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2009 FORD Focus Sedan OEM Service and Repair Workshop Manual

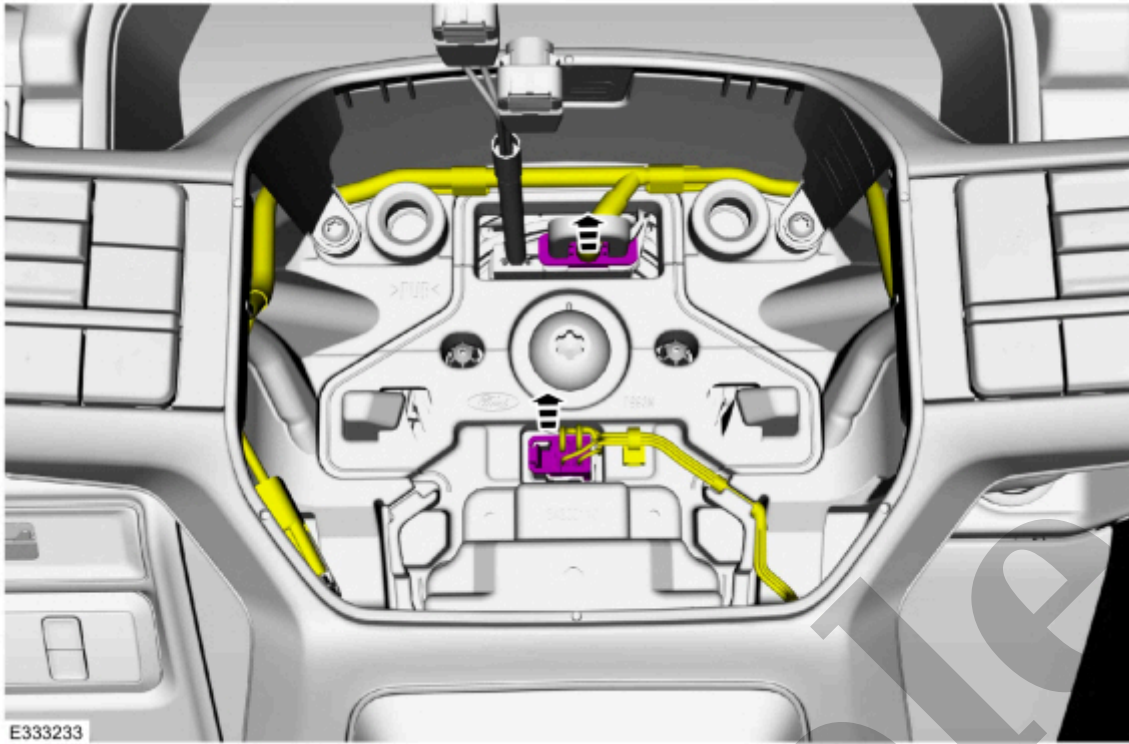
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4. Check and if necessary adjust front toe.

Refer to: [Front Toe Adjustment - Vehicles With: Adaptive Steering](#)(204-00 Suspension System - General Information, General Procedures).

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Sample



[Click here to learn about symbols, color coding, and icons used in this manual.](#)

3. NOTE

Make sure the tick-mark on the end of the steering column shaft is on the top position.

Remove and discard the steering wheel bolt and remove the steering wheel.

Torque : 46 lb.ft (62.5 Nm)

Steering Wheel and Column Electrical Components - Overview

211-05 Steering Wheel and Column Electrical Components	2022 F-150
Description and Operation	Procedure revision date: 10/1/2020

Steering Wheel and Column Electrical Components - Overview

Steering Column Switches Overview

The steering column switches are located on and around the steering column. They enable the driver to control various vehicle functions while remaining focused on driving. The steering column switches consist of:

- Left multifunction switch - mounted on the left side of the SCCM (steering column control module) and is used:
 - to control the turn signals, low/high beam selection and the flash-to-pass feature.
Refer to: [Exterior Lighting - System Operation and Component Description](#)(417-01 Exterior Lighting, Description and Operation).
 - to control the windshield wipers and washer.
Refer to: [Wipers and Washers - System Operation and Component Description](#)(501-16 Wipers and Washers, Description and Operation).
- Steering wheel switches - mounted on the front of the steering wheel and can be serviced separately from the steering wheel. These are used to access settings and controls displayed in the message center or for control of the cruise control system, the audio system and the SYNC® system.
 - For the message center (left upper switch),
Refer to: [Warning Chimes - System Operation and Component Description](#)(413-01 Instrumentation, Message Center and Warning Chimes, Description and Operation).
 - For the cruise control system (left lower switch),

- OFF
- ACC
- ON
- START

When placed in ACC or ON, the ignition switch provides voltage inputs to the BCM (body control module) .

