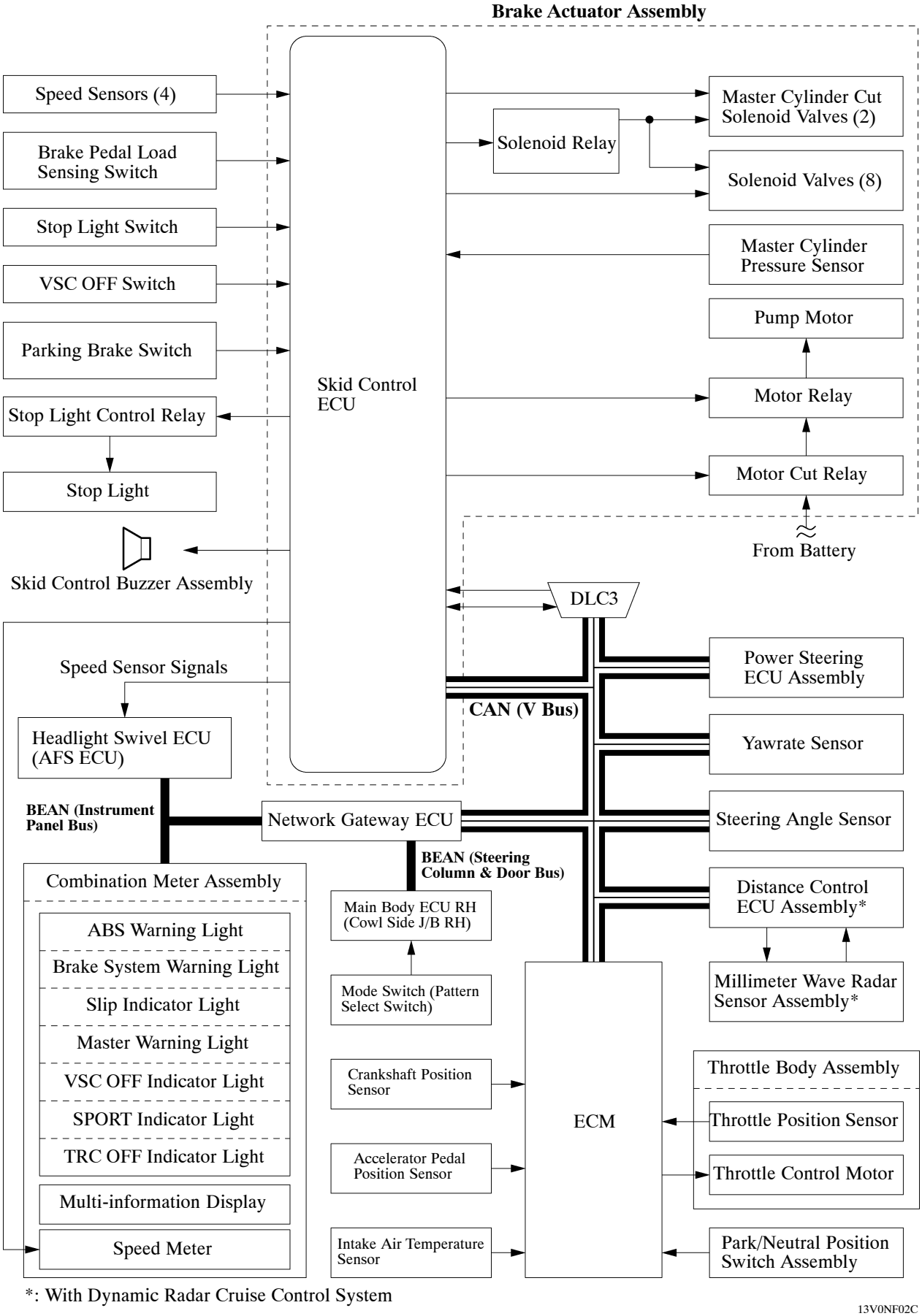
NEW FEATURES

■ BRAKE CONTROL SYSTEM

1. Brake Actuator Assembly

- The skid control ECU is built into the brake actuator.
- The indication of the TRC and VSC system stand-by state that results from VSC OFF switch operation has been changed along with addition of a TRC OFF indictor light.

