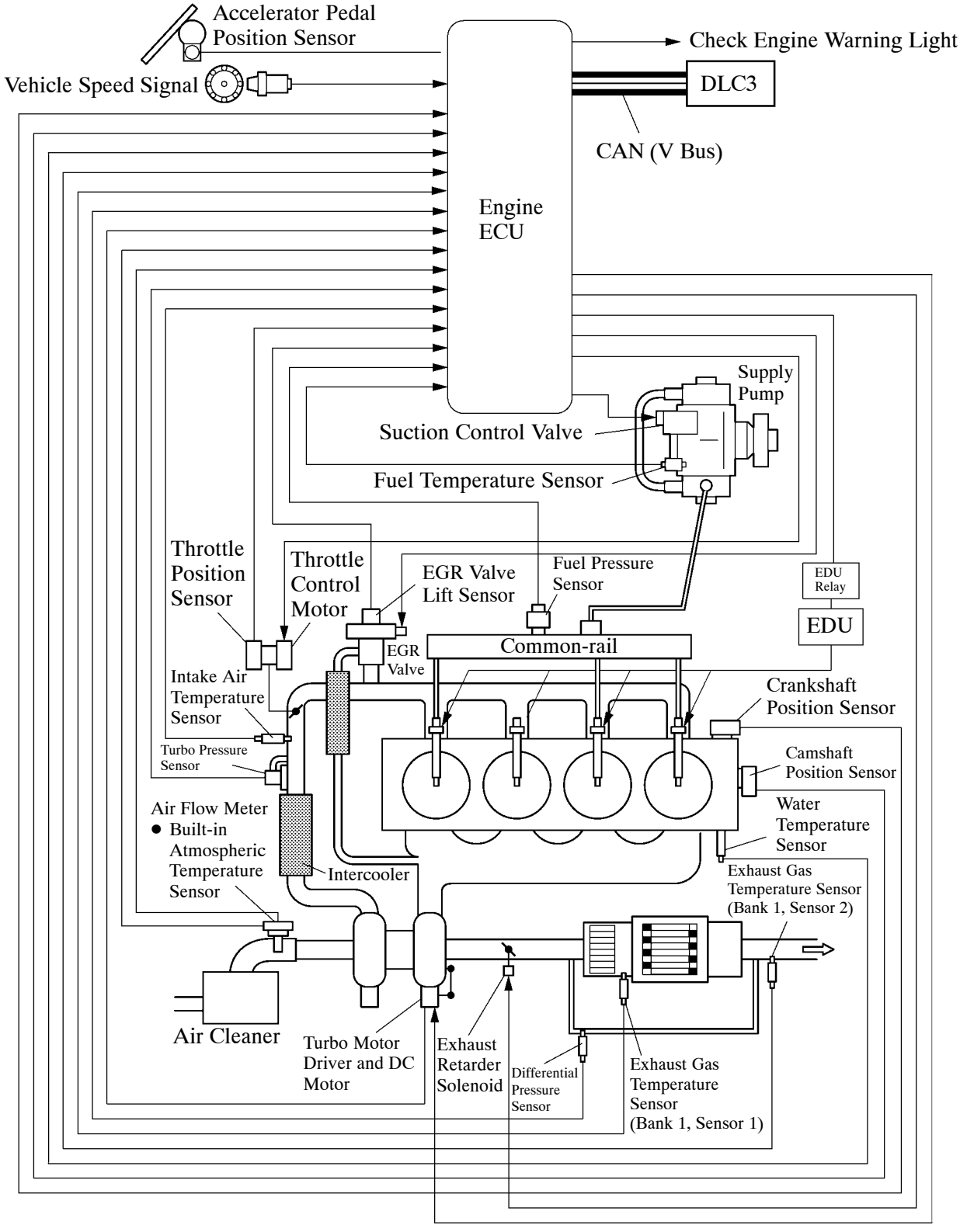
: CAN (V Bus)

