

**Meter** The GS 350 has an Optitron combination meter with a 3.5-inch TFT multi-information display between the tachometer and the speedometer.

Meter ambient illumination changes (blue or red) depending upon which drive mode is selected (similar to CT 200h). Illumination can be personalized if the customer desires.



**Drive Modes** The GS 350 uses a drive mode select switch that allows the driver to change the performance characteristics of the vehicle. The basic functions are similar to the system controls found on the CT 200h.

The drive mode selector switch is turned to the left to enter the ECO mode, to the right to select the SPORT modes, or pressed in to return to NORMAL mode.

Vehicles without Adaptive Variable Suspension (AVS) have SPORT mode, while vehicles with AVS have SPORT S and SPORT S+ modes (turn the selector once to the right for SPORT S, twice for SPORT S+).

The combination meter ambient light will be blue or red depending on which drive mode is selected. In NORMAL and ECO modes the illumination will be blue, and in the SPORT modes the illumination will be red. The settings for the meter illumination can be personalized.

2013 Lexus GS 350 New Model Technical Introduction

System	System Changes	ECO	Without AVS	With AVS	
			SPORT	SPORT S	SPORT S+
Engine	Throttle Characteristics	○	○	○	○
AT	Shift Characteristics	—	○	○	○
AVS	Higher damping force	—	—	—	○
EPS	Increased steering feedback	—	○	—	○
VGRS	Gear ratio changed to improve response	—	—	—	○
DRS	Rear steering angle enhanced to improve stability	—	—	—	○
VDIM	Amount of control intervention changed	—	—	—	○

2013 GS 350 Technical Introduction 9

**Drive Modes** The GS 350 drive modes change motive force relative to accelerator pedal angle in the ECO and all of the SPORT modes.

The ECO mode will provide better fuel economy if the vehicle is driven in the same manner as in normal mode, while the SPORT modes will provide a stronger accelerator response.

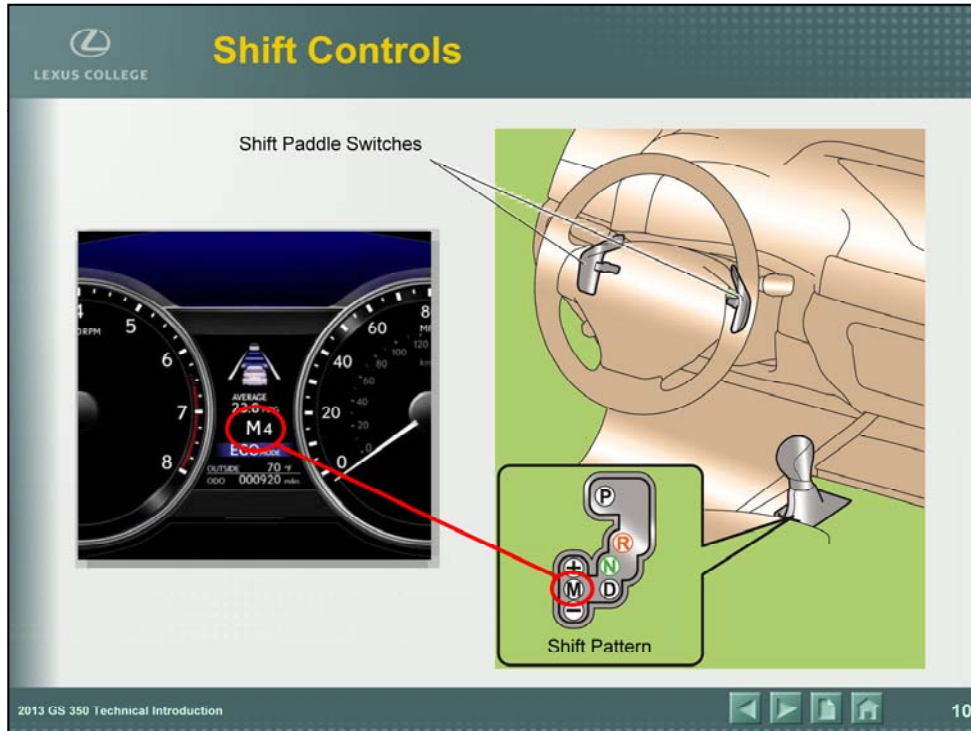
In the ECO drive mode, in addition to reducing motive force output, it will also alter operation of the air conditioner system to improve efficiency.

As shown in this chart, there are also changes to the transmission, suspension, steering and VDIM, depending on which SPORT mode is selected.

When the ignition is cycled, the modes default as follows:

ECO = ON (ECO mode)

SPORT, SPORT S and SPORT S+ = OFF (NORMAL mode)



