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| **Model Year:** 2013 | **Model:** RAV4 | **Prod Date Range:** [12/2012 - ] |
| **Title:** LIGHTING (EXT): LIGHTING SYSTEM: AUTOMATIC HIGH BEAM; 2013 MY RAV4 [12/2012 - ] | | |

# AUTOMATIC HIGH BEAM

### 1. FUNCTION OF MAIN COMPONENTS

| COMPONENT | | FUNCTION |
|---|---|---|
| Automatic High Beam (AHB) Sensor (Lane Departure Warning Camera) | | The AHB sensor determines when to turn the high beams on and off after identifying the lights of oncoming vehicles, preceding vehicles and other lights from the picture information of its camera sensor. Then, it sends high beam request signals to the main body ECU. |
| Yawrate Sensor | | Detects the yaw rate of the vehicle and transmits the signal to the AHB sensor. |
| Skid Control ECU | | Transmits the speed sensor signal to the AHB sensor. |
| ECM | | Transmits the shift position signal to the AHB sensor. |
| Combination Meter Assembly | Automatic High Beam Indicator Light | • The automatic high beam indicator light illuminates (green) to inform the driver when the Automatic High Beam (AHB) system is activated.<br>• The automatic high beam indicator light illuminates (amber) to inform the driver when a malfunction is detected in this system. |
| | Headlight High Beam Indicator Light | The headlight high beam indicator light illuminates (blue) to inform the driver when the high beam headlights are on. |
| Main Body ECU (Multiplex Network Body ECU) | | • The main body ECU receives the signals from the headlight dimmer switch assembly and the automatic light control sensor.<br>• The main body ECU operates the high beams based on request signals that are received from the AHB sensor.<br>• The main body ECU transmits the signals to the combination meter assembly. |
| Headlight Dimmer Switch Assembly | Light Control Switch | The light control switch transmits the auto position signal and the high beam position signal to the main body ECU. |

### 2. SYSTEM CONTROL

(a) The Automatic High Beam (AHB) system operates as follows:

| CONDITION | DETAILS |
|---|---|
| System | When all of the following conditions are met, the AHB system is activated and the automatic high beam indicator light turns on:<br>• The ignition switch is ON. |

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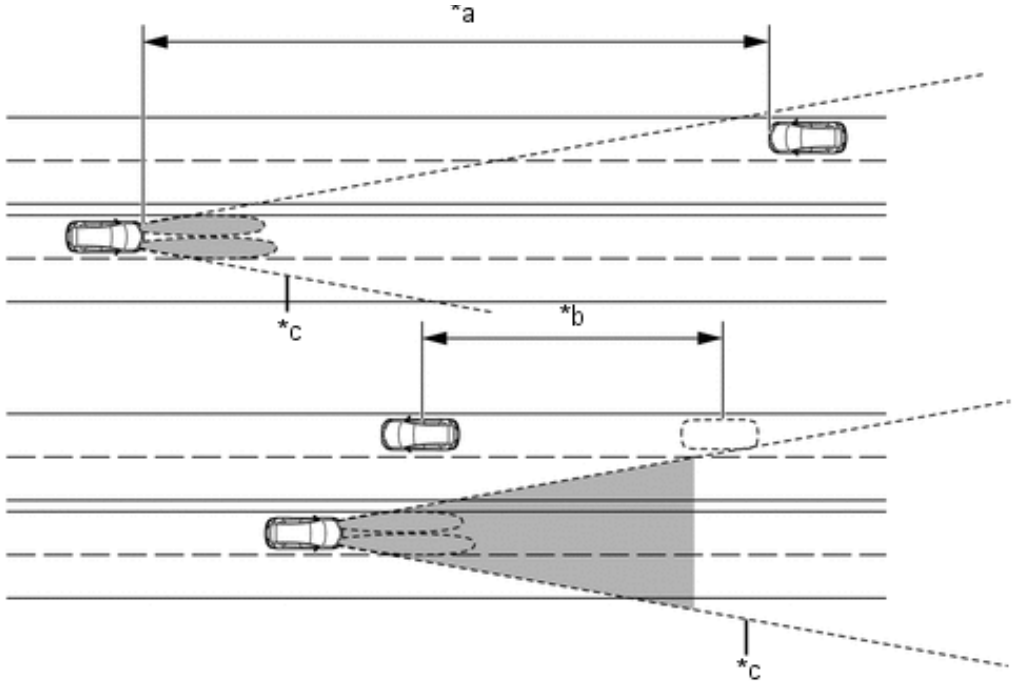
| System Activation | The ignition switch is on.<br>• The headlight dimmer switch assembly (light control switch) is in the AUTO position and high beam position.<br>• The automatic light control sensor outputs the night mode signal (to turn the headlights on). |
| High Beam Headlight On | When all of the following conditions are met, the AHB system turns on the high beam headlights after a short delay:<br>• Vehicle speed is more than approximately 34 km/h (21 mph).<br>• The area in front of the vehicle is dark.<br>• No oncoming vehicles are present with the headlights on.<br>• No preceding vehicles are present with the taillights on.<br>• Few street lights are present along the street ahead. |
| High Beam Headlight Off | When any of the following conditions are met, the automatic system turns off the high beam headlights after a short delay:<br>• Vehicle speed is less than approximately 27 km/h (17 mph).<br>• The area in front of the vehicle is not dark.<br>• An oncoming vehicle with headlights on is detected.<br>• A preceding vehicle with taillights on is detected.<br>• Several street lights are present along the street ahead. |

**3. FUNCTION**

(a) When passing an oncoming vehicle

(1) The Automatic High Beam (AHB) system turns the high beam headlights off when there is an oncoming vehicle before its distance reaches approximately 800 m (2625 ft.).