2. System Diagram

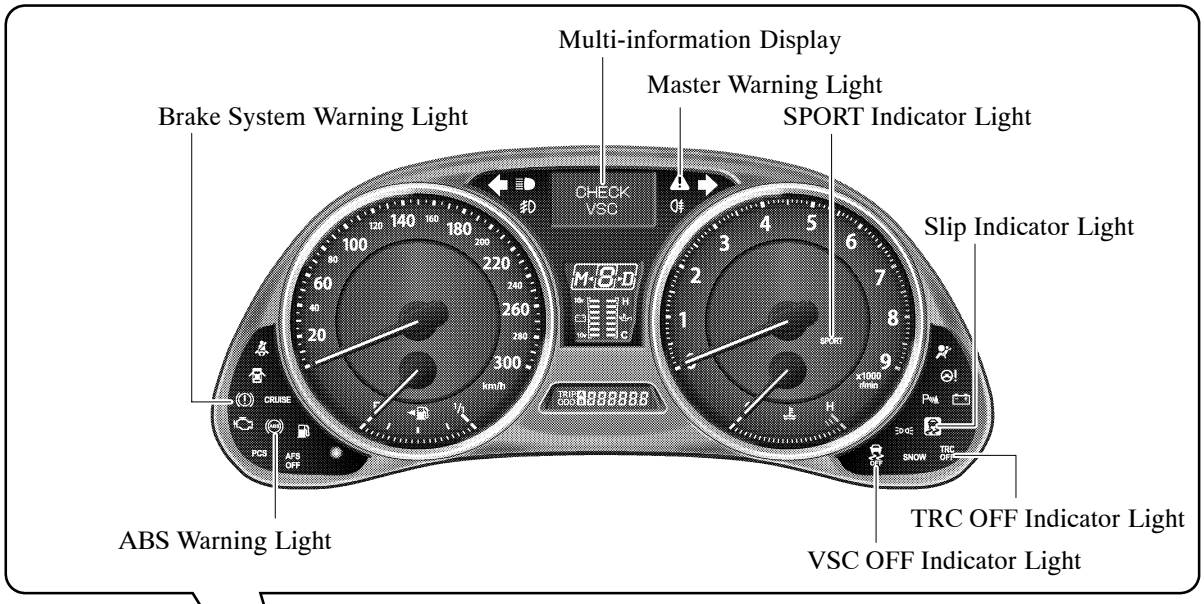


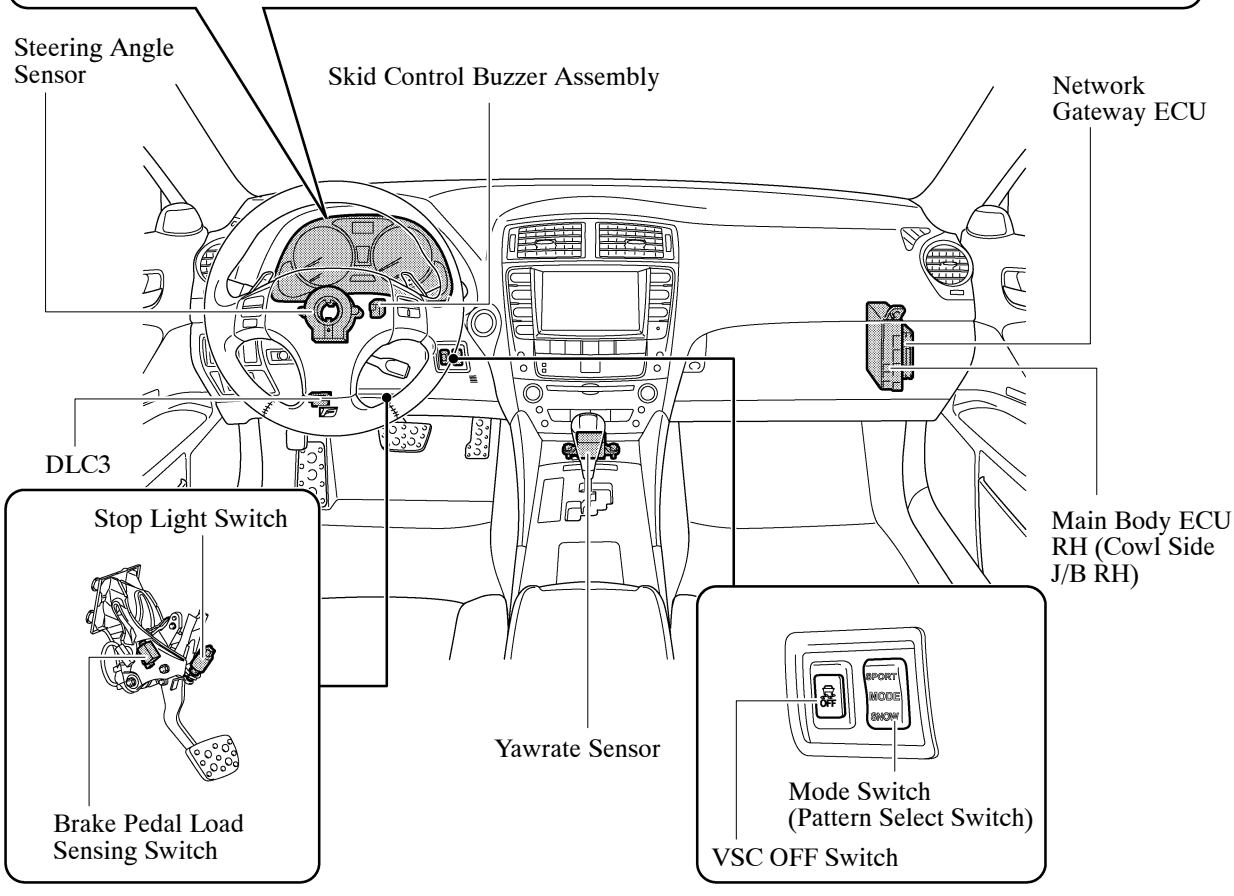
*: With Dynamic Radar Cruise Control System

