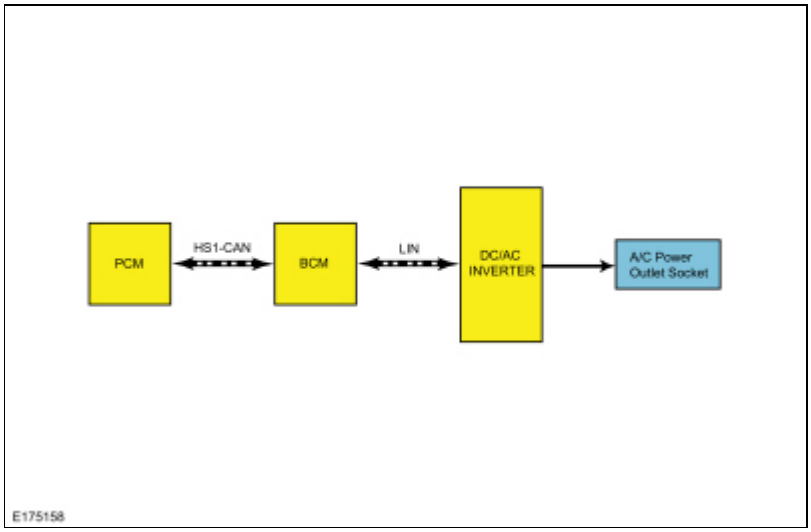
Direct Current/Alternating Current (DC/AC) Inverter - System Operation and Component Description

System Diagram



System Operation

Network Message Chart

Broadcast Message	Originating Module	Message Purpose
Power pack torque status	PCM	Used to determine if the engine is started.

AC OUTLETS (POWER POINTS)

This vehicle is equipped with a 230 or 110 volts AC outlet on the center floor console. The AC outlet is equipped with an amber LED that indicates the system status. The LED is illuminated continuously when the inverter is ON and the system is operating normally. If the LED has a series of three flashes, the power point is overloaded. The LED flashes constantly if the ignition is on and a fault is detected.

DC/AC INVERTER

The direct current/alternating current (DC/AC) inverter converts 12 volts DC to 230 or 110 volts AC to power AC devices rated 150 watts or less.

The 230 or 110 volts AC created by the inverter measures differently than conventional, utility generated AC with some multi-meters.

SYSTEM OPERATION

When the ignition is turned to RUN and the engine started, the LED will flash as the inverter runs a self-test.

The LED will then illuminate constantly and the inverter supplies 230 or 110 volts to the AC outlet. The engine **must** be started for the AC outlet to begin to operate. In **accessory delay mode**, the direct current/alternating current (DC/AC) inverter shuts off after 13 minutes. When the direct current/alternating current (DC/AC) inverter stops receiving information from the BCM over the LIN circuit indicating the engine is started, it begins counting the elapsed time. After 13 minutes the direct current/alternating current (DC/AC) inverter shuts down. Cycling the ignition from RUN to OFF and back to RUN will reset the timer is and the inverter is powered back on by but only for another 13 minutes. This prevents the 12-volt battery from being fully discharged. If the vehicle is started, the inverter operation is not time-limited.

The direct current/alternating current (DC/AC) inverter has a self-protection feature for the following conditions:

- Short circuits on the inverter output circuits: The inverter shuts down if it detects a short on the output circuit(s). After 6 seconds, it restarts and checks for a short condition. If the condition still exists, the inverter shuts down again. The inverter restarts 5 times and if the short still exists on the 5th restart, the inverter disables AC output and the green LED indicator flashes.
- Low voltage input: The inverter does not operate when the input voltage is less than 11 volts.
- High voltage input: The inverter does not operate when the input voltage is greater than 16 volts.
- Load exceeds 150 watts
- High temperature: The inverter does not operate if it has overheated or if ambient (cabin) temperatures exceed 167°F (75°C) .

If the self-protection feature is activated, the LED indicator flashes and the direct current/alternating current (DC/AC) inverter does not provide power output to the AC outlet. If the LED is flashing, the problem must be corrected before direct current/alternating current (DC/AC) inverter operation resumes.

Refer to the Owner's Literature for a list of appropriate electrical loads and devices.

Component Description

COMPONENT OPERATION

The AC power outlet and inverter module are replaced as separate components. The AC outlets are standard 3-prong outlets, similar to a standard wall outlet. The contacts of the outlet exert a more powerful grip on the plug so that it does not shake loose on poor road surfaces.