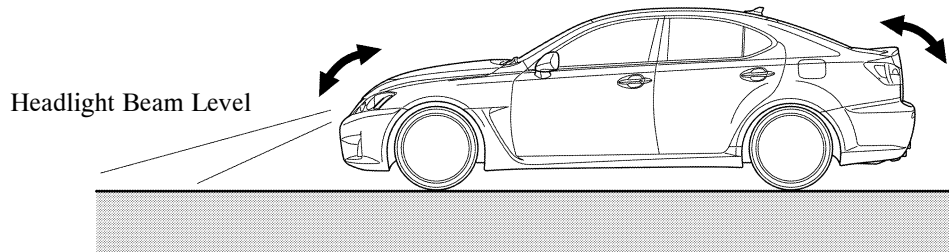


## ■ AUTOMATIC HEADLIGHT BEAM LEVEL CONTROL SYSTEM

### 1. General

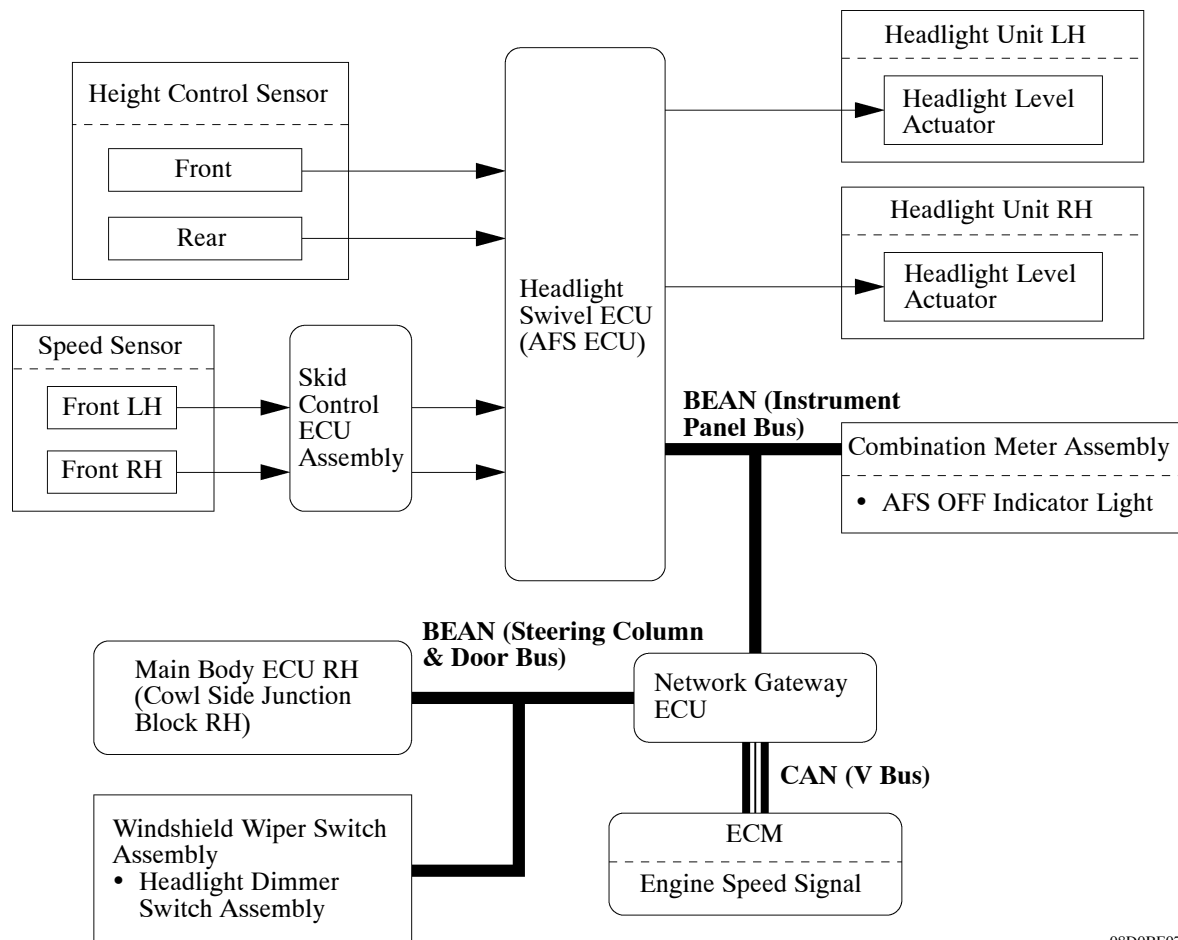
When the headlights are on, the automatic headlight beam level control system operates the headlight level actuator in accordance with movement of the vehicle.



