

Exterior Lighting

NOTE: The smart junction box (SJB) must be reconfigured before installing a new module. For additional information, refer to [Section 418-01](#).

The SJB controls the front and rear portion of the vehicle. This system relies on the controller area network (CAN) communication network in order to transmit and receive signals. It is very important to understand:

- where the input (command) originates from.
- all information (messages) necessary in order for a feature to operate.
- which module(s) receive(s) the input or command message.
- if the module which received the input (message) controls the output of the feature, or does it output a message over the CAN communication network to another module.
- which module controls the output of the feature.

Exterior Lighting

The exterior lighting outputs are controlled by the SJB.

Lamp Assembly Condensation

Exterior lamps are vented to accommodate normal changes in pressure. Condensation can be a natural by-product of this design. When moist air enters the lamp assembly through the vents, there is a possibility that condensation can occur if the temperature is cold. When normal condensation occurs, a thin film of mist can form on the interior of the lens. The thin mist eventually clears and exits through the vents during normal operation. Time to clear the lens of acceptable mist varies with ambient humidity and lamp types. Normal condensation clears from any lamp in 48 hours under dry conditions.

Do **not** replace a lamp assembly with acceptable levels of condensation such as:

- presence of thin mist (no streaks, drip marks or droplets are present)
- fine mist covers less than 50% of the lens

Examples of unacceptable moisture (usually caused by a lamp housing leak):

- water puddling inside the lamp
- large water droplets, drip marks or streaks present on the interior of the lens

Headlamps

The headlamps are controlled by the SJB. The headlamp and multifunction switches are hard-wired to the SJB and are constantly monitored. The SJB processes information (such as low beam, high beam or flash-to-pass requests) from these switches and outputs the appropriate command to the headlamps (which are also hard-wired to the SJB). This is the same for the low and high beams and flash-to-pass positions. Fault management of the headlamps provides some headlamp functionality. In the event of all multifunction switch, all headlamp switch or ignition switch invalid or missing data failures, the exterior lamps will be illuminated. There is also a headlamp battery saver feature. This feature turns off the headlamps 10 minutes after the ignition switch is turned OFF.

Turn Signal and Hazard Lamps

All turn signal outputs are controlled by the SJB. The multifunction switch and the hazard switch are hard-wired to the SJB. When the multifunction switch is in the left or right turn position, or the hazard switch is engaged, the SJB processes this information and outputs the appropriate command to the turn signal and hazard lamps. All turn signal lamps provide a lamp outage indication.

Parking, Rear or License Lamps

All parking, rear license and marker lamps are controlled by the SJB. The headlamp switch is hard-wired to the SJB. When the headlamp switch is in the headlamps ON or parking lamps ON position, SJB processes this information and outputs the appropriate command to the parking or licence plate lamps, which are hard-wired to the SJB.

Fog Lamps

The fog lamps are controlled by the headlamp switch. The switch toggles the fog lamps between on and off. To operate the fog lamps, the ignition must be in the RUN or START position and the headlamp switch must be in the parklamp or headlamp ON position. When activated, the switch sends a signal to the SJB. The SJB then activates the fog lamp relay, providing power to the fog lamps. The fog lamps will not illuminate when the high beam headlamps are on.

Reversing Lamps

The reversing lamps are controlled by the SJB and the powertrain control module (PCM). The PCM sends a message through the CAN communication network to the SJB indicating the transmission is in REVERSE. The SJB processes this information and outputs the command to the reversing lamps which are hard-wired to the SJB.

Daytime Running Lamps (DRL)

If the smart junction box (SJB) is configured for DRL, this feature illuminates the low beam headlamps at a reduced intensity when the following conditions exist:

- The ignition switch is in the RUN position.
- The headlamp switch is in the OFF position.
- The parking brake is not engaged.