When placed in START, the ignition switch provides voltage inputs to the BCM (body control module) and PCM (powertrain control module) .

Push Button Start Ignition System Overview

The push button start ignition system is used to place the ignition in the ON or OFF mode and to start or shut off the vehicle powertrain. The push button ignition switch is located to the right of the steering wheel in the instrument panel.

Heated Steering Wheel Overview

The heated steering wheel system consists of the following components:

- Steering wheel heater elements (part of steering wheel)
- Steering wheel temperature sensor (part of steering wheel)
- SCCM (steering column control module)
- FDIM (front display interface module)

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Item	Description
1	GSM (gear shift module)
2	Ignition Switch
3	Key Release Interlock Actuator
4	PCM (powertrain control module)
5	BCM (body control module)
6	BCMC (body control module C)
7	Run/Start Relay
8	GWM (gateway module A)

Network Message Chart - Conventional Ignition Switch

GWM (gateway module A) Module Network Input Messages

Broadcast Message	Originating Module	Message Purpose
Ignition status	BCM (body control module)	This message informs the GWM (gateway module A) of the current ignition status; off, on, start, unknown or invalid.

PCM (powertrain control module) Module Network Input Messages

Broadcast Message	Originating Module	Message Purpose
Ignition status	BCM (body control module)	This message informs the PCM (powertrain control module) of the current ignition status; off, on, start, unknown or invalid.

Ignition Switch System

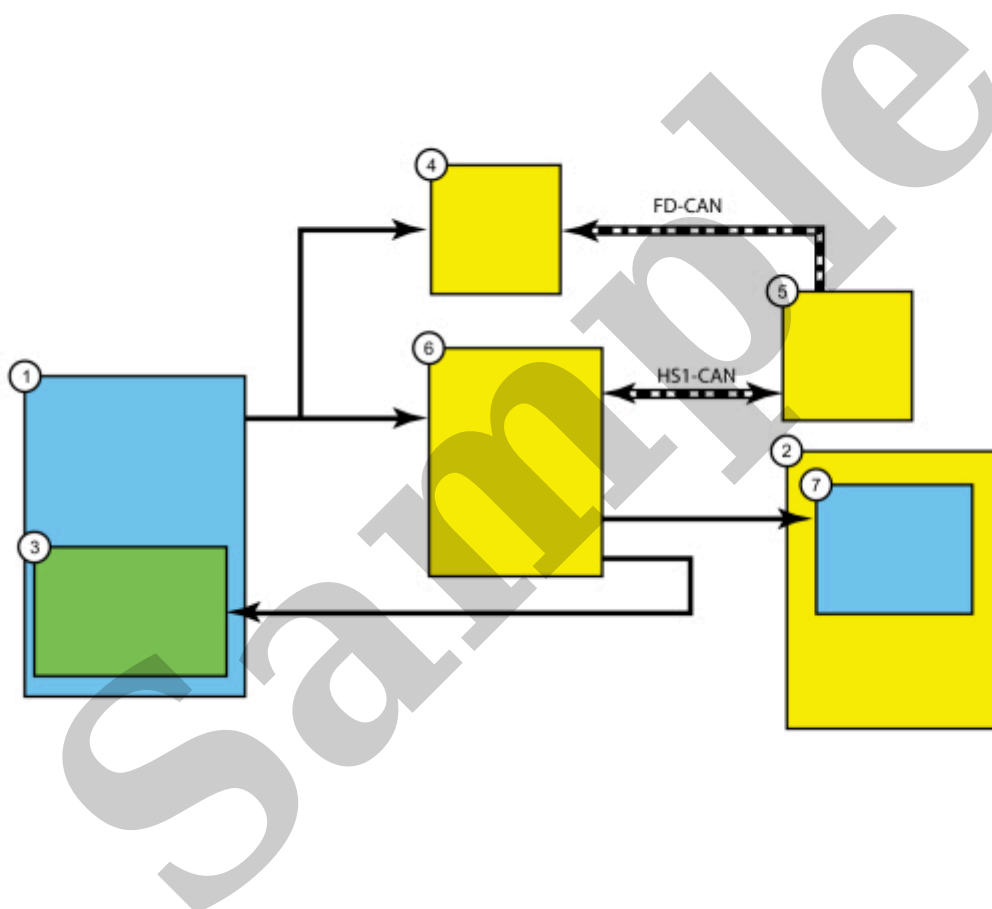
The BCM (body control module) controls the ignition modes, including OFF, ACC, ON and START. This allows some systems to be activated without starting the vehicle.