(2) When an oncoming vehicle passes the automatic high beam sensor range, the AHB system turns the high beam headlights on after a short delay.

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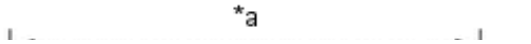
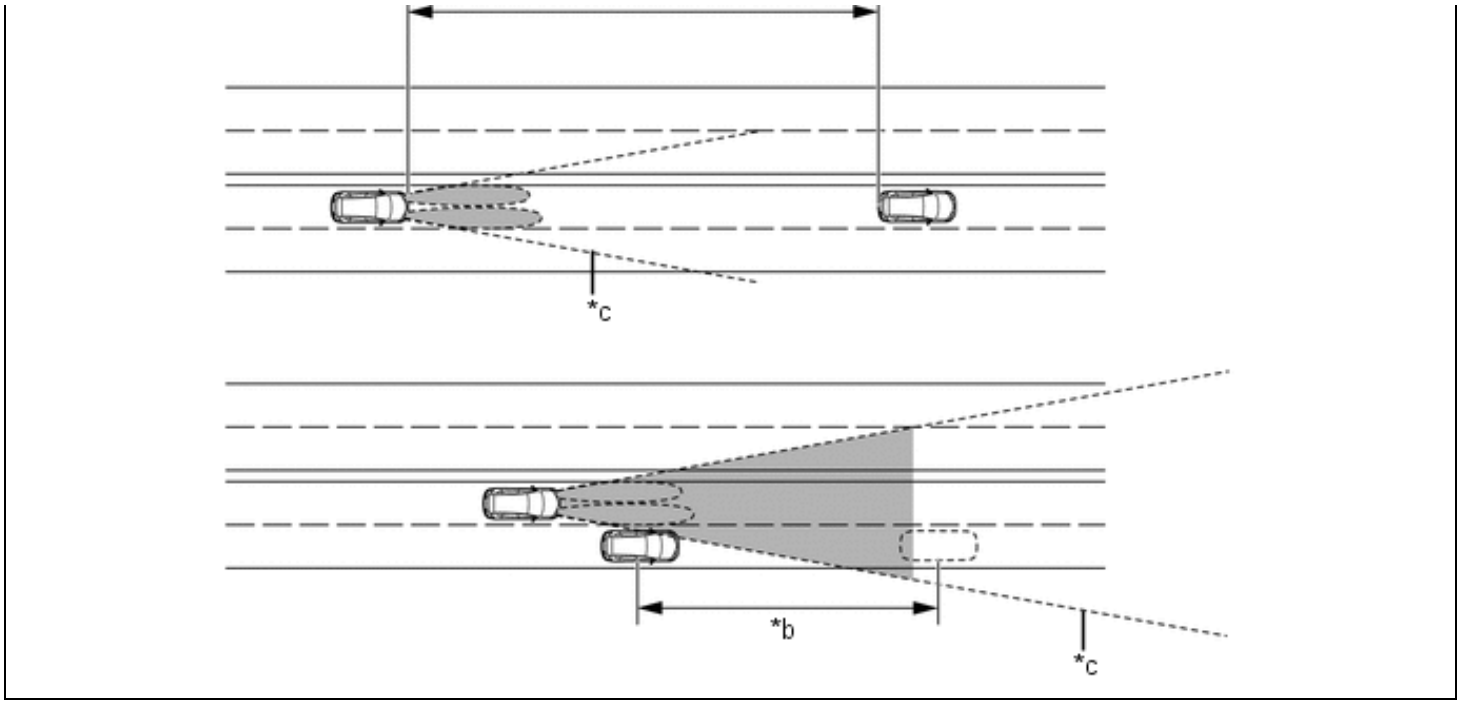
|---|---|---|---|
| *a | Approx. 800 m (2625 ft.) | *b | Delay |
| *c | Camera Angle | - | - |

(b) When passing a preceding vehicle

(1) The AHB system turns the high beam headlights off when there is a preceding vehicle before its distance reaches approximately 600 m (1969 ft.).

(2) When a preceding vehicle passes the automatic high beam sensor range, the AHB system turns the high beam headlights on after a short delay.



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|---|---|---|---|
| *a | Approx. 600 m (1969 ft.) | *b | Delay |
| *c | Camera Angle | - | - |