

Electrical Energy Management system to measure the energy input to the system to keep an accurate state of charge. Connect the positive cable to the battery positive post and the jump start negative cable to a vehicle ground. Do not connect to the negative battery terminal. Connecting directly to the battery negative post bypasses the ability of the vehicle to measure the input current, and does not adjust the battery state of charge accordingly. For a good connection point, follow the negative cable from the battery monitoring sensor to the vehicle body connection (typically on the shock tower sheet metal). If the vehicle was improperly jump started, the Electrical Energy Management system calibrates the battery state of charge after about 8 hours.

DESCRIPTION AND OPERATION > CHARGING SYSTEM - SYSTEM OPERATION AND COMPONENT DESCRIPTION > BATTERY REPLACEMENT

If the vehicle battery is replaced, it is very important to perform the BMS Reset using a diagnostic scan tool. If the BMS Reset is not carried out, it holds the old battery parameters and time in service counter in memory. Additionally it tells the system the battery is in an aged state and may limit the Electrical Energy Management system functions. For more information, Refer to: BATTERY, MOUNTING AND CABLES .

Component Description

Generator

The generator is equipped with an electronic internal voltage regulator.

Generator Current Sensor

The generator current sensor is attached to the generator B+ cable. It is supplied a 5-volt reference voltage and a ground from the PCM. The generator current sensor is a Hall-effect sensor that supplies an analog feedback signal to the PCM. The PCM uses this information for battery charging strategy and idle stability and torque control.

Battery Current Sensor

The battery current sensor is attached to the battery negative cable. It is supplied a 5-volt reference voltage and a ground from the BCM. The battery current sensor is a Hall-effect sensor that supplies an analog feedback signal to the BCM. The BCM reads the battery current sensor feedback voltage to determine how much current is flowing through the battery ground cable. The BCM uses this information for battery state of charge.

Powertrain Control Module (PCM)

The PCM monitors and controls the charging system.

Generator Clutch

Some vehicles are equipped with a one-way clutch (OWC) in the generator pulley. The primary function is to separate the generator rotor inertia from the FEAD belt, lowering belt tension at high engine deceleration rates and reducing NVH. The generator clutch is serviced separately from the generator.

DIAGNOSIS AND TESTING > CHARGING SYSTEM - 2.3L ECOBOOST (201KW 273PS) > INSPECTION AND VERIFICATION