Direct Current/Direct Current (DC/DC) Converter Control Module - Overview

OVERVIEW

The Direct Current/Direct Current (DC/DC) converter control module, also known as the Voltage Quality Module (VQM), is on vehicles equipped with the auto-start-stop system.

Auto-start-stop technology provides fuel savings by turning the engine off when the vehicle is stopped and then automatically restarting the engine when the driver is ready to continue driving. An auto-stop-start event, also called an idle-stop event, begins when the driver presses their foot on the brake pedal and the vehicle speed becomes zero and the engine automatically shuts off. The auto-stop-start event continues as the driver maintains holding of the brake pedal (e.g. for the duration of a traffic light). When the driver releases the brake pedal, the engine automatically restarts. The end of the auto-start-stop event occurs after the engine has restarted.

During these auto-start-stop events, voltage variations occur resulting from changes in electrical system loads. The function of the Direct Current/Direct Current (DC/DC) converter control module is to boost the voltage level for a select few components during an auto-start event. Once the starter engages, it draws a large amount of current and the entire vehicle voltage drops. There are some components that cannot experience that large of a voltage drop, such as the audio system and instrument cluster. The Direct Current/Direct Current (DC/DC) converter control module keeps the voltage boosted to those components for a short time while the starter is cranking to prevent the components from resetting or shutting down.

For more information on the operation of the auto-start-stop system, refer to the Owner's Literature or Refer to: Starting System - System Operation and Component Description (303-06 Starting System - 2.3L EcoBoost (201kW/273PS), Description and Operation).