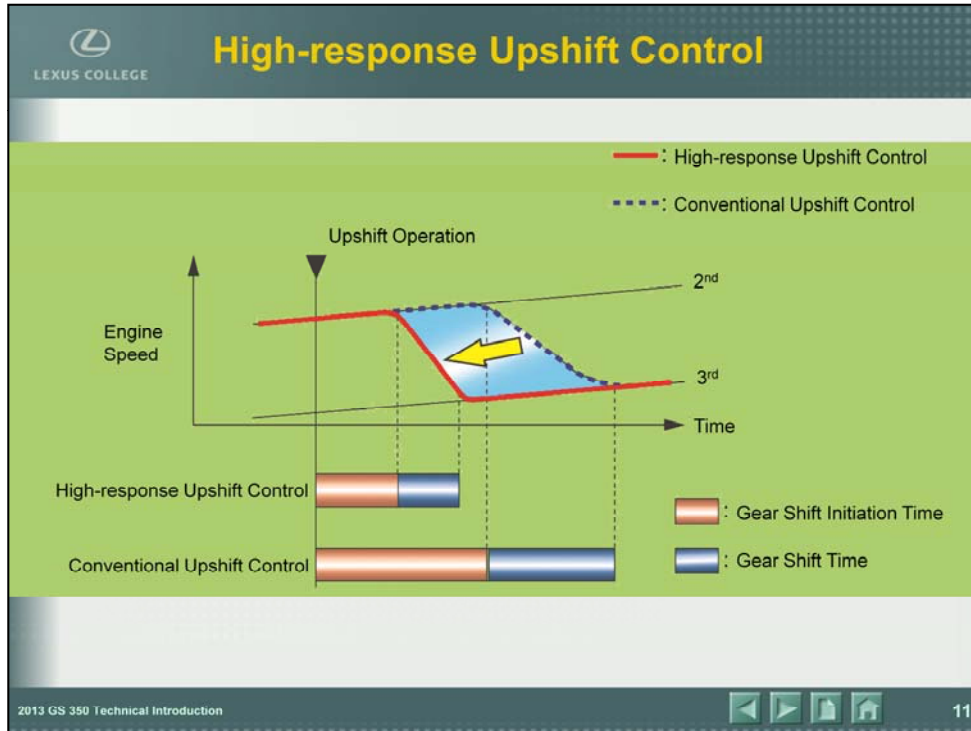
**Shift Controls** The GS 350 has gear hold control, so the driver can move the shift lever to the M position and select gear ranges by moving the shift lever or using the shift paddle switches. During this control, the shift position indicator in the multi-information display will indicate “M”, as well as the currently selected gear range.

To prevent excessive engine speed, the transmission will automatically select a higher shift range before engine speed becomes too high. It will also select a higher range if the transmission fluid temperature becomes too high.

The driver may also use the shift paddle switches to select different gear ranges while the shifter is in D position. During this control, the shift position indicator in the multi-information display will indicate “D”, as well as the currently selected gear range..

This control is cancelled if:

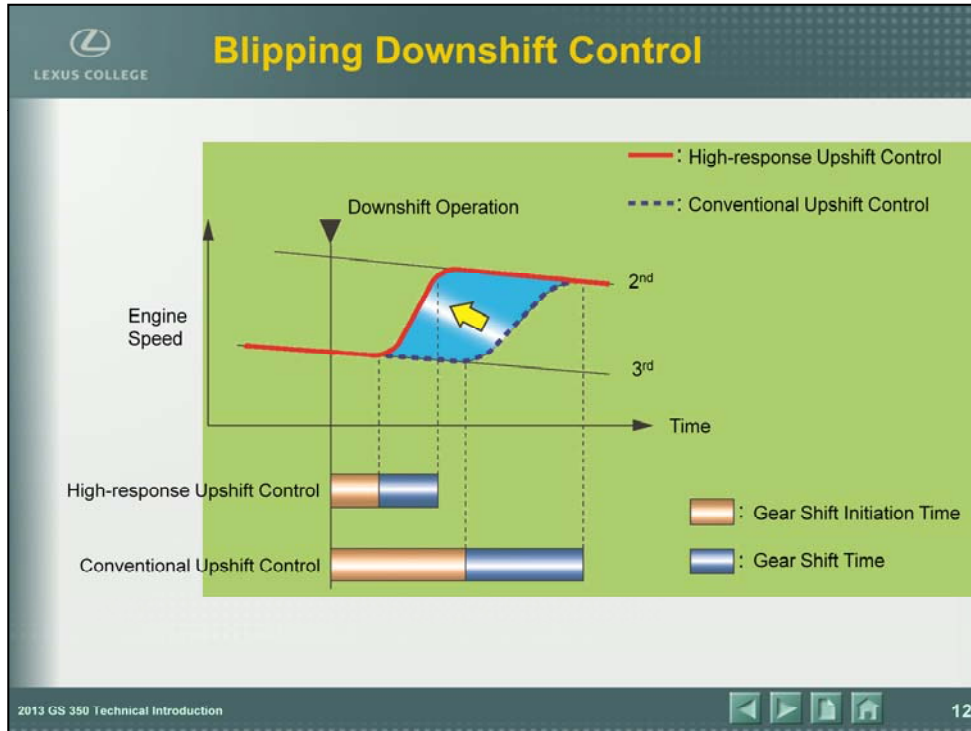
- The vehicle comes to a stop
- The + shift paddle switch is held for more than 1 second
- There is no shift paddle switch activity for a certain length of time
- The shift lever is moved to the M position



**High-response Upshift Control**

High-response upshift control only occurs when the shift lever is in the M position and shifts are manually selected using the shift lever or the shift paddle switch.

