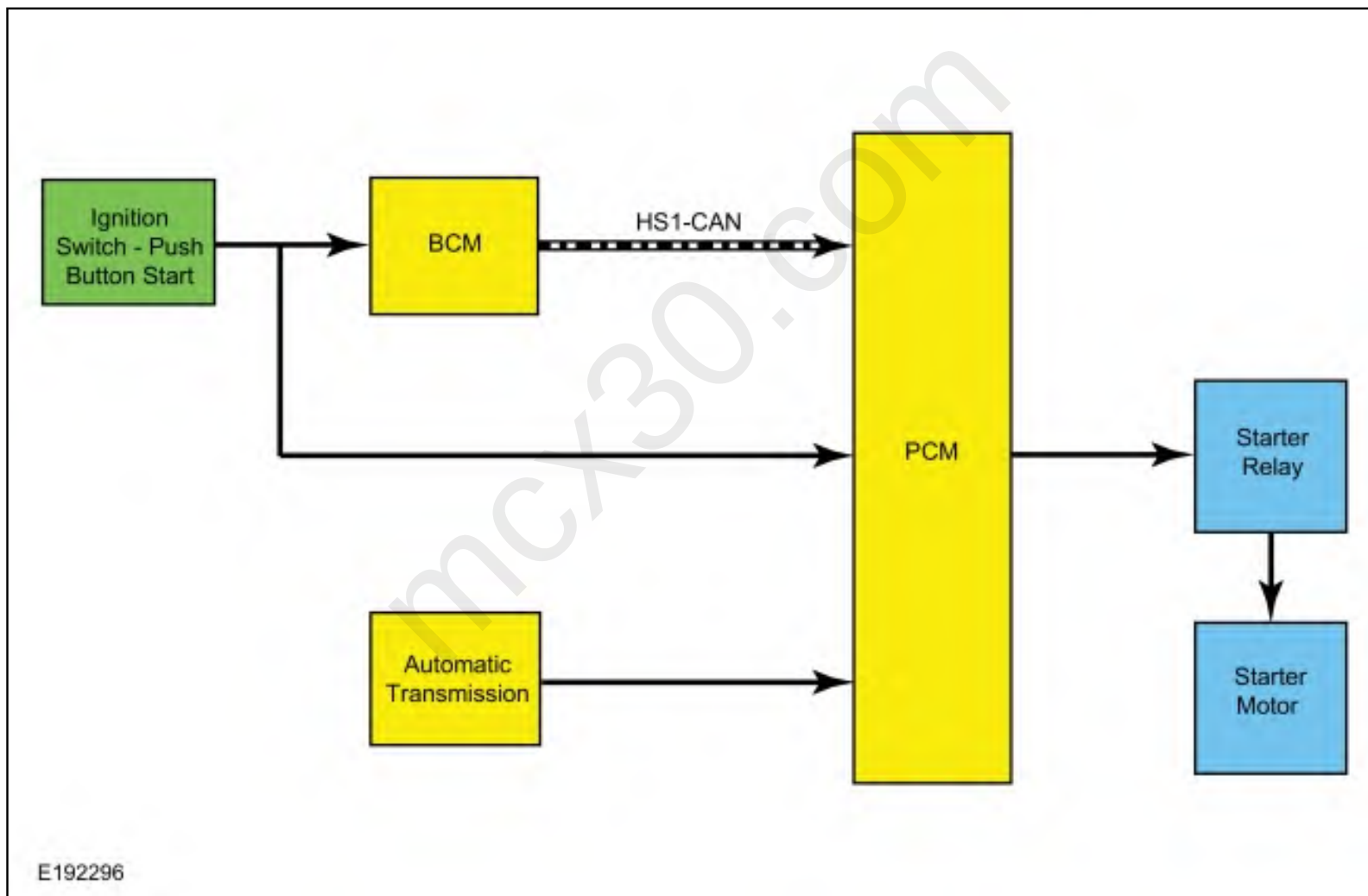


Starting System - System Operation and Component Description

System Operation

System Diagram



Network Message Chart

Module Network Input Messages Powertrain Control Module (PCM)

Broadcast Message	Originating Module	Message Purpose
Starter crank request	BCM	Provides the PCM with ignition, hood input status and a request to crank and start the engine during a remote start event.
Remote start request	BCM	Provides the PCM with a remote start request.

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 off (without push button start) or the start/stop button is pressed (with push-button start).

Passive Anti-theft System (PATS)

This vehicle is equipped with a 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).

Remote Start

The remote start system is controlled by the RKE system. For more information,

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

Component Description

Body Control Module (BCM)

Refer to: [Module Controlled Functions - System Operation and Component Description](#) (419-10 Multifunction Electronic Modules, Description and Operation).

Gateway Module

The GWM translates messages between HS-CAN and MS-CAN. This allows a message to be distributed throughout the networks.

Refer to: [Communications Network - System Operation and Component Description](#) (418-00 Module Communications Network, Description and Operation).

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)

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

Passive Key

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

Powertrain Control Module (PCM)

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

RTM

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

Information not available at this time.

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