

Battery and Cables - System Operation and Component Description

System Operation

Gasoline Vehicles

The main battery, which is located in the engine compartment, is a 12 volt DC source connected in a negative ground system and is a voltage stabilizer for the 12 volt electrical system.

A BMS is attached to the negative side of the battery cable and a generator current sensor (if equipped) is attached to the positive side of the battery cable. For description of these components, Refer to: Charging System - System Operation and Component Description (414-00 Charging System - General Information, Description and Operation).

Hybrid Vehicles

Hybrid vehicles utilize the main engine compartment battery and an additional 8Ah auxiliary battery. Just like the gasoline vehicles, the main engine compartment battery has a BMS that is attached to the negative side of the battery cable. The auxiliary battery provides support for transient electrical loads that occur during a crank event when the main engine compartment battery is isolated from the rest of the vehicle and unable to provide transient support. The auxiliary battery transient support is only needed if the DC/DC 12 volt output is at or near full capacity (220A). The auxiliary battery is located in the rear compartment, on the LH side of the vehicle. An auxiliary battery isolator, which is located above the main engine compartment battery, uses a LIN to supply diagnostics to the PCM. The auxiliary battery isolator receives a PWM signal from the PCM commanding the auxiliary battery isolator to open and close. During a cranking event the PCM request the auxiliary battery isolator to open, disconnecting the cranking main engine compartment battery, starter, and starter generator from the 12 volt bus. The rest of the vehicle's electrical architecture does not detect the low-voltage transient caused by engine cranking. A battery current sensor is attached to the auxiliary battery negative battery cable. For description of these components, Refer to: Charging System - System Operation and Component Description (414-00 Charging System - General Information, Description and Operation).

All Vehicles

Ford Motor Company strongly recommends that all faulty batteries be returned to an authorized recycling facility for disposal.