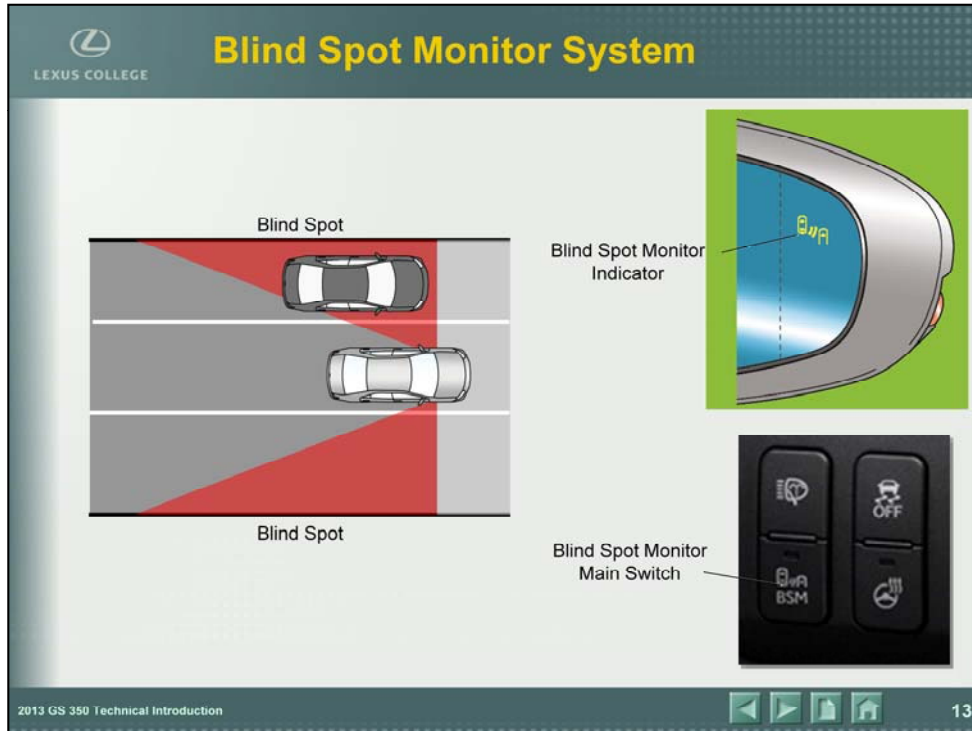
This control uses clutch to clutch pressure control, which regulates each clutch and brake quickly and precisely. It also controls fuel cut and ESA to reduce the engine speed quickly. This cooperative control allows precise clutch engagement or release in as little as 0.3 seconds.



**Blipping Downshift Control**

Blipping downshift control is activated when downshifts are selected with the shift paddle switch or the shift lever. This only occurs in the SPORT modes with the shift lever in M position.

This control regulates each clutch and brake using the clutch to clutch pressure control, allowing them to be engaged smoothly and disengaged quickly. In addition, fuel injection volume is increased and engine speed is boosted by the powertrain cooperative control to provide engine braking.



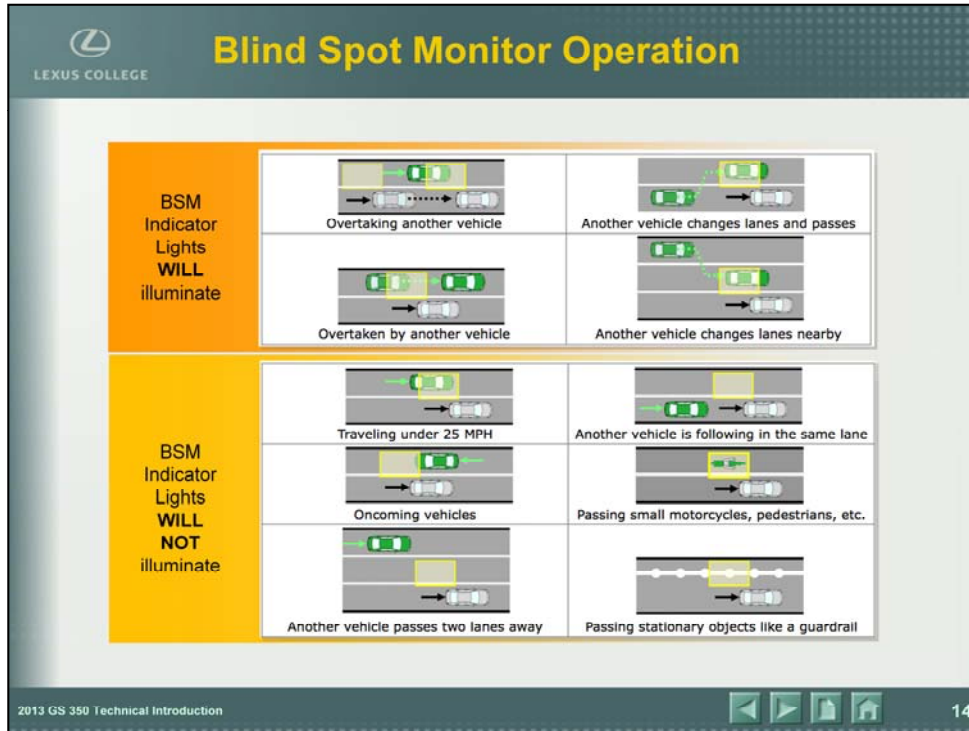
**Blind Spot Monitor System**

The Blind Spot Monitor System uses millimeter wave radar sensors to detect vehicles that the driver may not be able to see. This helps the driver confirm safety when changing lanes.

If a vehicle is detected, the indicator lights in the side mirror glass illuminate. If the turn signal is ON while the system detects a vehicle in the blind spot, the indicator lights will blink more quickly (4.0Hz) than the turn signal indicator (1.7Hz) to alert the driver.

The Blind Spot Monitor System can be turned ON or OFF by using the blind spot monitor main switch located to the left of the steering column on the instrument panel.

Stationary objects, trailing vehicles in the same lane, vehicles traveling in a lane that is two lanes over and oncoming vehicles are not targeted by the system.



**Blind Spot Monitor Operation**

The Blind Spot Monitor System operates at speeds above 25mph.

