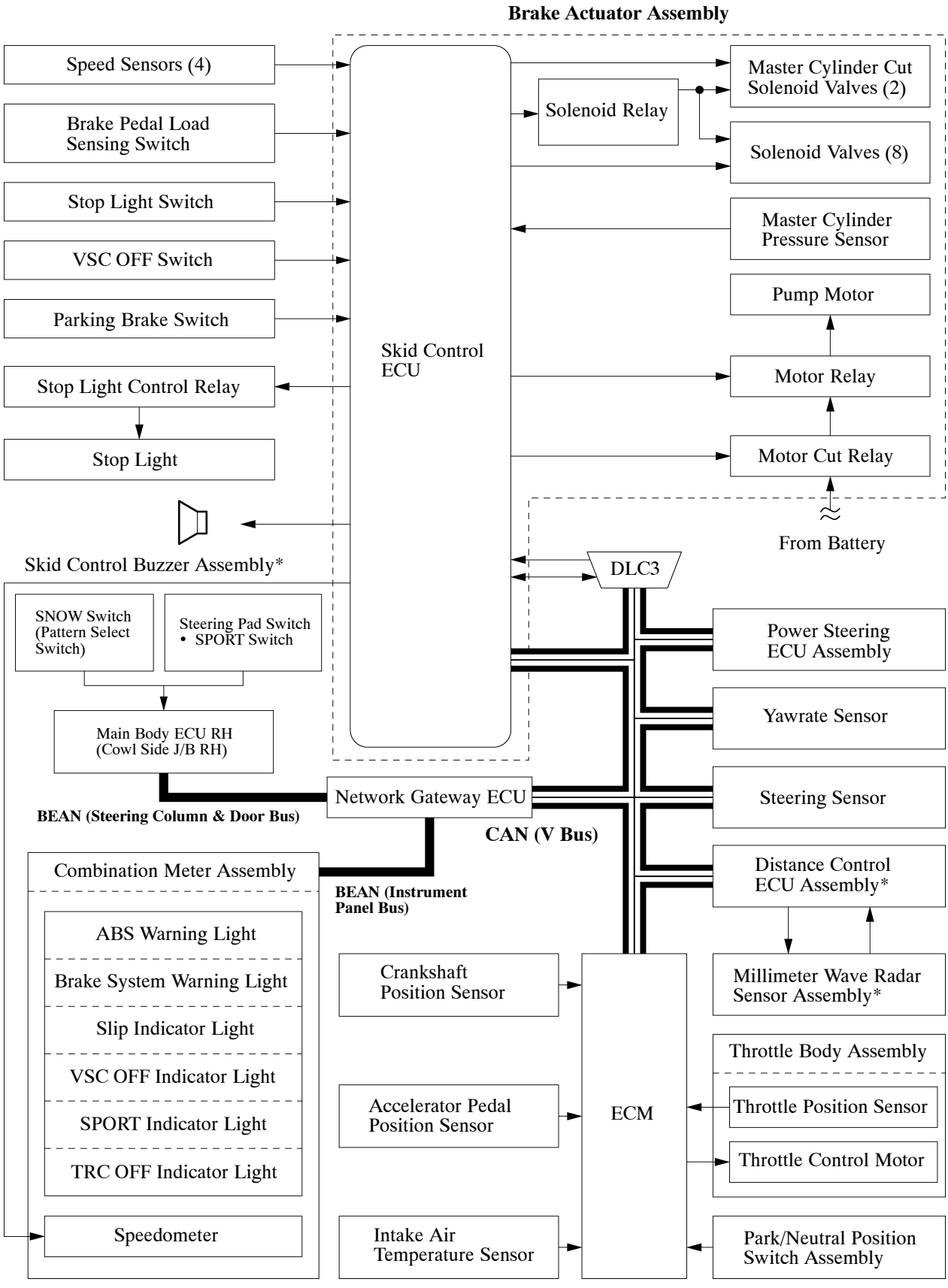
■VEHICLE DYNAMICS INTEGRATED MANAGEMENT (VDIM)

1. Major Difference

The sounding of the skid control buzzer assembly during VSC operation has been discontinued for all models. The skid control buzzer assembly of models without the dynamic radar cruise control system has been discontinued.

