

2022 CHEVROLET CORVETTE SERVICE MANUAL

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Electrical Power Management Description and Operation

Electrical Power Management

The electrical power management is used to monitor and control the charging system and alert the driver of possible problems within the charging system. The electrical power management system makes the most efficient use of the generator output, improves the battery state-of-charge, extends battery life, and manages system electrical loads.

The load shed operation is a means of reducing electrical loads during a low voltage or low battery state-of-charge condition.

The idle boost operation is a means of improving generator performance during a low voltage or low battery state-of-charge condition.

Each electrical power management function, either idle boost or load shed, is activated in incremental steps. For example, idle boost 1 must be active before idle boost 2 can be active. The criteria used by the body control module (BCM) to regulate electrical power management are outlined below:

Idle Boost and Load Shed With Current Sensor

Function	Battery Temperature Calculation	Battery Voltage Calculation	Amp-Hour Calculation	Action Taken
Idle Boost 1 Start	Less Than $\tilde{\text{A}}^{\wedge}\text{A}^{\wedge}\text{A}^{\wedge}15\tilde{\text{A}},\text{A}^{\wedge}\text{C}$ ($5\tilde{\text{A}},\text{A}^{\wedge}\text{F}$)	Less Than 13 V	$\tilde{\text{A}}^{\wedge}\text{A}^{\wedge}\text{A}^{\wedge}$	First level Idle boost requested
Idle Boost 1 Start	$\tilde{\text{A}}^{\wedge}\text{A}^{\wedge}\text{A}^{\wedge}$	$\tilde{\text{A}}^{\wedge}\text{A}^{\wedge}\text{A}^{\wedge}$	Battery has a net loss greater than 0.6 Ah	First level Idle boost requested
Idle Boost 1 Start	$\tilde{\text{A}}^{\wedge}\text{A}^{\wedge}\text{A}^{\wedge}$	Less Than 11 V	$\tilde{\text{A}}^{\wedge}\text{A}^{\wedge}\text{A}^{\wedge}$	First level Idle boost requested
Idle Boost 1 End	Greater Than $\tilde{\text{A}}^{\wedge}\text{A}^{\wedge}\text{A}^{\wedge}10\tilde{\text{A}},\text{A}^{\wedge}\text{C}$ ($14\tilde{\text{A}},\text{A}^{\wedge}\text{F}$)	Greater Than 12 V	Battery has a net loss less than 0.2 Ah	First level Idle boost request cancelled
Idle Boost 2 Start	$\tilde{\text{A}}^{\wedge}\text{A}^{\wedge}\text{A}^{\wedge}$	$\tilde{\text{A}}^{\wedge}\text{A}^{\wedge}\text{A}^{\wedge}$	Battery has a net loss greater than 1.6 Ah	Second level Idle boost requested
Idle Boost 2 Start	$\tilde{\text{A}}^{\wedge}\text{A}^{\wedge}\text{A}^{\wedge}$	Less Than 11 V	$\tilde{\text{A}}^{\wedge}\text{A}^{\wedge}\text{A}^{\wedge}$	Second level Idle boost requested
Idle Boost 2 End	$\tilde{\text{A}}^{\wedge}\text{A}^{\wedge}\text{A}^{\wedge}$	Greater Than 12 V	Battery has a net loss less than 0.8 Ah	Second level Idle boost request cancelled
Load Shed 1 Start	$\tilde{\text{A}}^{\wedge}\text{A}^{\wedge}\text{A}^{\wedge}$	$\tilde{\text{A}}^{\wedge}\text{A}^{\wedge}\text{A}^{\wedge}$	Battery has a net loss of 4 Ah	Rear Defrost, Heated Mirrors, Heated Seats, HVAC cycled OFF for 20% of their cycle
Load Shed 1 Start	$\tilde{\text{A}}^{\wedge}\text{A}^{\wedge}\text{A}^{\wedge}$	Less Than 11 V	$\tilde{\text{A}}^{\wedge}\text{A}^{\wedge}\text{A}^{\wedge}$	Rear Defrost, Heated Mirrors, Heated Seats, HVAC cycled OFF for 20% of their cycle
Load Shed 1 End	$\tilde{\text{A}}^{\wedge}\text{A}^{\wedge}\text{A}^{\wedge}$	Greater Than 12 V	Battery has a net loss of less than 2 Ah	Clear Load Shed 1
Idle Boost 3 Start	$\tilde{\text{A}}^{\wedge}\text{A}^{\wedge}\text{A}^{\wedge}$	$\tilde{\text{A}}^{\wedge}\text{A}^{\wedge}\text{A}^{\wedge}$	Battery has a net loss of 10 Ah	Third level Idle boost requested

