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## 1999 FORD Galaxy OEM Service and Repair Workshop Manual

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## Collision Warning and Collision Avoidance System

<b>419-03C Collision Warning and Collision Avoidance System</b>	<b>2022 F-150</b>
<b>Diagnosis and Testing</b>	<b>Procedure revision date: 09/21/2020</b>

### Collision Warning and Collision Avoidance System

#### Symptom Chart

##### Symptom Chart: Forward Collision Warning

Diagnostics in this manual assume a certain skill level and knowledge of Ford-specific diagnostic practices.

REFER to: [Diagnostic Methods](#)

(100-00 General Information, Description and Operation).

#### Symptom Chart

Condition	Possible Sources	Actions
The forward collision warning system is inoperative	IPC (instrument panel cluster)	REFER to: <a href="#">Lane Keeping System</a> (419-07 Lane Keeping System, Diagnosis and Testing).
PRE-COLLISION ASSIST NOT AVAILABLE SENSOR BLOCKED message in the IPC (instrument panel cluster) message center	IPMA (image processing module A)	REFER to: <a href="#">Lane Keeping System</a> (419-07 Lane Keeping System, Diagnosis and Testing).
PRE-COLLISION ASSIST NOT AVAILABLE message in the IPC (instrument panel cluster) message center	IPMA (image processing module A)	REFER to: <a href="#">Lane Keeping System</a> (419-07 Lane Keeping System, Diagnosis and Testing).

## Cruise Control - Overview

<b>419-03A Cruise Control</b>	<b>2022 F-150</b>
<b>Description and Operation</b>	<b>Procedure revision date: 10/2/2020</b>

### Cruise Control - Overview

#### Overview

The cruise control system controls by the PCM (powertrain control module) .

The cruise control mode is selected from the steering wheel mounted switches (ON/OFF, SET+, SET- and CAN/RES), which are integrated into the LH steering wheel switch.

The cruise control system will maintain a selected vehicle speed between 32 km/h (20 mph), or 29 km/h (18 mph) (metric cluster), and the maximum limited vehicle speed. When a MyKey® restricted key is in use and max speed limiter is turned on, vehicle speed is limited to 130 km/h (80 mph).

During normal driving, the vehicle speed can vary slightly from the set speed due to road conditions. The vehicle speed can fluctuate when driving up and down a steep hill. If the vehicle speed decreases more than 16 km/h (10 mph) below the set speed, the cruise control disengages.

Engine braking can be incorporated within the automatic transmission with cruise control operating on a steep downhill portion to help hold the set speed.

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1	IPC (instrument panel cluster)
2	Accelerator Pedal
3	SCCM (steering column control module)
4	PCM (powertrain control module)
5	Cruise Control Switches
6	SECM (steering effort control module)
7	GWM (gateway module A)
8	RCM (restraints control module)
9	SASM (steering angle sensor module)
10	ABS (anti-lock brake system)
11	EBB (electric brake booster)
12	Deactivator Switch
13	Stoplamp Switch

## Network Message Chart

### Network Input Messages - IPC (instrument panel cluster)

Broadcast Message	Originating Module	Message Purpose
Cruise control override	PCM (powertrain control module)	Driver overriding cruise control with accelerator pedal.
Cruise control status	PCM (powertrain control module)	Data used for speed control indicator status.

### Network Input Messages - SCCM (steering column control module) (With Adaptive Steering)

Certain conditions cause the cruise control system to deactivate:

- Application of the parking brake
- Transmission gear selector is placed into a position other than D or OD
- Cruise control set speed is overridden with the accelerator pedal for a period longer than 5 minutes
- Cruise control switch is pressed or stuck longer than 2 minutes
- ABS (anti-lock brake system) fault

The Electric Brake Booster (EBB) (contains the stoplamp switch and cruise control deactivator switch) and APP (accelerator pedal position) sensor are hardwired inputs to the PCM (powertrain control module) .

Electronic Throttle Body (ETB) command is a hardwired output of the PCM (powertrain control module) .

The vehicle speed is controlled by the PCM (powertrain control module) through the Electronic Throttle Control (ETC) subsystem.

The cruise control system provides self-diagnostics. Cruise control is disabled anytime an error is detected in the system. No IPC (instrument panel cluster) indicator or message center messages are displayed when faults occur. Fault codes are logged by the PCM (powertrain control module) , SCCM (steering column control module) or SECM (steering effort control module) (vehicles equipped with adaptive steering).