2. System Diagram

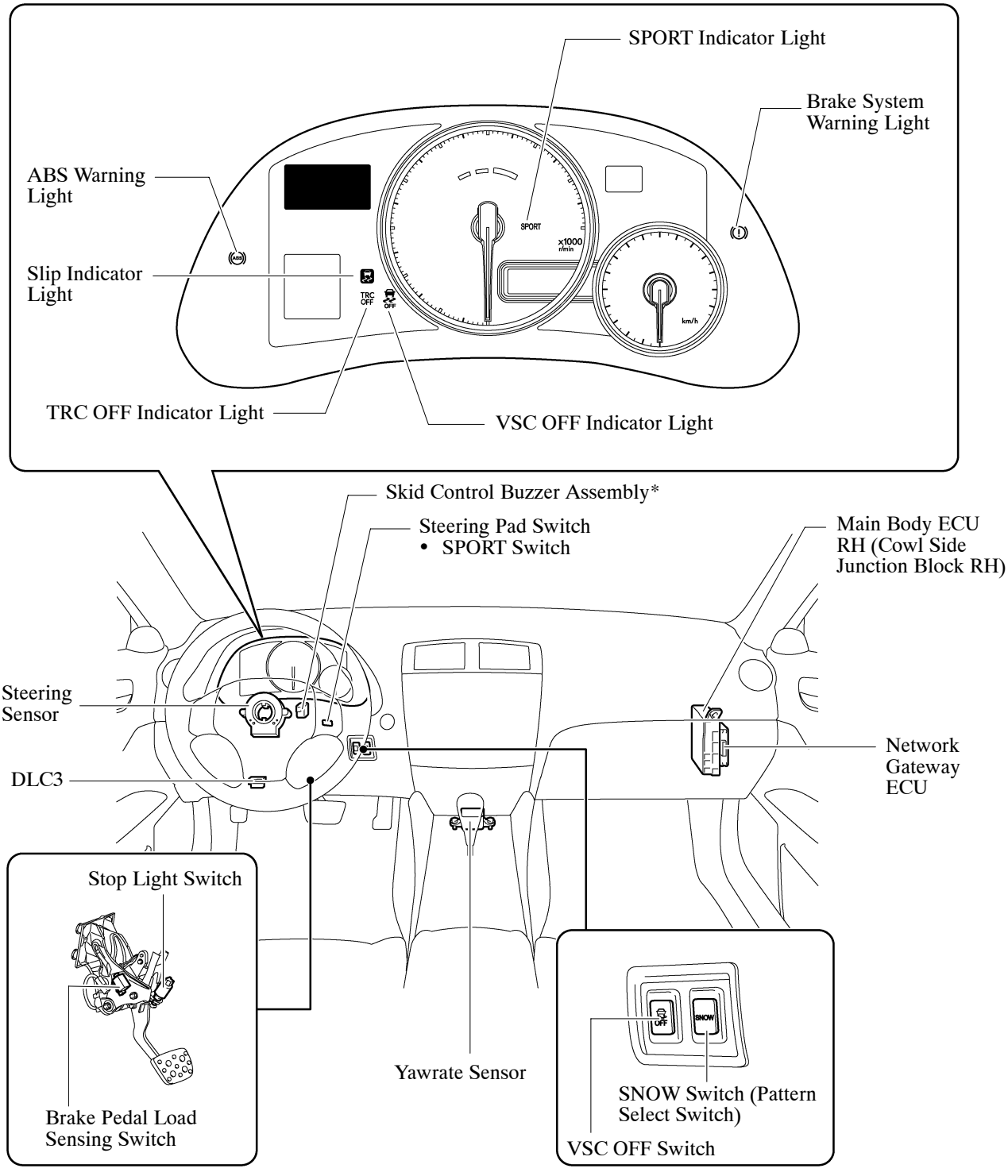


*: Models with Dynamic Radar Cruise Control

1670NF06C

3. Layout of Main Component