Function	Battery Temperature Calculation	Battery Voltage Calculation	Amp-Hour Calculation	Action Taken
Idle Boost 3 Start	~	Less Than 11 V	~	Third level Idle boost requested
Idle Boost 3 End	~	Greater Than 12 V	Battery has a net loss of less than 6.0 Ah	Third level Idle boost request cancelled
Load Shed 2 Start	~	~	Battery has a net loss greater than 12 Ah	Rear Defrost, Heated Mirrors, Heated Seats, HVAC cycled OFF for 50% of their cycle. The BATTERY SAVER ACTIVE message will be displayed on the DIC
Load Shed 2 Start	~	Less Than 11 V	~	Rear Defrost, Heated Mirrors, Heated Seats, HVAC cycled OFF for 50% of their cycle. The BATTERY SAVER ACTIVE message will be displayed on the DIC
Load Shed 2 End	~	Greater Than 12 V	Battery has a net loss of less than 8 Ah	Clear Load Shed 2
Load Shed 3 Start	~	Less Than 11.9 V	Battery has a net loss greater than 20 Ah	Rear Defrost, Heated Mirrors, Heated Seats, HVAC cycled OFF for 100% of their cycle. The BATTERY SAVER ACTIVE message will be displayed on the DIC
Load Shed 3 Start	~	Less Than 11 V	~	Rear Defrost, Heated Mirrors, Heated Seats, HVAC cycled OFF for 100% of their cycle. The BATTERY SAVER ACTIVE message will be displayed on the DIC
Load Shed 3 End	~	Greater Than 12.6 V	Battery has a net loss of less than 13 Ah	Clear Load Shed 3

Idle Boost and Load Shed Without Current Sensor (based on battery voltage)

Function	Battery Temperature Calculation	Battery Voltage Calculation	Action Taken
Idle Boost 1 Start	Less Than ~ (5~,~°F)	Less Than 13 V	First level Idle boost requested
Idle Boost 1 Start	~	Less Than 12.6 V	First level Idle boost requested
Idle Boost 1 End	Greater Than ~ (5~,~°F)	~	First level Idle boost request cancelled
Idle Boost 1 End	~	Greater Than 13 V	First level Idle boost request cancelled
Idle Boost 2 Start	~	Less Than 12.4 V	Second level Idle boost requested
Idle Boost 2 End	~	Greater Than 12.5 V	Second level Idle boost request cancelled
Load Shed 1 Start	~	Less Than 12.3 V	Rear Defrost, Heated Mirrors, Heated Seats, HVAC cycled OFF for 20% of their cycle
Load Shed 1 End	~	Greater Than 12.4 V	Clear Load Shed 1
Idle Boost 3 Start	~	Less Than 10 V	Third level Idle boost requested
Idle Boost 3 End	~	Greater Than 12.3 V	Third level Idle boost request cancelled

Function	Battery Temperature Calculation	Battery Voltage Calculation	Action Taken
Load Shed 2 Start	ÅçÅ€Å”	Less Than 12.1 V	Rear Defrost, Heated Mirrors, Heated Seats, HVAC cycled OFF for 50% of their cycle. The BATTERY SAVER ACTIVE message will be displayed on the DIC
Load Shed 2 End	ÅçÅ€Å”	Greater Than 12.2 V	Clear Load Shed 2
Load Shed 3 Start	ÅçÅ€Å”	Less Than 11.9 V	Rear Defrost, Heated Mirrors, Heated Seats, HVAC cycled OFF for 100% of their cycle. The BATTERY SAVER ACTIVE message will be displayed on the DIC
Load Shed 3 End	ÅçÅ€Å”	Greater Than 12.0 V	Clear Load Shed 3

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