13V0NF02C

3. Layout of Main Components

Combination Meter Assembly

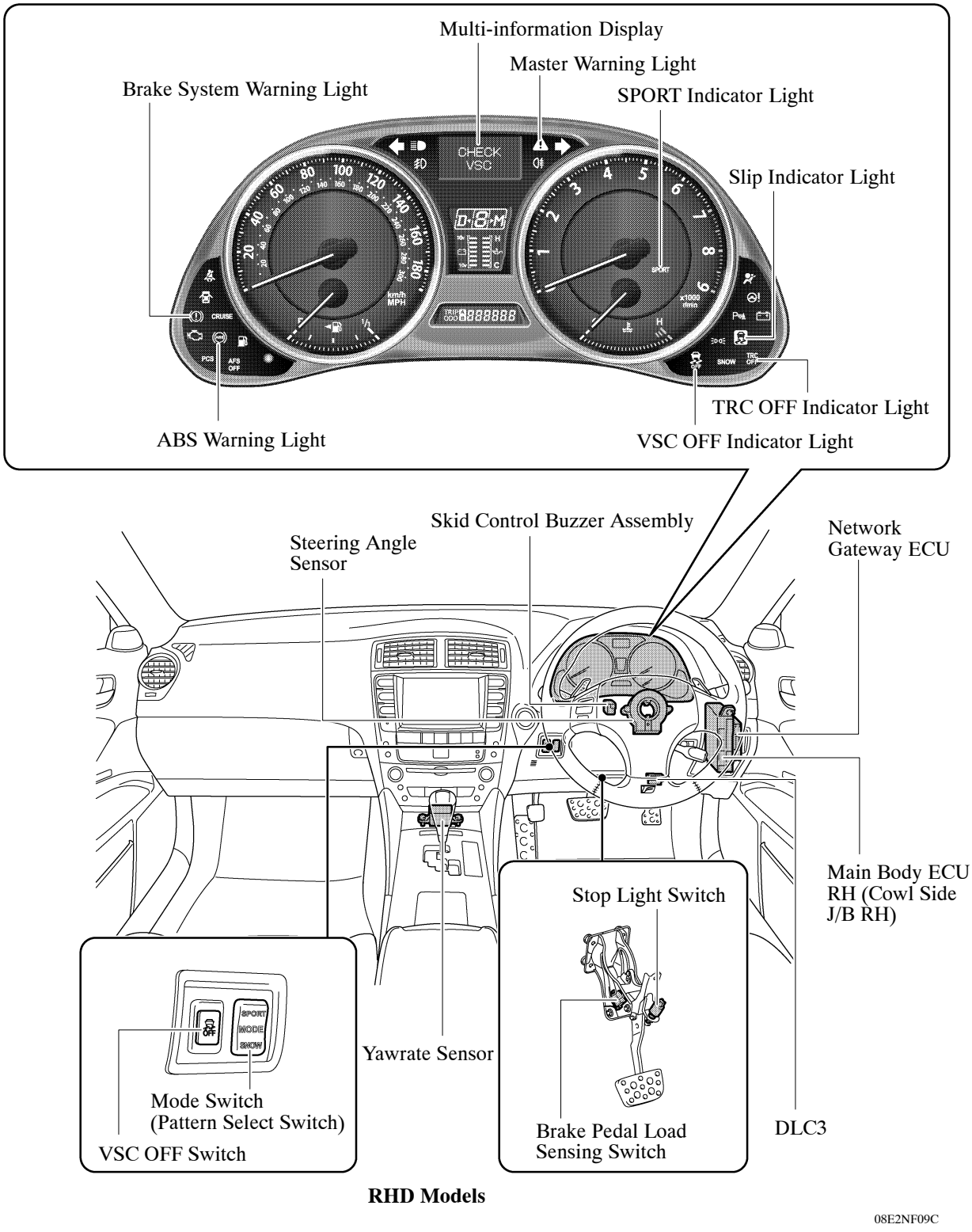




LHD Models

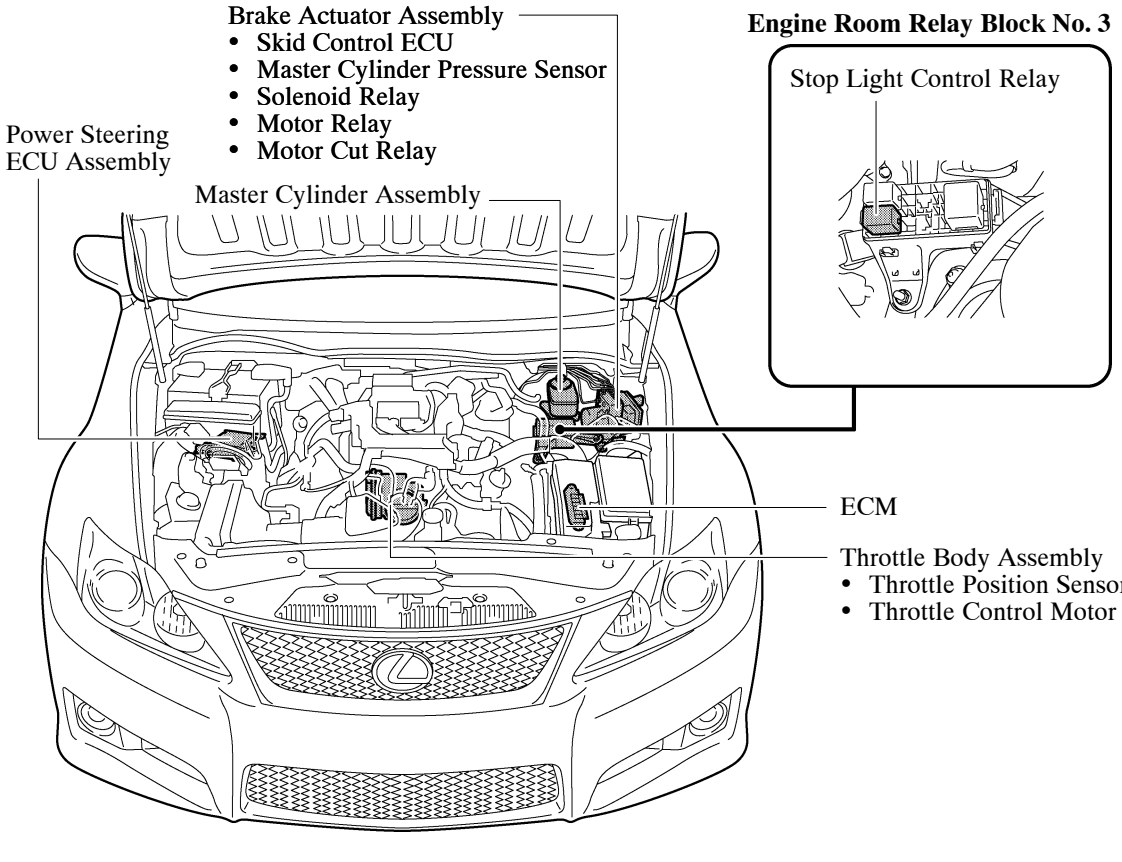
08E2NF08C

Combination Meter Assembly

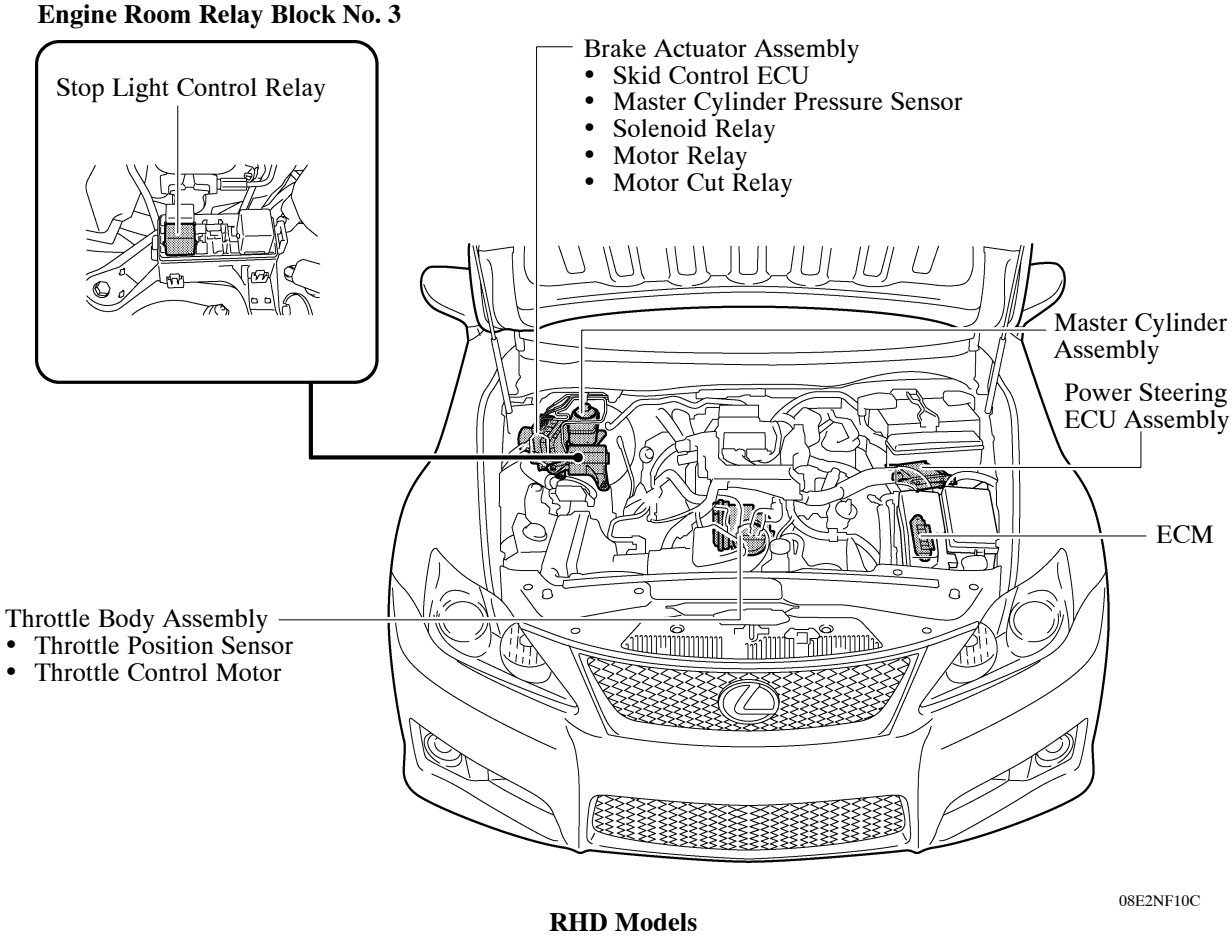


RHD Models

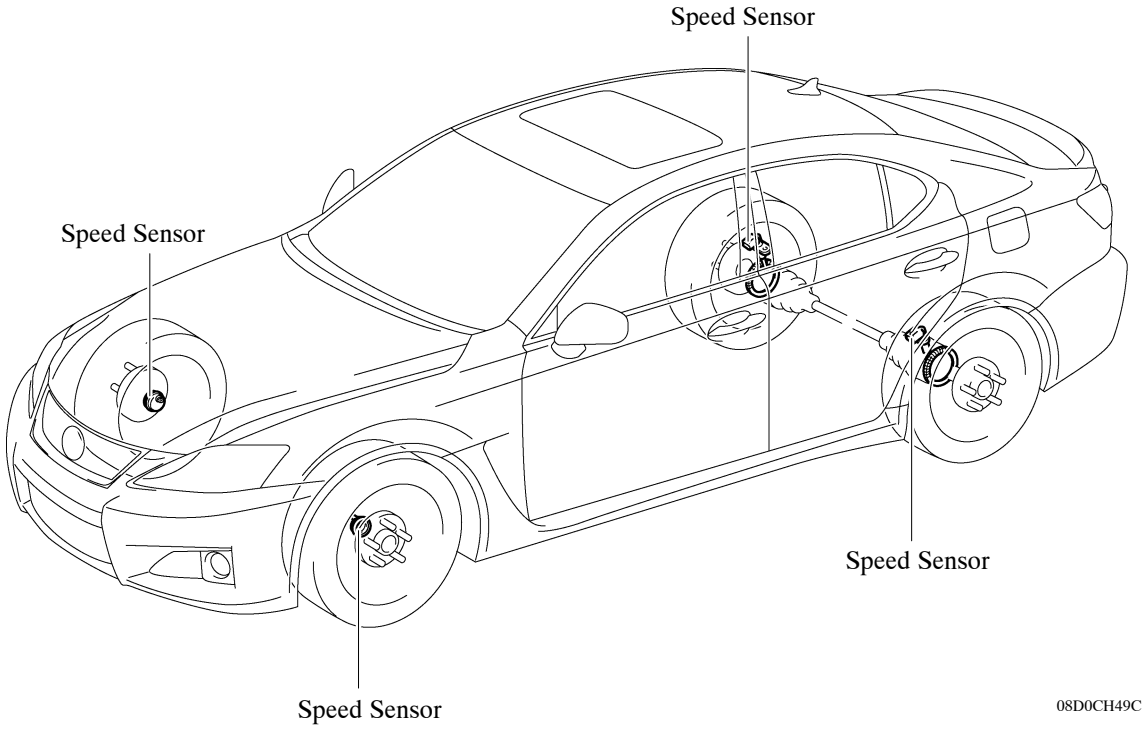
08E2NF09C



LHD Models



RHD Models


Speed Sensor
Speed Sensor
Speed Sensor
Speed Sensor
08D0CH49C

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	• Links to inform the driver when the TRC system, VSC system or the Hill-start Assist Control is operated. • Light up to alert the driver when the skid control ECU detects a malfunction in the VSC, TRC and 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 the EBD control or when a malfunction occurs in the brake booster. • 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.