Combination Meter Assembly

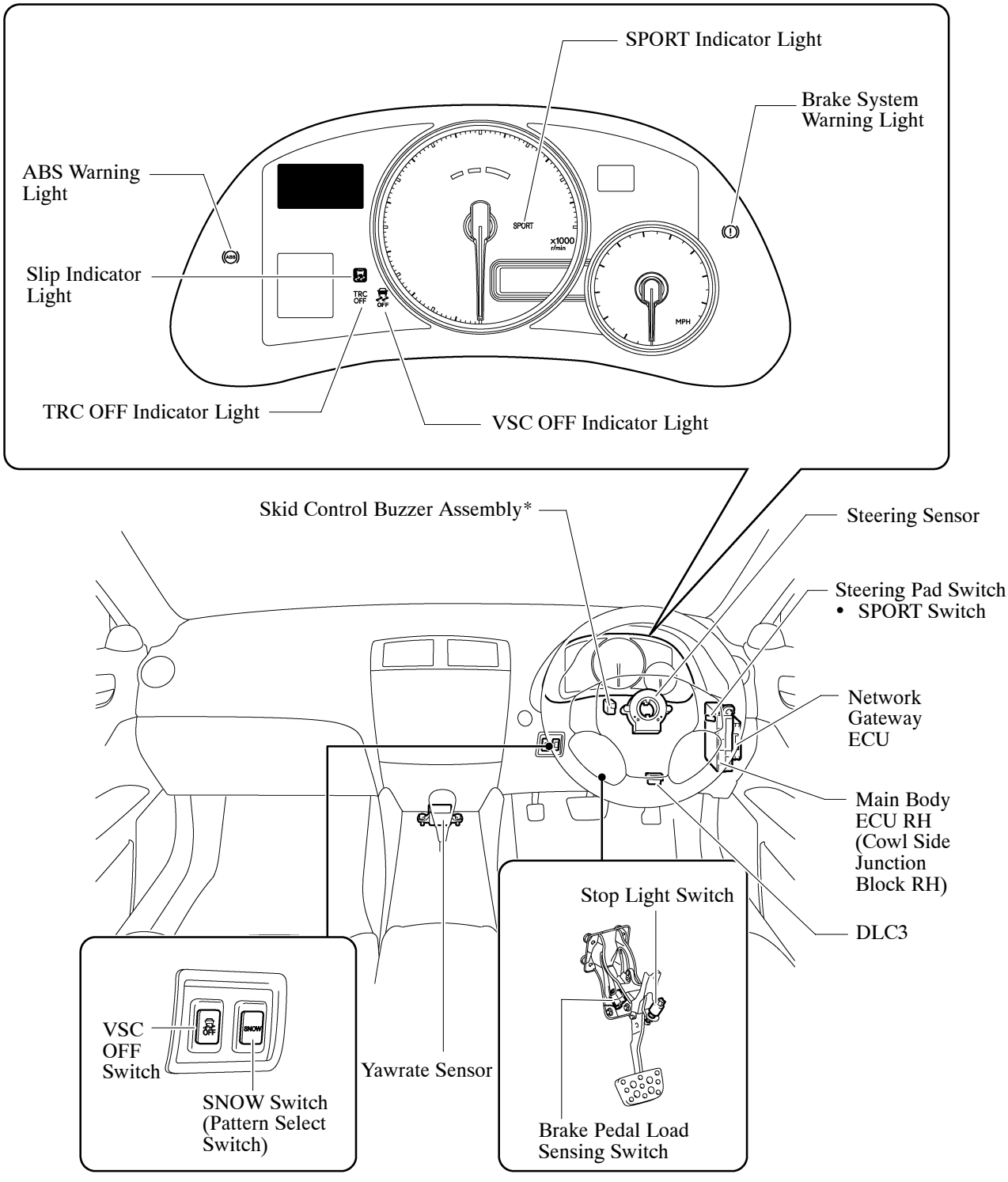


*: Models with Dynamic Radar Cruise Control

08E3NF06C

LHD Models