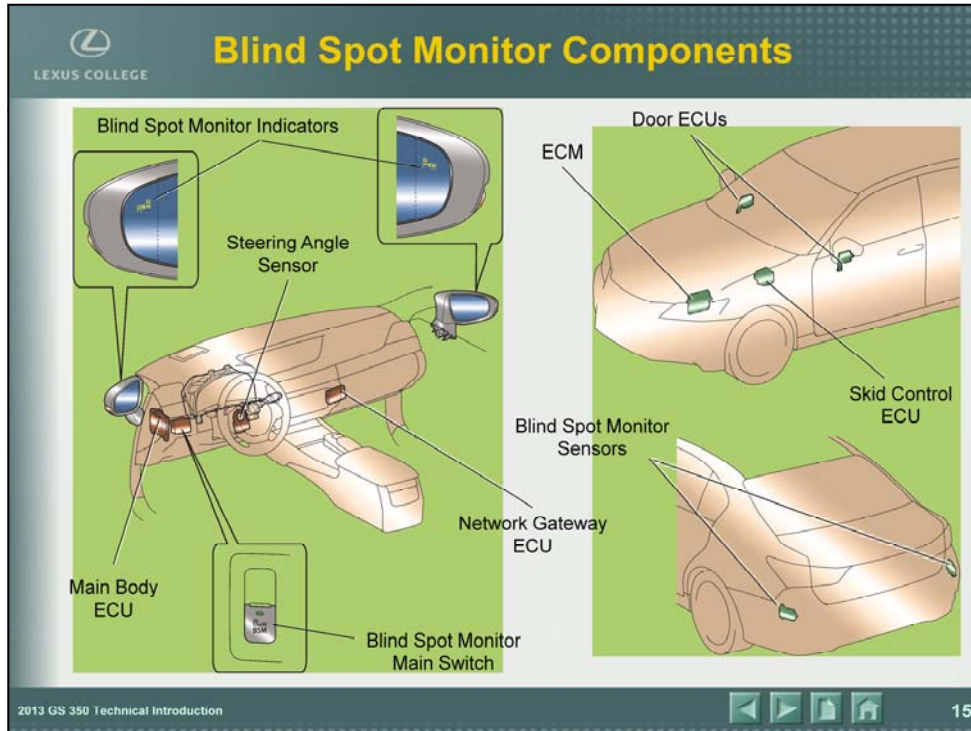
There are different situations in which the Blind Spot Monitor indicator lights will or will not be illuminated.

The Blind Spot Monitor System may not detect vehicles in the detection areas under the following conditions:

- During bad weather such as heavy rain, fog, snow, or sandstorm
- When there is a significant difference in speed between the vehicle and other vehicles that enter the detection area
- When another vehicle in a detection area starts off at the same time as the vehicle, and the other vehicle remains in the detection area when the speed of this vehicle reaches the detection start speed
- When a vehicle enters the detection area when driving on a steep hill
- Small motorcycles, bicycles, etc.

Refer to the 2013 GS 350 New Car Features on TIS for more information.





**Blind Spot Monitor Components**

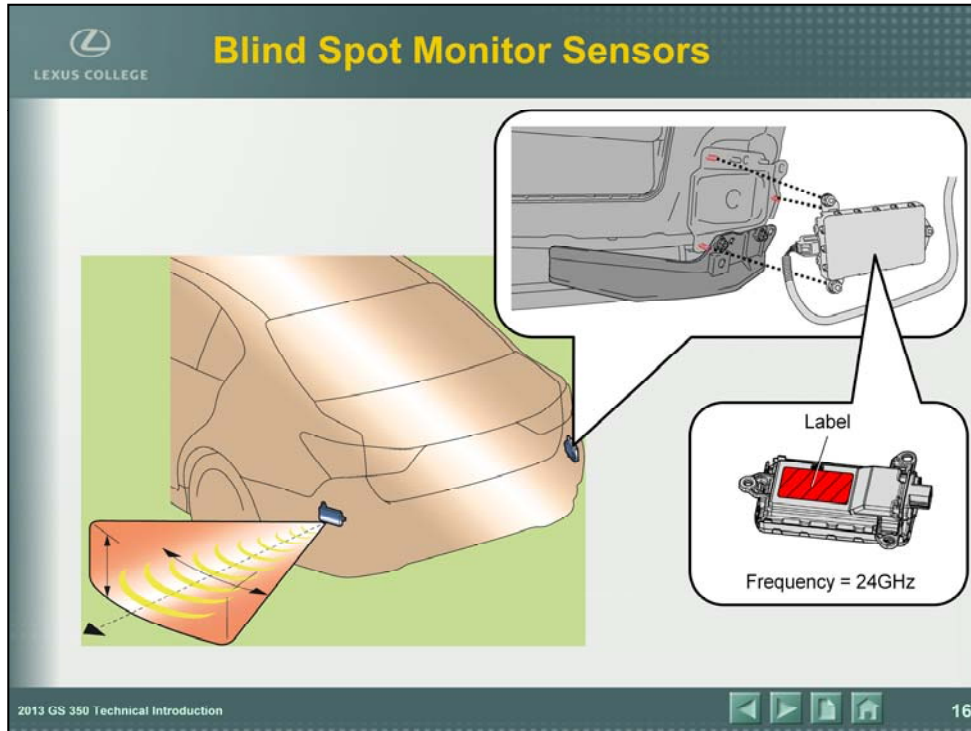
The main components of the Blind Spot Monitor System (BSM) are shown on this slide.

The steering angle sensor is used to prevent a false detection of vehicles travelling in the same lane behind the BSM-equipped vehicle. If the steering wheel is turned beyond a certain threshold (i.e. on a curving road), the BSM system is temporarily suspended.