An Electronic Throttle Control (ETC) system fault also causes the cruise control system to be disabled. In this case, an Electronic Throttle Control (ETC) system powertrain malfunction (wrench) warning indicator is displayed.

### **Cruise Control Indicator**

The cruise control indicator, located in the IPC (instrument panel cluster) , illuminates to indicate the cruise control system is active.

### **Steering Wheel Switch Function**

Cruise control switch inputs are received by the SCCM (steering column control module) and sent to the PCM (powertrain control module) through the GWM (gateway module A) to the HS-CAN2 (high-speed controller area network 2) circuits.

Pressing (ON) and releasing the ON/OFF switch turns the cruise control system on. Pressing (SET+) or (SET-) on the SET switch while the vehicle is traveling at the desired speed activates the cruise control system.

Pressing up or down on the SET switch while in the active mode increases or decreases the maintained vehicle speed by 2 kmh per press when displayed units are "kmh" and 1 mph per press when displayed units are "mph". If the respective switch is pressed and held, the vehicle speed continues to accelerate or decelerate until the switch is released.

## Cruise Control

<b>419-03A Cruise Control</b>	<b>2022 F-150</b>
<b>Diagnosis and Testing</b>	<b>Procedure revision date: 07/28/2022</b>

### Cruise Control

#### Diagnostic Trouble Code (DTC) Chart

Diagnostics in this manual assume a certain skill level and knowledge of Ford-specific diagnostic practices.

REFER to: [Diagnostic Methods](#)

(100-00 General Information, Description and Operation).

#### Diagnostic Trouble Code Chart

Module	DTC (diagnostic trouble code)	Description	Action
PCM (powertrain control module)	P0504:00	Brake Switch A/B Correlation: No Sub Type Information	<a href="#">GO to Pinpoint Test C</a>
PCM (powertrain control module)	P0572:00	Brake Switch A Circuit Low: No Sub Type Information	<a href="#">GO to Pinpoint Test C</a>
PCM (powertrain control module)	P0573:00	Brake Switch A Circuit High: No Sub Type Information	<a href="#">GO to Pinpoint Test C</a>
PCM (powertrain control module)	P1703:00	Brake Switch Out Of Self - Test Range: No Sub Type Information	<a href="#">GO to Pinpoint Test C</a>
PCM (powertrain control module)	P1935:00	Brake Switch/Sensor Signal: No Sub Type Information	<a href="#">GO to Pinpoint Test C</a>

SECM (steering effort control module)	B1380:11	Steering Wheel Right Switch Pack: Circuit Short To Ground	<a href="#">GO to Pinpoint Test B</a>
SECM (steering effort control module)	B1380:17	Steering Wheel Right Switch Pack: Circuit Voltage Above Threshold	<a href="#">GO to Pinpoint Test B</a>
SECM (steering effort control module)	B1380:2A	Steering Wheel Right Switch Pack: Signal Stuck In Range	<a href="#">GO to Pinpoint Test B</a>
SECM (steering effort control module)	B1380:4A	Steering Wheel Right Switch Pack: Incorrect Component Installed	<a href="#">GO to Pinpoint Test B</a>
SECM (steering effort control module)	C2003:11	Steering Wheel Switch Left Module: Circuit Short To Ground	<a href="#">GO to Pinpoint Test B</a>

### Global Customer Symptom Code (GCSC) Chart

Diagnostics in this manual assume a certain skill level and knowledge of Ford-specific diagnostic practices.

REFER to: [Diagnostic Methods](#)

(100-00 General Information, Description and Operation).

### Global Customer Symptom Code Chart

Customer Symptom	Action
Driver Aid & Information > Speed Control > Controls > Inoperative	<a href="#">GO to Pinpoint Test A</a>
Driver Aid & Information > Speed Control > Controls > Inoperative	<a href="#">GO to Pinpoint Test B</a>

### Symptom Chart(s)

#### Symptom Chart: Cruise Control

Diagnostics in this manual assume a certain skill level and knowledge of Ford-specific diagnostic practices.

REFER to: [Diagnostic Methods](#)

(100-00 General Information, Description and Operation).