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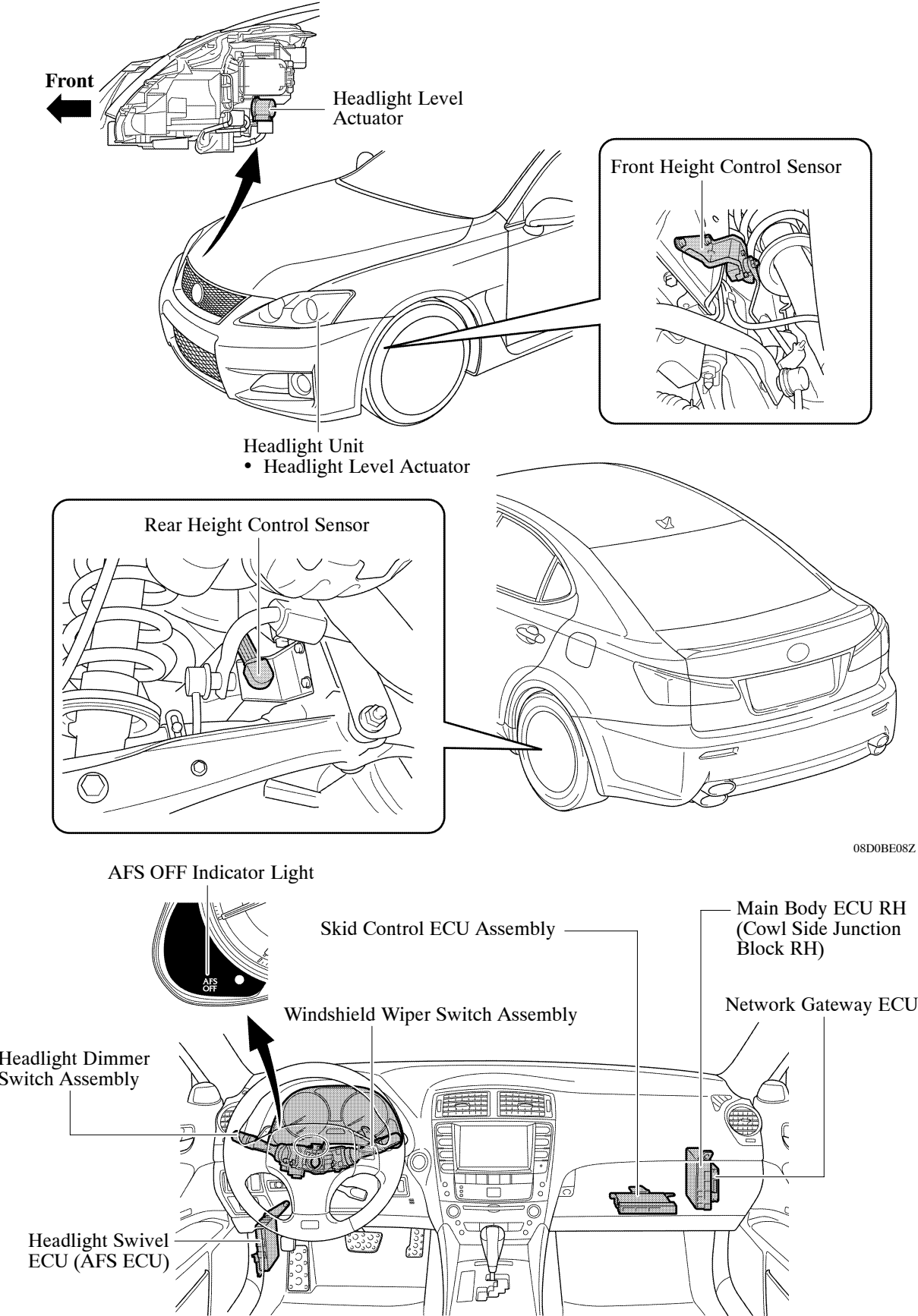
- The automatic headlight beam level control system mainly consists of the headlight swivel ECU (AFS ECU), front height control sensor, rear height control sensor, and two headlight level actuators. The headlight swivel ECU (AFS ECU) controls the system.
- The ECU detects the movement of the suspension from the front and rear height control sensors and the vehicle speed from the front RH and LH speed sensors.
- The ECU then controls the headlight level actuator based on this information, in order to change the headlight reflector angle.

### ► System Diagram ◀



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2. Layout of Main Components



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### 3. Function and Construction of Main Components

Component		Function and Construction
Headlight Swivel ECU (AFS ECU)		<ul style="list-style-type: none"> <li>Based on the signals (front and rear height control sensors, front RH and LH speed sensors and engine speed), and this ECU detects the changes of the movement of the vehicle.</li> <li>Based on the detected value, this ECU sends control signals to the headlight level actuator.</li> <li>This ECU provides initial set control and fail-safe function.</li> </ul>
Headlight Unit	Headlight Level Actuator	<ul style="list-style-type: none"> <li>Based on the signals received from headlight swivel ECU (AFS ECU), each actuator moves the reflector in the headlight to vary its Lo beam.</li> <li>This actuator uses a stepper motor to precisely regulate the angle of the reflector.</li> </ul>
Height Control Sensors (Front and Rear LH)		Detects the movement of the vehicle suspension.
Windshield Wiper Switch Assembly • Headlight Dimmer Switch Assembly		Transmits the headlight dimmer switch signal to the headlight swivel ECU (AFS ECU).
Skid Control ECU Assembly		Transmits the vehicle speed sensor signal to the headlight swivel ECU (AFS ECU).
Speed Sensors (Front RH and LH)		Detects the wheel speed signals and outputs these signals.
Combination Meter Assembly • AFS OFF Indicator Light		Flashes to alert the driver when headlight swivel ECU (AFS ECU) detects the malfunction in this system.

### 4. Initial Set Control

When the engine is started, the headlight swivel ECU (AFS ECU) drives the headlight level actuators, moving the projector headlights to the lower limit and returning it to the proper position. This allows the headlight swivel ECU (AFS ECU) to confirm the position of the headlight.

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### 5. Fail-safe Function

If the headlight swivel ECU (AFS ECU) detects a malfunction in the automatic headlight beam level control system, the headlight swivel ECU (AFS ECU) performs fail-safe control. At the same time, the headlight swivel ECU (AFS ECU) flashes the AFS OFF indicator light in order to inform the driver of the problem. For details, [see page BE-39](#).

### 6. Diagnosis

When the headlight swivel ECU (AFS ECU) detects a malfunction in the automatic headlight beam level control system, the headlight swivel ECU (AFS ECU) will store a DTC (Diagnostic Trouble Codes) related to the malfunction in memory.

The DTC can be read by use of the intelligent tester. For details, see the LEXUS IS F Repair Manual (Pub. No. RM08E0E).