The BSM sensors communicate using MPX CAN and use the Network Gateway ECU to access the main CAN Bus.

The left BSM sensor is the slave sensor/ECU and the right is the master sensor/ECU. Slave ECU DTCs (and other communication) must go through the master ECU.

The Skid Control ECU provides the vehicle speed signal to the BSM sensors/ECUs.



**Blind Spot Monitor Sensors**

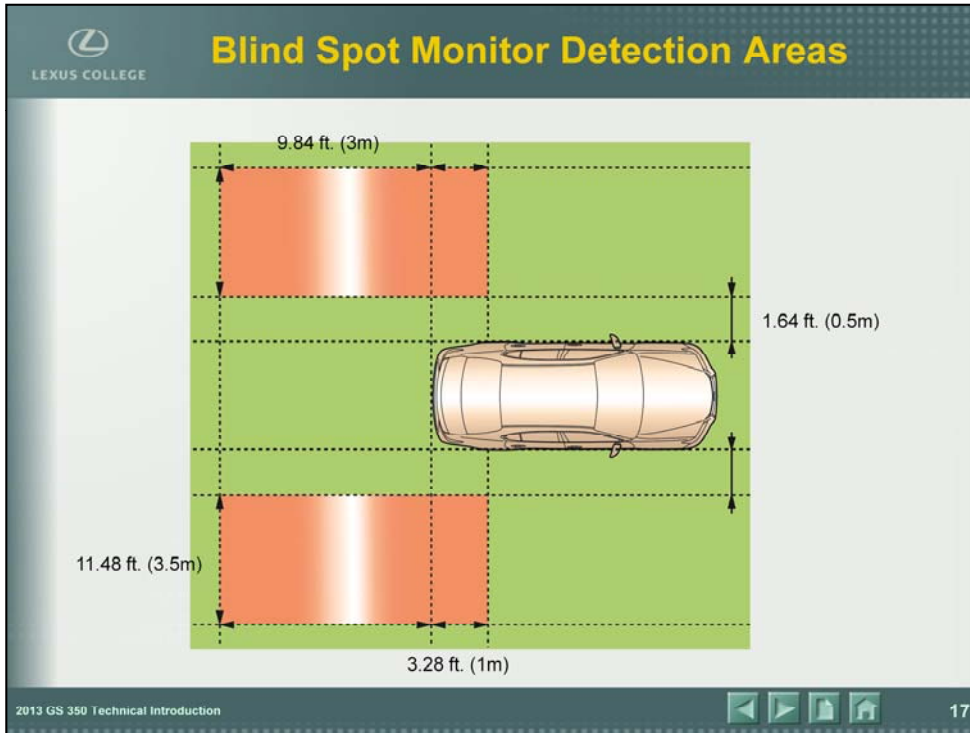
The Blind Spot Monitor sensors have a detection distance of approximately 32 feet, a 20-degree vertical detection angle and a 150-degree horizontal detection angle.

The LH (slave ECU) and RH (master ECU) Blind Spot Monitor sensors are not interchangeable although they look the same, and have the same styles of mounts and harness connectors. Use the label and part number to distinguish the LH and RH sensors.

To maintain proper operation of the system:

- Keep the sensors and surrounding areas clean
- Do not subject a sensor or the surrounding area to strong impacts. If the sensor is moved out of position the system may malfunction and vehicles that enter the detection area may not be detected.
- Do not attach stickers or paint the sensor or the surrounding area (i.e. the bumper cover)
- Do not reuse a sensor that has been dropped or subjected to a strong impact

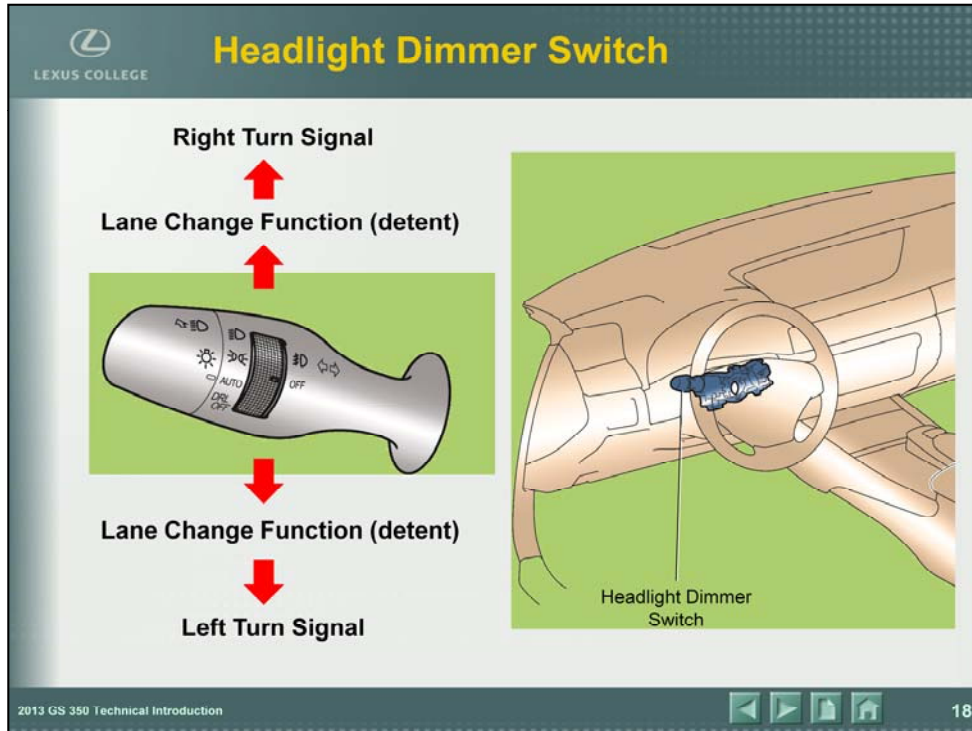
If the rear bumper is dirty or covered with snow, the operation of a sensor may be hindered. In this case, the message "BSM not available" will appear on the multi-information display.