#### Symptom Chart

Condition	Actions
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		module) detects a fault from a left steering wheel switch input circuit.
SCCM (steering column control module) B137F:9E	Steering Wheel Left Switch Pack: Stuck On	Sets in continuous memory and during the on-demand self-test when the SCCM (steering column control module) detects a left steering wheel switch is active for more than 2 minutes.
SCCM (steering column control module) B1380:11	Steering Wheel Right Switch Pack: Circuit Short To Ground	Set in continuous memory and during the on-demand self-test when the SCCM (steering column control module) detects a short to ground from a right steering wheel switch input circuit.
SCCM (steering column control module) B1380:13	Steering Wheel Right Switch Pack: Circuit Open	Set in continuous memory and during the on-demand self-test when the SCCM (steering column control module) detects an open from a right steering wheel switch input circuit.
SCCM (steering column control module) B1380:4A	Steering Wheel Right Switch Pack: Incorrect Component Installed	Set in continuous memory and during the on-demand self-test when the SCCM (steering column control module) detects a fault from a right steering wheel switch input circuit.
SCCM (steering column control module) B1380:96	Steering Wheel Right Switch Pack: Component Internal Failure	Set in continuous memory and during the on-demand self-test when the SCCM (steering column control module) detects a fault from a right steering wheel switch input circuit.
SCCM (steering column control module) B1380:9E	Steering Wheel Right Switch Pack: Stuck On	Sets in continuous memory and during the on-demand self-test when the SCCM (steering column control module) detects a right steering wheel switch is active for more than 2 minutes.

### Possible Sources

- Wiring, terminals or connectors
- Cruise control switch
- ABS (anti-lock brake system) module
- EBB (electric brake booster)
- PCM (powertrain control module)
- SCCM (steering column control module)



- Wait at least 10 seconds. Retrieve Continuous Monitoring Diagnostic Trouble Codes (CMDTCs) from all modules.

**Are any lost communication DTCs set in any module?**

<b>Yes</b>	REFER to: <a href="#">Controller Area Network (CAN) Module Communications Network</a> (418-00A Controller Area Network (CAN) Module Communications Network, Diagnosis and Testing).
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<b>No</b>	GO to <a href="#">A3</a>
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**A3 CHECK THE STOPLAMP SWITCH (BOO1) AND CRUISE CONTROL DEACTIVATOR SWITCH (BOO2) PARAMETER IDENTIFICATION (PIDS)**

- Using a diagnostic scan tool, view PCM (powertrain control module) PIDs.
- Using the table, monitor the PIDs  
 Access the PCM (powertrain control module) and monitor the BOO1 (Brake Pedal Position) (0) PID (parameter identification) (stoptlamp switch) and  
 Access the PCM (powertrain control module) and monitor the BOO2 (Brake Pressure Applied) (0) PID (parameter identification) (cruise control deactivator switch) while applying and releasing the brake pedal.

Brake Pedal Position	BOO1 PID	BOO2 PID
Released	Off	Off
Applied	On	On

**Do the PID (parameter identification) values agree with the brake pedal position?**

<b>Yes</b>	GO to <a href="#">A8</a>
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<b>No</b>	<a href="#">GO to Pinpoint Test C</a>
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**A4 CHECK FOR VOLTAGE TO THE STEERING WHEEL SWITCH**

**Yes**

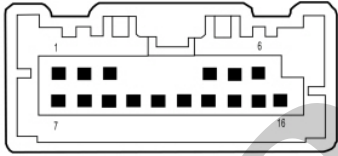

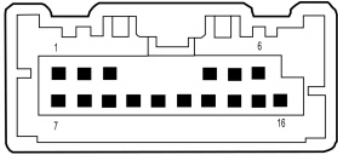
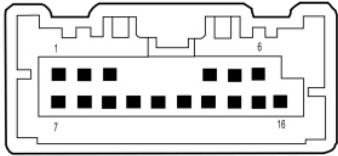

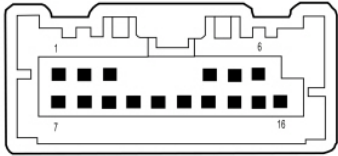
INSTALL a new steering wheel switch. in question.  
REFER to: [Steering Wheel Multifunction Switch](#)  
(211-05 Steering Wheel and Column Electrical Components, Removal and Installation).

**No**

GO to [A5](#)

### A5 CHECK THE STEERING WHEEL HARNESS

- Ignition OFF.
- Disconnect Clockspring C218B .
- Ignition ON.
- Measure:

Positive Lead	Measurement / Action	Negative Lead
 <p>E253177</p> <p>Upper Clockspring C218B, pin 11 (component side)</p>		 <p>E253177</p> <p>Upper Clockspring C218B, pin 13 (component side)</p>
 <p>E253177</p>		 <p>E253177</p>