The ignition key cylinder inhibit feature prevents the ignition lock cylinder from being rotated to the OFF/LOCK position when the vehicle is not in PARK.

The key removal inhibit solenoid (part of the ignition switch) receives battery voltage at all times from the BCM (body control module) fuse 20 (5A). The ground control circuit for the key removal inhibit solenoid is controlled by the BCM (body control module) based on the park detect input from the GSM (gear shift module) .

When the selector lever is in PARK, the key removal inhibit solenoid deactivates and allows the ignition lock cylinder to be turned to the OFF/LOCK position to remove the key.

System Diagram - Push Button Ignition Switch



E341701

Item	Description
1	Ignition Switch (Start/Stop button)
2	BCMC (body control module C)
3	Ignition Mode Indicator
4	PCM (powertrain control module)

Ignition Entry Condition	Desired Ignition Mode	Action To Take
Off	ON (engine off)	Press the START/STOP button without applying the brake pedal.
Off or on	START	Apply the brake pedal and then press the START/STOP button.
On (engine off)	OFF	Press the START/STOP button.
On (engine running)	OFF	Press and hold the START/STOP button.

Ignition Mode LED (light emitting diode) Indicator

The ignition mode LED (light emitting diode) indicates the ignition mode of the vehicle. The BCM (body control module) controls the voltage to the ignition mode LED (light emitting diode) indicator. Refer to the following table.

Ignition Mode	Ignition Mode LED (light emitting diode) Indicator
Off	Off
On (engine off)	Flashing
On (engine running)	On