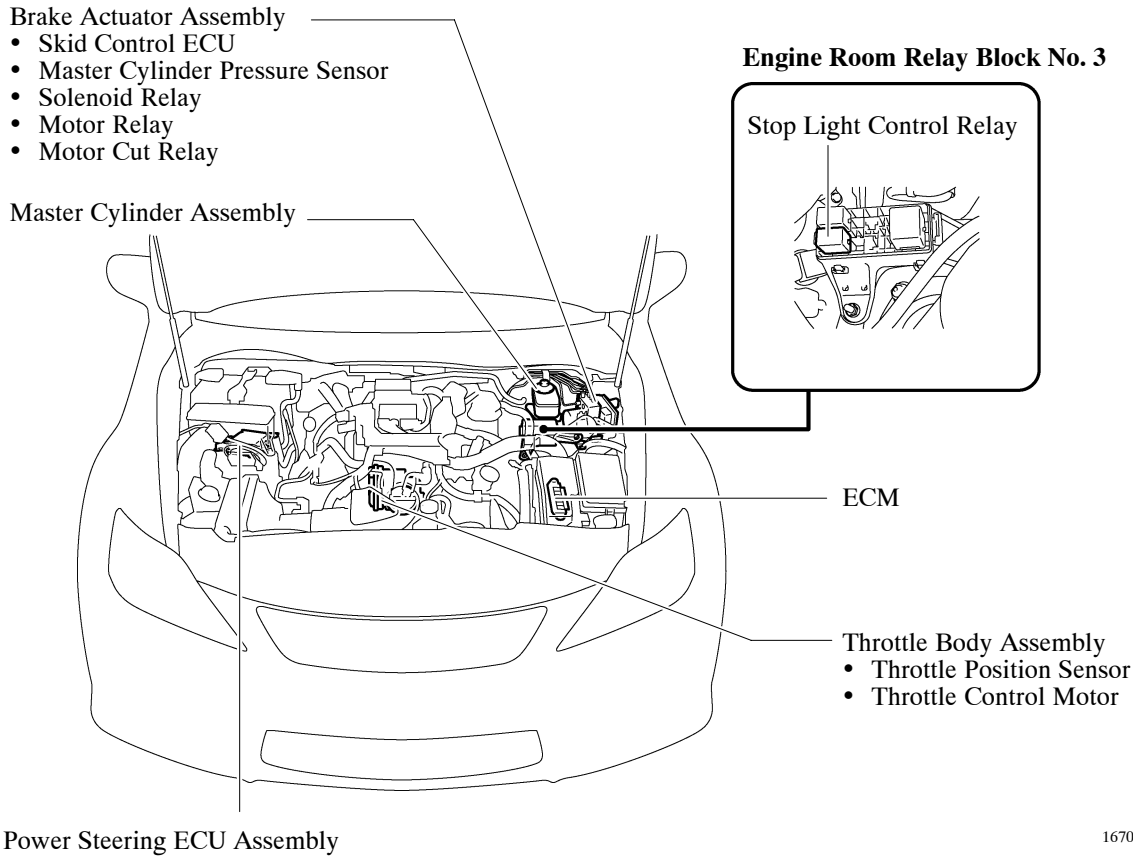
Combination Meter Assembly



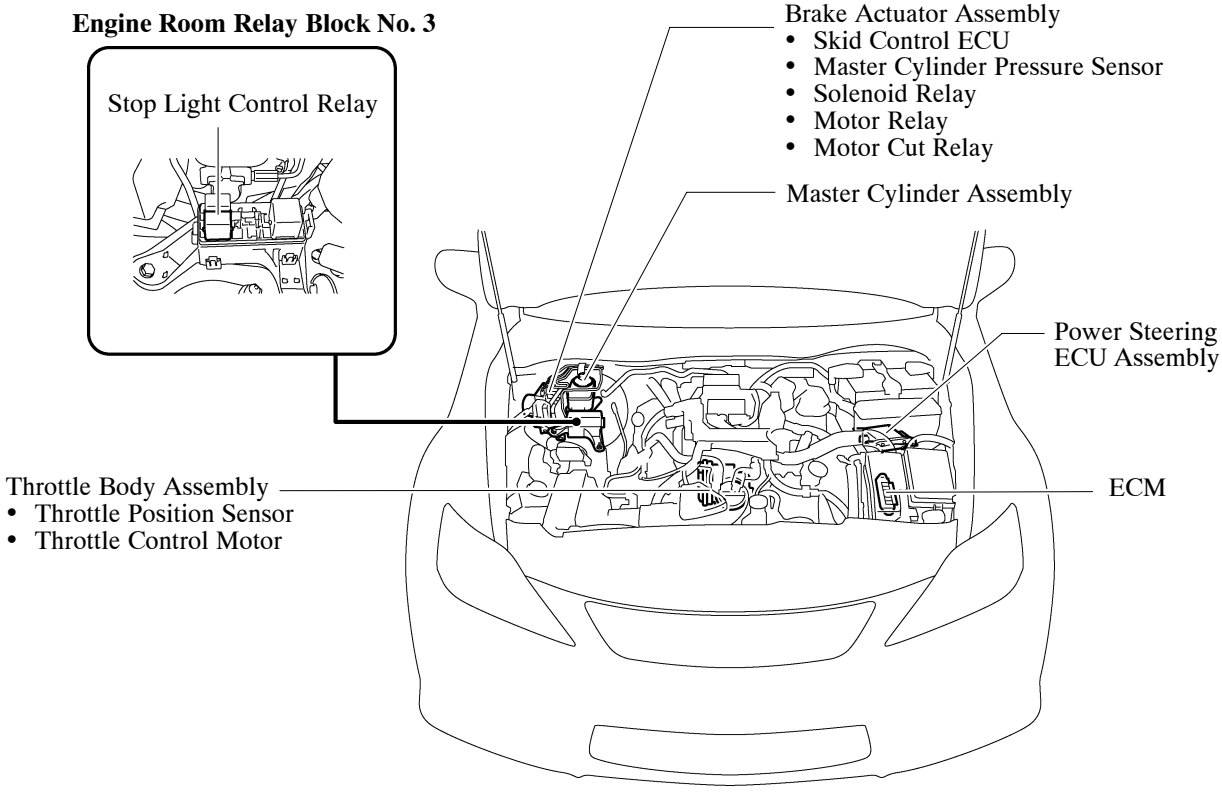
*: Models with Dynamic Radar Cruise Control