*: Except Standard Wheel Base Models

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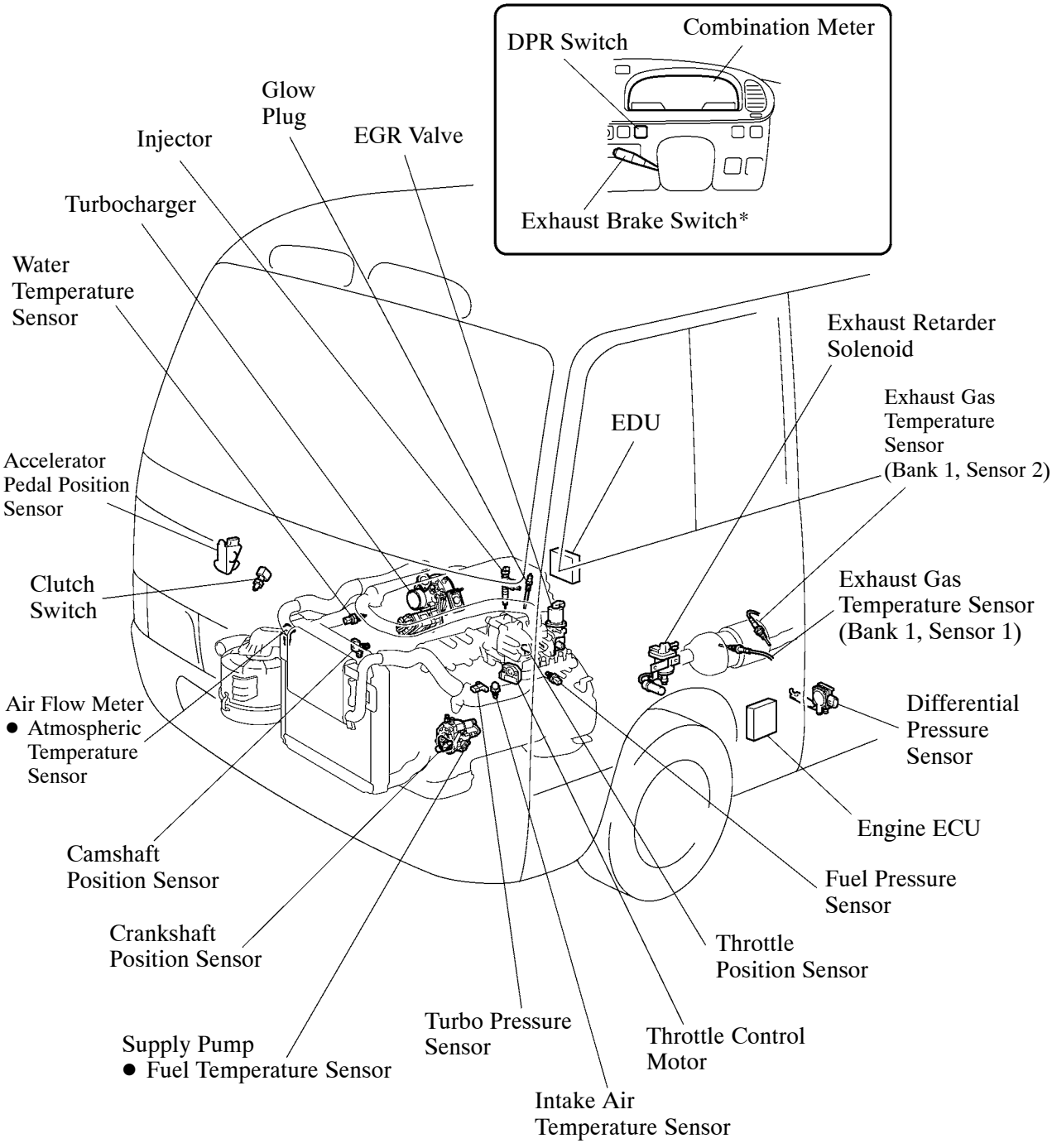
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3. System Diagram



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4. Layout of Main Components