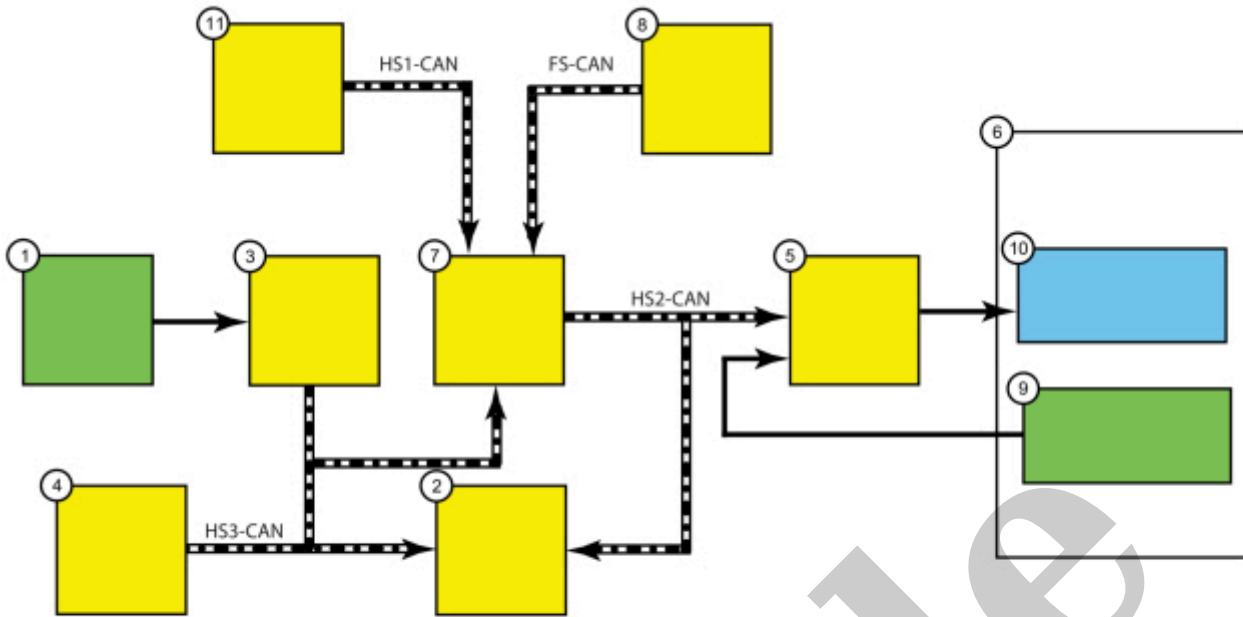
OFF

The BCM (body control module) controls the relays providing voltage to the vehicle electrical systems. When the ignition is in the ON mode, a single press and release of the START/STOP button changes the ignition to the OFF mode. No programmed key is required to change the ignition to the OFF mode when the vehicle is running.

If the vehicle is in motion, a momentary press of the START/STOP button does not shut the vehicle off. If the vehicle is moving at a speed greater than 15 km/h (9 mph), the START/STOP button must be pressed and held for longer than one second (or pressed 3 times within 2 seconds) to turn the ignition off.

When the BCM (body control module) changes the ignition mode to OFF, it communicates the ignition mode to the other modules by sending an ignition status message over the CAN (controller area network) .

ON



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Item	Description
1	FDIM (front display interface module)
2	FCIM (front controls interface module)
3	APIM (SYNC module)
4	IPC (instrument panel cluster)
5	SCCM (steering column control module)
6	Heated Steering Wheel
7	GWM (gateway module A)
8	PCM (powertrain control module)
9	Temperature Sensor
10	Heating Element

When the SCCM (steering column control module) receives a request to heat the steering wheel, the SCCM (steering column control module) applies voltage and ground to the steering wheel heating elements (integral to the steering wheel) to heat the steering wheel to a temperature of approximately 28-34°C (82-94°F). The heated steering wheel temperature is maintained by the SCCM (steering column control module) using a temperature sensor in the steering wheel.

The SCCM (steering column control module) is designed to remain on, heating the steering wheel and maintaining the temperature until switched off on the FDIM (front display interface module) or the ignition is turned off.

The controls and indicators for the heated steering wheel system are located on the FDIM (front display interface module) (touchscreen) only. The FDIM (front display interface module) does not communicate on any network and is connected directly to the APIM (SYNC module) .

Remote Start System

The heated steering wheel system (along with the heated front seats) may be configured using the message center to activate when the remote start feature is used, based on outside air temperature. During remote start, the outside air temperature is continually evaluated by the HVAC (heating, ventilation and air conditioning) system. The heated steering wheel system activation changes if the outside air changes from cold to moderate or warm temperatures or back from moderate or warm to cold temperatures.

Component Description

Conventional Ignition Switch

The ignition switch is a multiple position rotary switch that is controlled by a lock cylinder and a key. The ignition switch is monitored by the BCM (body control module) , which controls the voltage to the various electrical systems depending on input from the ignition switch.

The key removal inhibit solenoid (internal to the ignition switch) is an electronically controlled solenoid that prevents the ignition lock cylinder from being turned to the OFF/LOCK position unless the selector lever is in the PARK position. This also prevents the key from being removed from the ignition lock cylinder.

Push Button Ignition Switch

The push button ignition switch is a momentary dual contact switch that provides direct input to the BCM (body control module) and PCM (powertrain control module) . Both sets of contacts are normally open. When the START/STOP button is pressed, one set of contacts provides a ground signal to the BCM (body control module) and the other set of contacts supplies voltage to the BCM (body control module) and the PCM (powertrain control module) .

The ignition mode LED (light emitting diode) indicator is located near the top of the START/STOP button and is controlled by the BCM (body control module) .

SCCM (steering column control module)