**Blind Spot Monitor Detection Areas**

The parameters of the detection areas are defined by algorithms in the sensors.

The shaded boxes in this slide represent the detection areas for the left and right sensors.



**Headlight Dimmer Switch**

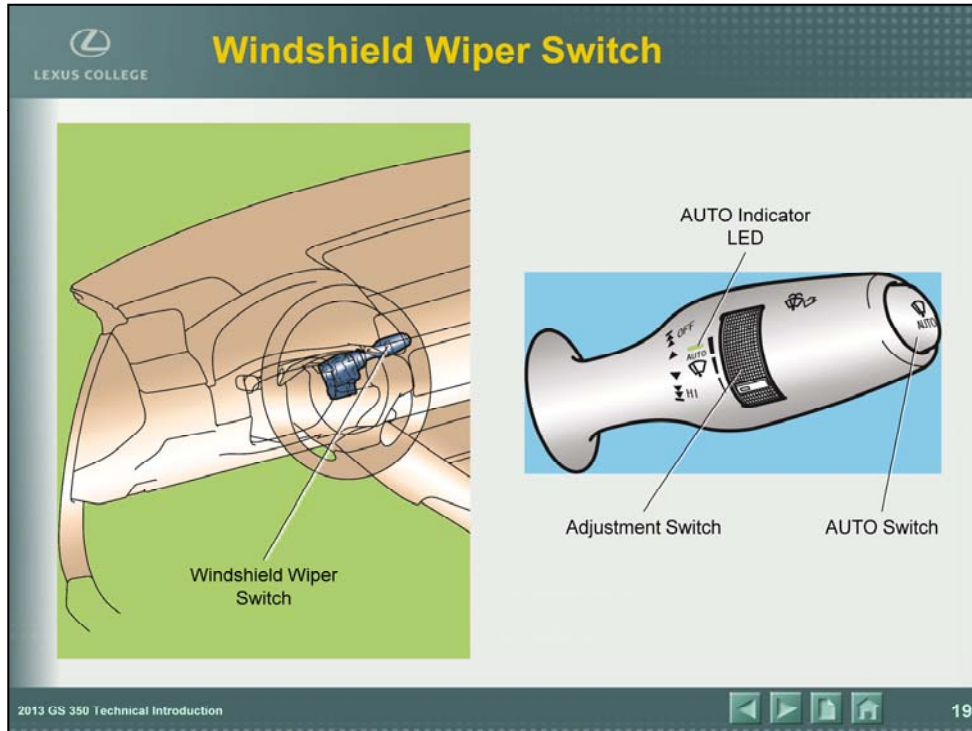
The GS 350 headlight dimmer switch uses a momentary turn signal switch; when the turn signal lever is moved up or down it automatically returns to the center position.

There also is a detent position for left or right turns that acts as a lane change function. When the lever is moved to the detent position and released, the turn signal will flash three times and then stop.

The number of times the turn signal lights flash for the lane change function can be customized using a procedure found in the Repair Manual. The options are 3 times (default), 5 times, 7 times, or OFF.

Also note that the fog lamp control has been changed to a barrel switch that is integrated into the headlight dimmer switch.

Fog lamps are not available on F Sport models.



**Windshield Wiper Switch**

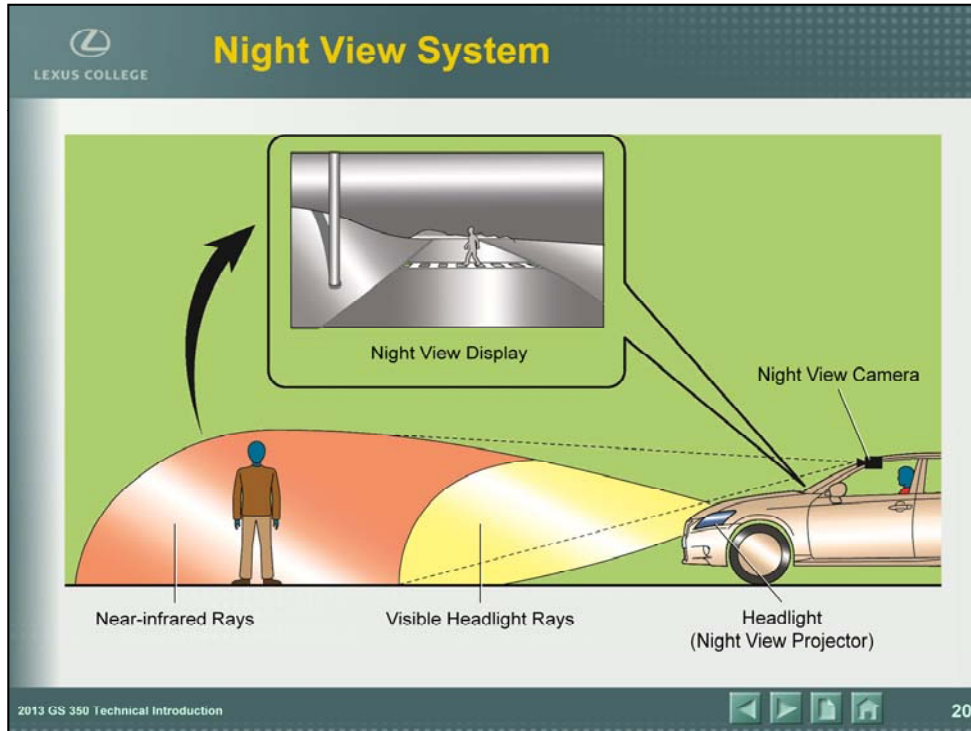
The GS 350 also has a momentary windshield wiper switch that automatically returns to the center position.

