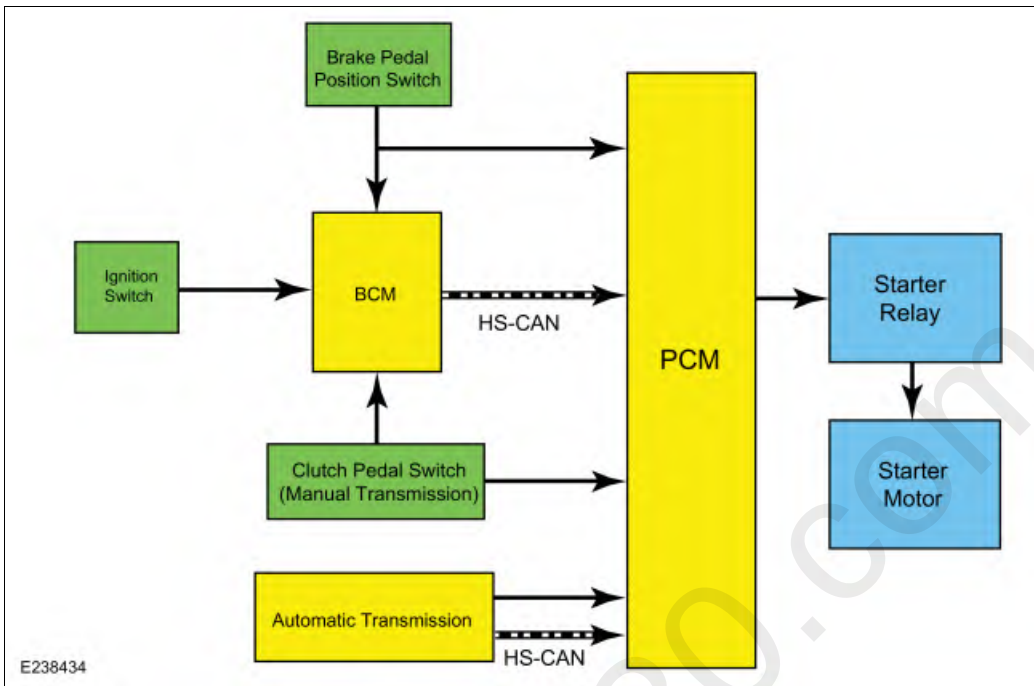


Starting System - System Operation and Component Description

System Operation

System Diagram



Item	Description
1	PCM
2	Clutch Pedal Switch (Manual Transmission)
3	Starter Motor
4	Starter Relay
5	Brake Pedal Position Switch
6	Automatic Transmission
7	BCM
8	Ignition Switch

Network Message Chart

Module Network Input Messages Powertrain Control Module (PCM)

Broadcast Message	Originating Module	Message Purpose
Crank request	BCM	Provides the PCM with indication that the driver has commanded the engine to crank.
Power mode	BCM	Provides the PCM with ignition mode.
Ignition status	BCM	Provides the PCM with ignition mode.

Module Network Input Messages Body Control Module (BCM)

Broadcast Message	Originating Module	Message Purpose
Intelligent access system status	RFA module	The response from the BCM request for the RFA module ID. If the RFA module ID response is incorrect, then the PATS is disabled.

Starting System

The BCM controls the ignition modes and, in conjunction with the PCM, the starting system.

During a start event, when the ignition switch is turned to Start (without push button start) or the engine start/stop switch and the brake pedal are pressed simultaneously (with push-button start), the PCM and BCM receive a request to start the engine. The PCM recognizes the correct inputs from the BCM and TR sensor and provides voltage and ground to energize the starter relay coil and close the starter relay contacts. The starter relay contacts close, providing voltage to the starter solenoid, allowing the starter motor to crank the engine. The PCM disengages the starter motor once an engine RPM threshold is reached, a set crank time is exceeded or the ignition switch is turned to off (without push button start) or the start/stop button is pressed (with push-button start).

If cumulative crank time exceeds 60 seconds within 60 minutes, the starter will be inhibited for 15 minutes and the PCM sets a DTC. Refer to the Owner's Literature for more information.

Passive Anti-theft System (PATS)

This vehicle may be equipped with PATS. PATS disables the engine from starting if an unprogrammed PATS key is used or an invalid PCM ID is received. The PATS is controlled by the BCM. If there is a PATS concern that disables the engine, the IPC displays a corresponding message in the message center.

Refer to: Passive Anti-Theft System (PATS) - System Operation and Component Description (419-01B Passive Anti-Theft System (PATS), Description and Operation).

(without Push Button Start) or Refer to: Passive Anti-Theft System (PATS) - System Operation and Component Description (419-01C Passive Anti-Theft System (PATS) - Vehicles With: Keyless Vehicle System, Description and Operation).

(with Push Button Start)

Remote Start

If equipped, with a remote start system. The remote start feature allows the operator to remotely start the engine from up to 30 meters (98 feet) away and is activated using the Passive Key. Once started, the engine runs for 10 minutes. The run time can be extended by the operator. Refer to the Owners Guide for more information. For more information on enabling the Remote start system refer to

Refer to: Handles, Locks, Latches and Entry Systems - System Operation and Component Description (501-14 Handles, Locks, Latches and Entry Systems, Description and Operation).

and the Owners Literature.

Component Description

Ignition Switch (without Push Button Start)

Refer to: Steering Wheel and Column Electrical Components - System Operation and Component Description (211-05 Steering Wheel and Column Electrical Components, Description and Operation).

Ignition Switch - Push Button Start (with Push Button Start)

The ignition switch - push button start (Engine Start/Stop button) is a momentary contact switch that is hardwired to the BCM and the PCM. The ignition switch - push button start is used to obtain the OFF, ON or START ignition modes. For more information,

Refer to: Steering Wheel and Column Electrical Components - System Operation and Component Description (211-05 Steering Wheel and Column Electrical Components, Description and Operation).

Integrated Keyhead Transmitter (IKT) (without Push Button Start)

Refer to: Passive Anti-Theft System (PATS) - System Operation and Component Description (419-01B Passive Anti-Theft System (PATS), Description and Operation).

Passive Key (with Push Button Start)

Refer to: Passive Anti-Theft System (PATS) - System Operation and Component Description (419-01C Passive Anti-Theft System (PATS) -

Vehicles With: Keyless Vehicle System, Description and Operation).

Passive Anti-Theft Transceiver

Refer to: Passive Anti-Theft System (PATS) - System Operation and Component Description (419-01B Passive Anti-Theft System (PATS), Description and Operation).

BCM

Refer to: Body Control Module (BCM) - System Operation and Component Description (419-10 Multifunction Electronic Modules, Description and Operation).

PCM

The PCM provides power and ground to the starter relay to initiate cranking of the engine.

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