08E3NF07C

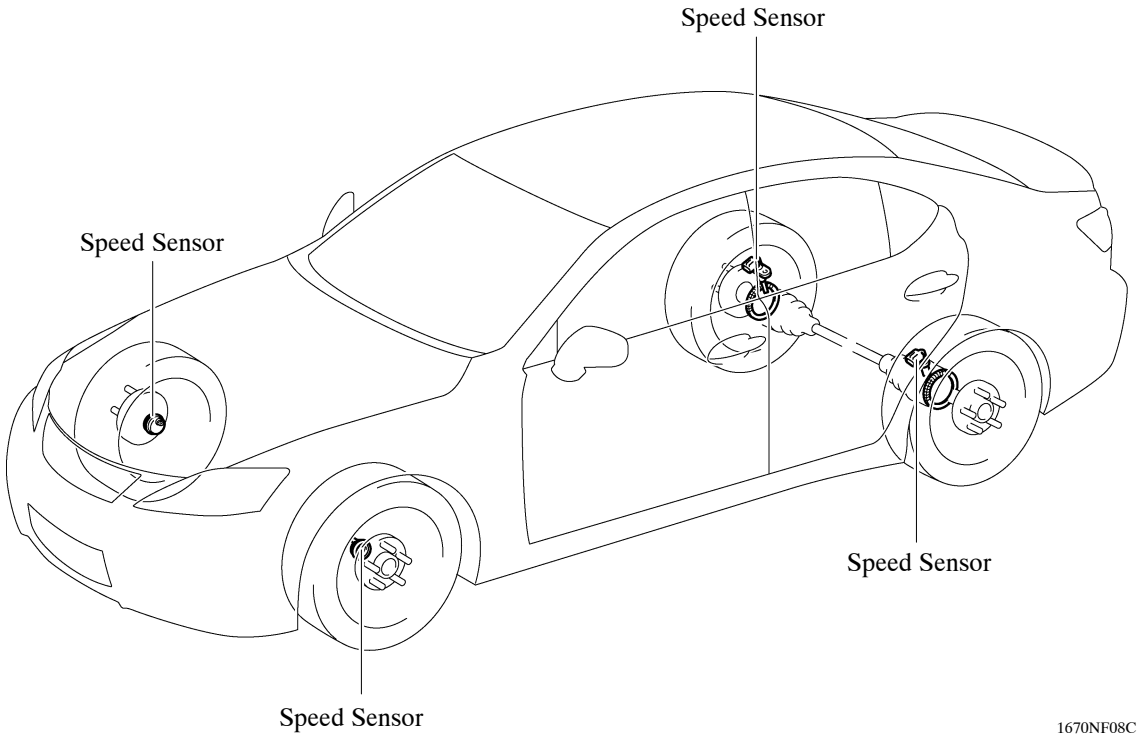
RHD Models



LHD Models



RHD Models


Speed Sensor
Speed Sensor
Speed Sensor
Speed Sensor
1670NF08C

4. Function of Main Components

: Changed

Component		Function
Combination Meter Assembly	ABS Warning Light	Lights up to alert the driver when the skid control ECU detects a malfunction in the ABS, EBD or Brake Assist system.
	Slip Indicator Light	• Blinks to inform the driver when the TRC system, VSC system or Hill-start Assist Control operates. • Lights up to alert the driver when the skid control ECU detects a malfunction in VSC, TRC or Hill-start Assist Control.
	Brake System Warning Light	• Lights up together with the ABS warning light to alert the driver when the skid control ECU detects a malfunction in EBD control or when a malfunction of the brake booster is detected. • Lights up to alert the driver when the brake fluid level is low. • Lights up to alert the driver when the parking brake pedal is depressed.
	VSC OFF Indicator Light	Lights up to inform the driver when the VSC is turned off using the VSC OFF switch.
	TRC OFF Indicator Light	Lights up to inform the driver when the TRC is turned off using the VSC OFF switch.
	SPORT Indicator Light	Lights up to inform the driver when SPORT mode is turned on using the steering pad switch (SPORT switch).
Brake Actuator Assembly	Skid Control ECU	Judges the vehicle driving conditions based on the signals from each sensor, and sends brake control signals to the brake actuator.
	• Solenoid Valve • Master Cylinder Cut Solenoid Valve	Changes the fluid path based on the signals from the skid control ECU during brake control system operation in order to control the fluid pressure applied to each wheel cylinder.
	Master Cylinder Pressure Sensor	Located in the brake actuator to detect the master cylinder pressure.
	Solenoid Relay	Supplies power to the solenoid valves.
	Motor Relay	Supplies power to the pump motor in the brake actuator.
	Motor Cut Relay	Cuts the power to the pump motor in the brake actuator.
Speed Sensors (4)		Detects the wheel speed of all 4 wheels.
Yawrate Sensor		• Detects the vehicle's yaw rate. • Detects the vehicle's longitudinal and lateral acceleration.
Steering Sensor		Detects the steering direction and angle of the steering wheel.
Stop Light Control Relay		Turns on the stop lights during Hill-start Assist Control or dynamic radar cruise control system operation.
