

2014 ELECTRICAL**Wiring Systems and Power Management - Description and Operation - Acadia, Enclave And Traverse****DESCRIPTION AND OPERATION****ELECTRONIC PARK LOCK DESCRIPTION AND OPERATION**

If the vehicle is equipped with automatic transmission and a floor mounted console gear shift, it has an electronic park lock system (EPL). The EPL system purpose is to prevent the ignition key from being turned to the OFF position when the transmission is in any position other than PARK and the vehicle may still be moving. The EPL system consists of an ignition lock cylinder solenoid and a park position switch that is located in the A/T shift lock control switch. The ignition lock cylinder solenoid contains a pin that is spring loaded to mechanically prevent the ignition key cylinder from being turned to the lock position when the vehicle transmission is not in the PARK position. If vehicle power is lost, and/or the transmission is not in the Park position the operator will not be able to turn the ignition key to the lock position and will not be able to remove the ignition key from the column.

POWER MODE DESCRIPTION AND OPERATION**Serial Data Power Mode Master**

Power to many of this vehicles circuits is controlled by the module that is designated the power mode master (PMM). This vehicles PMM is the body control module (BCM). The BCM has multiple B+ circuits that feed into it. Each of those circuits are partitioned within the controller to drive certain outputs of the vehicle's body functions. An open or short in any one of the B+ circuits may induce multiple codes/or a section of non-functionality within the BCM with the rest of the BCM functioning normally. In this case it is useful to refer to the power distribution schematics to determine if the non-functional partition of the controller shares a common B+ circuit. The ignition switch is a low current switch with multiple discrete ignition switch signals to the PMM for determination of the power mode that will be sent over the serial data circuits to the other modules that need this information. The PMM will also activate relays and other direct outputs of the PMM as needed. The PMM determines which power mode (Off, Accessory, Run, Crank Request) is required and reports this information to other modules via serial data. Modules which have switched voltage inputs may operate in a default mode if the PMM serial data message does not match what the individual module can see from its own connections.

The PMM receives ignition switch signals to identify the operators desired power mode. The PMM Power Mode Parameters table below illustrates the correct state of these input parameters (circuits) in correspondence to the ignition switch position:

PMM Power Mode Parameters

Ignition Switch Position	Power Mode Transmitted	Ign. Off/ Run/ Crank (Run Crank Ignition 1 Voltage Circuit)	Ignition Accessory/ Run (Accessory Voltage Circuit)	Ignition Run/ Crank (Ignition 1 Voltage Circuit)

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Off Key Out	Off	Key Out/ ACC	Inactive	Inactive
Off Key IN	Off	Key In/ Off	Inactive	Inactive
Accessory	Accessory	Key Out/ ACC	Active	Inactive
Run	Run	Run	Active	Active
Start	Crank Request	Crank	Inactive	Active

Relay Controlled Power Mode

The body control module (BCM) uses the discrete ignition switch inputs Run/Crank Ignition 1 Voltage, Accessory Voltage and Ignition 1 Voltage, to distinguish the correct power mode. The BCM, after determining the desired power mode, will activate the appropriate relays for that power mode.

The RAP relay remains on for a timed period after the Ignition key is removed. Refer to **Retained Accessory Power Description and Operation** for more information on the retained accessory power (RAP) function.

BCM Awake/Sleep States

The body control module (BCM) is able to control or perform all of the BCM functions in the awake state. The BCM enters the sleep state when active control or normal monitoring of system functions has stopped and a time limit has passed. The BCM must detect certain wake-up inputs before entering the awake state. The BCM monitors for these inputs during the sleep state.

The BCM will enter the awake state if any of the following wake-up inputs are detected:

- Activity on the serial data line
- Detection of a battery reconnect
- Any door open signal
- Headlamps ON
- Key-in-ignition
- Ignition ON
- Park lamps ON
- Keyless entry or remote start message

The BCM will enter a sleep state when all of the following conditions exist:

- The ignition switch is OFF, key out.
- No activity exists on the serial data line.
- No outputs are commanded.
- No delay timers are actively counting.
- No wake-up inputs are present.

If all these conditions are met, the BCM will enter a low power or sleep condition.

RETAINED ACCESSORY POWER DESCRIPTION AND OPERATION

Serial Data Control of Retained Accessory Power (RAP)

The modules receive the power mode message from the body control module (BCM) over the serial data circuits, indicating when the retained accessory power (RAP) power mode is current. The BCM monitors the ignition switch position, battery condition and passenger compartment doors status to determine whether RAP should be initiated. The modules then support the operation of the systems under their control as required by their RAP power mode operation. Components and systems that are active in RAP are also activated anytime the ignition is any position other than OFF.

The BCM sends a serial data power mode message ending the RAP function when one of the following conditions is met:

- The BCM receives an input indicating the opening of any passenger compartment door after the ignition key is out of the ignition.

IMPORTANT: The only door that will turn off the radio during RAP is the driver door. This is a function of the radio and will still turn off after the time limit.

- The BCM internal timer for the RAP expires after approximately 10 minutes.
- The BCM detects a decrease in battery capacity below a prescribed limit.

BCM Direct Wired Control of Retained Accessory Power (RAP)

The body control module (BCM) supplies voltage to the ignition I/II voltage circuit during all power modes, except Off-Awake and Crank. Voltage is also supplied for approximately 10 minutes after shutting the ignition OFF and removing the key, providing no door is opened.

The devices powered by the accessory relay during the RAP power mode are the sunroof, power window switches, inside rearview mirror, A/C power outlet and the ignition lock switch.