Vehicles that have rain-sensing wipers are equipped with a windshield wiper switch that has an AUTO switch on the end. When the switch is pressed, a green LED on the wiper switch comes ON.

There is a barrel adjustment switch built into the windshield wiper switch that operates as follows:

- AUTO ON = adjusts the rain sensor sensitivity
- AUTO OFF = adjusts interval of the intermittent function

Note: the windshield wiper switch for vehicles with rain-sensing wipers is shown on this slide.



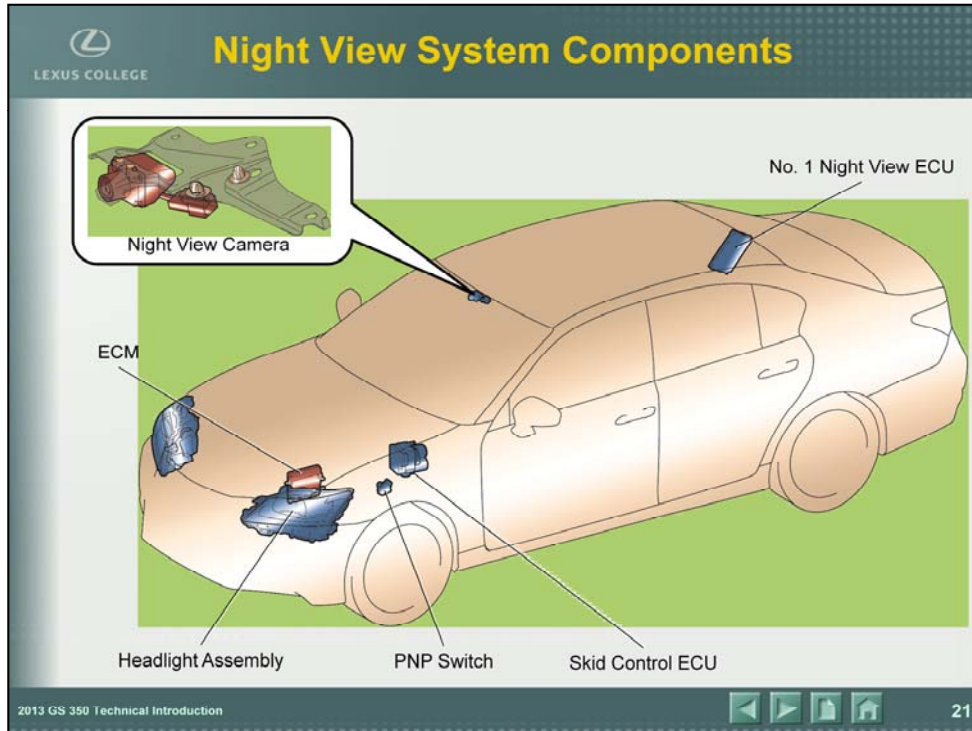
**Night View System** The GS 350 has an available Night View System to provide the driver with black and white footage of road conditions which may be difficult to see at night.

This system only works after the automatic light control sensor has determined from the ambient brightness that it is night, and the headlights are ON.

Night View captures a forward field of view with a near-infrared camera located by the inside rearview mirror. This footage is normally displayed on the main screen, but when other screens are being operated, the footage is displayed on the sub screen.

The near-infrared light projector operates when the vehicle speed is 9 mph or higher. The Night View camera will still capture footage if vehicle speed is less than 9 mph, but the range and distance at which footage can be captured will be limited.

The Night View System defaults to OFF when the ignition is cycled (IG-ON).



**Night View System Components**

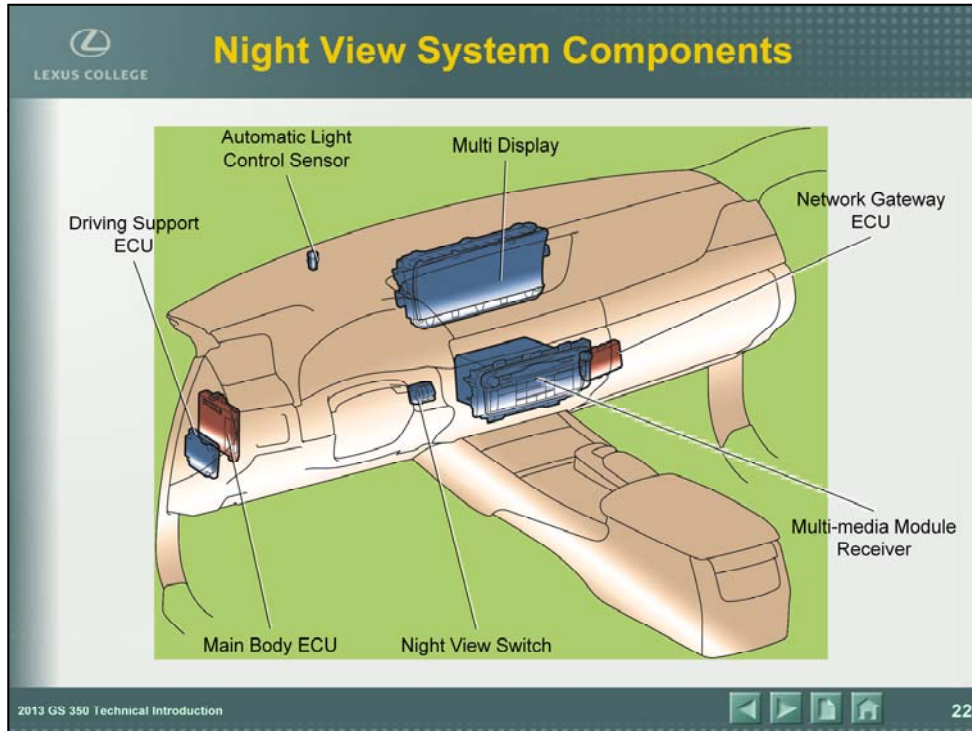
The Night View camera detects near-infrared rays radiated from the near-infrared ray emitter, and creates a black and white image based on the intensity of the light.