Skid Control Buzzer Assembly*		Emits an intermittent sound to inform the driver that the distance control ECU transmitted a brake request signal to the skid control ECU.
Millimeter Wave Radar Sensor Assembly*		Emits millimeter waves forward, and uses the reflected millimeter waves to measure the distance and the direction of the object in front, as well as to calculate the relative speed.
Brake Pedal Load Sensing Switch		Detects the brake pedal depressing force.
SNOW Switch (Pattern Select Switch)		Allows the VDIM control mode to be switched to SNOW mode.
Steering Pad Switch	SPORT Switch	Allows the VDIM control mode to be switched to SPORT mode.

*: Models with Dynamic Radar Cruise Control

(Continued)

Component	Function
VSC OFF Switch	Cancels TRC or VSC operation only: it does not apply to other systems.
Parking Brake Switch	Detects parking brake application.
Stop Light Switch	Detects brake application.
Park/Neutral Position Switch Assembly	Detects the “D” position.
ECM	• Sends the throttle valve angle signal, accelerator pedal position signal, engine speed signal, and intake air temperature signal to the skid control ECU. • Receives an engine output adjustment command signal from the skid control ECU. Based on this signal, the ECM operates the throttle valve to control engine output.
Power Steering ECU Assembly	Receives a steering torque assist command signal from the skid control ECU during steering coordination control. Based on this signal, the power steering ECU assembly operates the motor for electric power steering to provide a level of steering assist that will allow the driver to operate the steering so as to stabilize the vehicle.
Distance Control ECU Assembly*	Transmits a signal to the skid control ECU via the ECM, in order to activate brake control when the ECU has determined that the distance to the vehicle being driven ahead has been shortened based on signals from the millimeter wave radar sensor assembly.

*: Models with Dynamic Radar Cruise Control

5. VSC Operation

The VSC, by way of solenoid valves, controls the fluid pressure that is generated by the pump and applies it to the brake wheel cylinder of each wheel in the following 3 modes: pressure reduction, pressure holding, and pressure increase modes. As a result, the tendency of the vehicle to experience a front wheel skid or rear wheel skid is controlled.

▶ System Diagram ◀