

Load Shed System Description and Operation

Electrical Power Management

The electrical power management (EPM) is used to monitor and control the charging system and alert the driver of possible problems within the charging system. The EPM system makes the most efficient use of the generator output, improves the battery state of charge (SOC), 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 SOC condition.

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

Each EPM function, either idle boost or load-shed, is discrete. No 2 functions are active at the same time. Idle boost is activated in incremental steps, idle boost 1 must be active before idle boost 2 can be active. The IPM will enter a load shed event when there is DTC P1668, P2500, P2501 or when any of the following conditions are met:

Function	Battery Temperature Calculation	Battery Voltage Calculation	Amp-hour Calculation	Action Taken
Idle Boost 1 Start	Less Than -15°C (5°F)	Less Than 13 V	--	First level Idle boost requested
Idle Boost 1 Start	--	--	Battery has a net loss greater than 0.6 AH	First level Idle boost requested
Idle Boost 1 Start	--	Less Than 10.9 V	--	First level Idle boost requested
Idle Boost 1 End	Greater Than -10°C (5°F)	Greater Than 12.0 V	Battery has a net loss less than 0.2 AH	First level Idle boost request cancelled
Load Shed 1 Start	--	--	Battery has a net loss of 4.0 AH	Rear Defrost, Heated Mirrors cycled OFF for 20% of their cycle
Load Shed 1 Start	--	Less Than 10.9 V	--	Rear Defrost, Heated Mirrors cycled OFF for 20% of their cycle
Load Shed 1 End	--	Greater Than 12.0 V	Battery has a net loss of less than 2.0 AH	Clear Load Shed 1
Idle Boost 2 Start	--	--	Battery has a net loss greater than 1.6 AH	Second level Idle boost requested
Idle Boost 2 Start	--	Less Than 10.9 V	--	Second level Idle boost requested
Idle Boost	Greater	Greater	Battery has a	Second level Idle boost

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2 End	--	Than 12.0 V	net loss less than 0.8 AH	request cancelled
Idle Boost 3 Start	--	--	Battery has a net loss of 10.0 AH	Third level Idle boost requested
Idle Boost 3 Start	--	Less Than 10.9 V	--	Third level Idle boost requested
Idle Boost 3 End	--	Greater Than 12.0 V	Battery has a net loss of less than 6.0 AH	Third level Idle boost request cancelled
Load Shed 2 Start	--	Less Than 10.9 V	Battery has a net loss greater than 12 AH	Rear Defrost, Heated Mirrors cycled OFF for 50% of their cycle. The BATTERY SAVER ACTIVE message will be displayed on the DIC
Load Shed 2 Start	--	Less Than 10.9 V	--	Rear Defrost, Heated Mirrors cycled OFF for 50% of their cycle. The BATTERY SAVER ACTIVE message will be displayed on the DIC
Load Shed 2 End	--	Greater Than 12.0 V	Battery has a net loss of less than 10 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 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