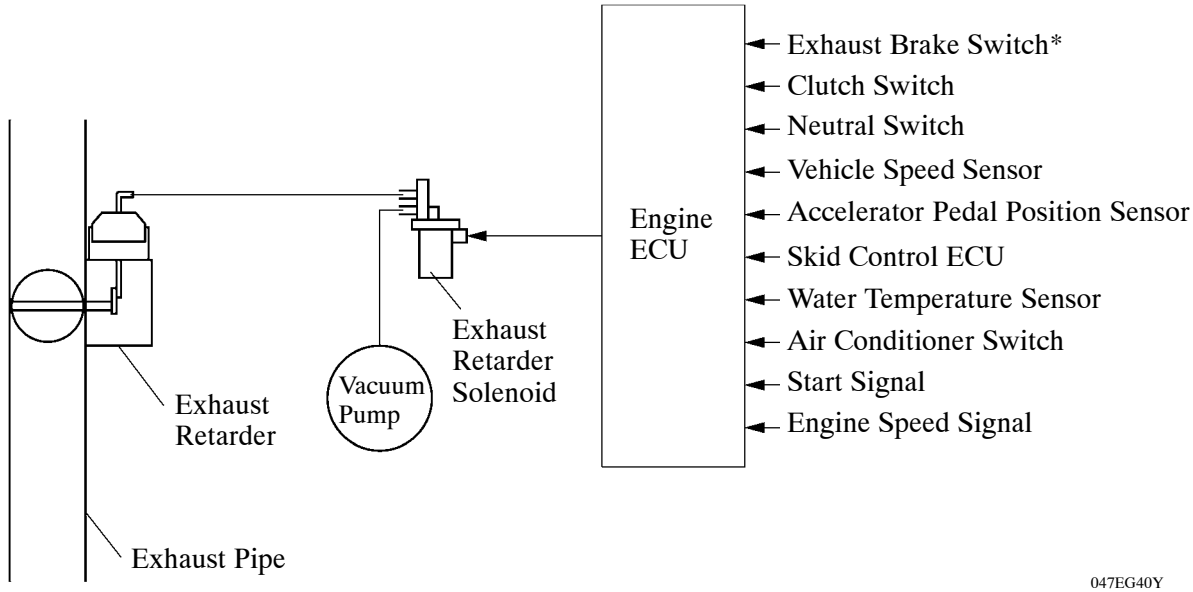
RHD Models

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*: Except Standard Wheel Base Models

5. Exhaust Retarder Control

- The engine braking effect is boosted by closing a valve provided in the exhaust pipe and narrowing the exhaust gas passage. The stop lights illuminate when this function operates.
- When the engine idles for a long period of time, unburned HC accumulates in the DPR catalytic converter. This causes white smoke to be emitted when the vehicle starts off. For this reason, the system effects longtime idling control to reduce HC. This control raises the idle speed and closes the exhaust retarder valve when the engine idles for a long time.



▶ System Components and Functions ◀

Component	Function
Exhaust Retarder Solenoid	Switches between atmospheric pressure and negative pressure applied to the vacuum cylinder, opening and closing the exhaust retarder valve.
Exhaust Brake Switch*	Pulling the exhaust brake switch (incorporated in the wiper control switch) toward the driver switches the exhaust retarder to a standby state and causes the indicator light in the combination meter to illuminate.
Clutch Switch	Detects clutch engagement according to clutch pedal operation; depressing the clutch pedal turns off current to exhaust retarder solenoid.
Neutral Switch	Detects engagement of neutral or any other gear.
Vehicle Speed Sensor	Built into speedometer; detects vehicle speed and sends it to the engine ECU.

*: Except Standard Wheel Base Models

▶ Objective and Operating Condition for Exhaust Retarder ◀

Objective	Operating Condition
Exhaust Brake	● Exhaust brake switch is ON.*1 ● Clutch is not operating. ● Accelerator pedal is not operating. ● Vehicle speed is more than predetermined value. ● Transmission is not neutral. ● ABS is not operating.
Long-time Idling Control	● Vehicle is stopped. ● Engine is idling for long time. ● Clutch is not operating. ● Accelerator pedal is not operating. ● Transmission is neutral.
DPR Control*2	Vehicle is stopped with idling during DPR catalytic converter cleaning mode.

*1: Except Standard Wheel Base Models

*2: The basic construction and operation are the same as that of the previous models.