	Master Warning Light	Illuminates to alert the driver when the skid control ECU detects a malfunction in the TRC or VSC system.
	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 mode switch (pattern select switch).
	Multi-information Display	Displays a warning message “CHECK VSC” to alert the driver when the skid control ECU detects a malfunction in the TRC or VSC system.
Brake Actuator Assembly	Skid Control ECU	Judges the vehicle driving condition based on the signals from each sensor, and sends the 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 the operation of the brake control system functions 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.

*: Models with Dynamic Radar Cruise Control

(Continued)

Component	Function
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	Turn on the stop light 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 skid control ECU detects a strong front skid tendency or a strong rear skid tendency.
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.
Mode Switch (Pattern Select Switch)	Allows the VDIM control mode to be switched between two modes (SPORT mode and NORMAL mode).
VSC OFF Switch	Cancels TRC or VSC operation only: it does not apply to other systems.
Parking Brake Switch	Detects parking brake pedal application.
Stop Light Switch	Detects brake pedal 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.
Headlight Swivel ECU (AFS ECU)	Receives front speed sensor signals that are output from the skid control ECU.
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 OFF Switch

The TRC and VSC systems can be turned on/off while driving the vehicle.

- TRC and VSC cannot be turned on/off in the following situations:
  - The TRC and VSC systems cannot be turned off while TRC or VSC is operating.
  - The TRC and VSC systems cannot be turned on while the vehicle is slipping with the TRC or VSC turned off.
- The slip indicator light, TRC OFF indicator light, VSC OFF indicator light and skid control buzzer assembly illuminate or sound as shown in the following table:

Indicator Light		**Slip Indicator Light**	**TRC OFF Indicator Light**	**VSC OFF Indicator Light**
		13V0NF08C	08E2NF11C	13V0NF07C
When the VSC OFF switch is pressed	TRC is turned off	-	Illuminates	-
When the VSC OFF switch is pressed and held (for approximately 3 seconds or more)	VSC is turned off	-	Illuminates	Illuminates
When the VSC is operating		Flashes + Buzzer	-	-
When the VSC is malfunctioning		Illuminates	-	-