The No. 1 Night View ECU controls the Night View System and outputs the Night View camera's image signals to the multi display.

To support Night View, each headlamp assemblies contains:

- LED driver module
- Near-infrared ray emitter
- Light failure indicator sensor

The No. 1 Night View ECU monitors the operation of the low beam headlights using the signal from the light failure indicator sensor.

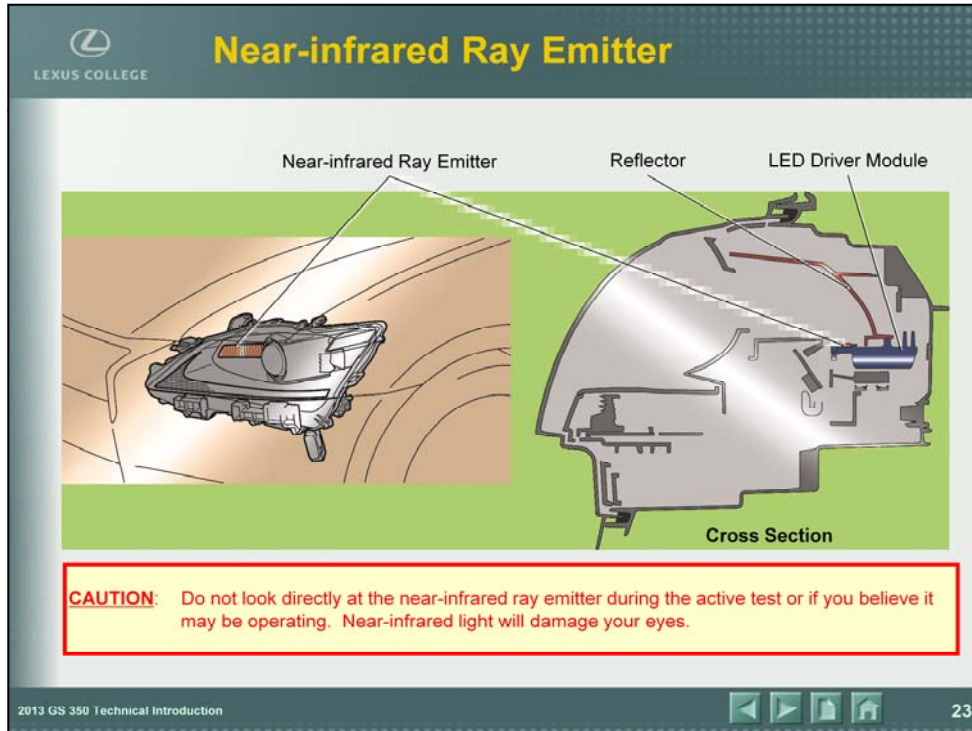


**Night View System Components**

The Main Body ECU sends the automatic light control sensor signal and the low beam headlight request signal to the No. 1 Night View ECU.

The Driving Support ECU sends the vehicle speed signal and destination information signal to the No. 1 Night View ECU.





**Near-infrared Ray Emitter**

Each headlamp assembly contains an near-infrared ray emitter, an LED driver module and a reflector.

The near-infrared ray emitter uses a 15.5-watt LED that provides the same amount of radiated energy as a high-beam headlight. This allows the system to capture a field of vision that is farther than of the low-beam headlight.

The near-infrared ray emitter does not operate when vehicle speed is below 9 mph, as near-infrared rays are damaging to eyes.

**Do not look directly at the near-infrared ray emitter during the active test or if you believe it may be operating. Near-infrared light will damage your eyes.**

Condition		Lane Departure Warning	Lane Keep Assist
Operating			
Lane marker detected on one side			
Warning Operation*	Lane Departure (Sounds buzzer)		
	Hands-free driving (Sounds buzzer)		
Operating conditions not met			

\*: During the operation of lane departure warning, the lane marker icons will be displayed on the heads-up display

2013 GS 350 Technical Introduction 24

**Lane Keep Assist** The 2013 GS 350 has an available Lane Keep Assist system. As with other Lexus models, the system has two functions:

- Lane Departure Warning
- Lane Keep Assist

The main difference between this system and previous Lane Keep Assist systems is that this one only requires lane markers on one side of the lane to work. If only one lane marker is detected, only one lane marker will be displayed on the multi-information display.

The other system operation parameters are the same as for other Lexus models.

Lane Recognition Camera Axis Adjustment needs to be performed if the camera assembly is removed/replaced or if toe is adjusted.