

2008 Lincoln Mark LT

2008 ACCESSORIES & BODY, CAB Speed Control - F-150 & Mark LT

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Speed Control - F-150 & Mark LT

DESCRIPTION AND OPERATION

SPEED CONTROL

When the speed control system is activated, the operator can maintain a selected vehicle speed between 48 and 200 km/h (30 and maximum vehicle speed) without pressing the accelerator pedal. The speed control does not work at speeds below 48 km/h (30 mph).




The vehicle speed control system consists of the following components:

- Speed control switch(es)
- Speed control deactivator switch
- Clutch pedal position (CPP) switch
- Stoplamp switch
- Speed control indicator
- PCM

DIAGNOSTIC TESTS

SPEED CONTROL

Special Tools

Illustration	Tool Name	Tool Number
 ST1137-A	73III Automotive Meter	105-R0057 or equivalent
 ST2834-A	Vehicle Communication Module (VCM) and Integrated Diagnostic System (IDS) software with appropriate hardware, or equivalent scan tool	
 ST2621-A	Diagnostic Tool, Restraint System (2 required)	418-F395

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Principles of Operation

The speed control system is controlled by the PCM. The speed control system is designed to maintain a selected vehicle speed between 48km (30 mph) and the maximum limited vehicle speed. The speed control system is controlled by the steering wheel mounted switches (ON, OFF, SET/ACCEL, COAST, and RESUME), the stoplamp switch, clutch pedal position (CPP) switch, and the speed control deactivator switch. The steering wheel mounted switches are hardwired to the PCM through the clockspring.

The speed control functions include:

- Turning the speed control system on
- Setting and maintaining the desired vehicle speed
- Accelerating the vehicle speed
- Decelerating the vehicle speed
- Resuming the prior vehicle speed
- Turning the vehicle speed control system off

Pressing and releasing the ON switch turns the speed control system on. Pressing and releasing the SET/ACCEL or COAST switch while the vehicle is traveling at the desired speed activates the speed control system.

Tapping the SET/ACCEL or the COAST switch while in the set mode respectively, increases or decreases the maintained vehicle speed by 1.6 km/h (1 mph) per tap. If the respective button is pressed and held, the vehicle speed continues to accelerate or decelerate until the button is released.

Pressing and releasing the OFF switch, or turning the ignition switch to the OFF position, turns the speed control system off. Applying the brake pedal puts the speed control system into the STANDBY mode. Pressing the RESUME button, when the speed control system is in the STANDBY mode causes the vehicle to accelerate to the last set speed. RESUME does not function if the OFF button is pressed, the ignition switch is in the OFF position, or if the current vehicle speed is below the minimum operational speed.

The CPP switch is used on vehicles equipped with a manual transmission. When the clutch pedal is applied with the vehicle speed control system engaged, the normally closed switch opens and signals the PCM to deactivate the speed control.

Whenever the speed control system is engaged and active, a speed control icon on the instrument cluster (IC) or message center is illuminated.

The speed control deactivator switch is provided as an additional safety feature. Normally, when the brake pedal is applied, an electrical signal from the stoplamp circuit to the PCM deactivates the system. Under increased brake pedal effort, the speed control deactivator switch opens and removes the voltage from the PCM input circuit, releasing the throttle.

The inputs to the PCM are:

- Output shaft speed (OSS) sensor

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- Digital transmission range (TR) sensor
- Speed control switch(es)
- CPP switch
- Speed control deactivator switch
- Stoplamp switch
- Accelerator pedal position sensor

The outputs of the PCM for the speed control system are:

- Speed control indicator lamp
- Throttle command

The speed control system throttle position is completely controlled by the PCM through the electronic-controlled throttle body. Speed control electronics are contained entirely within the electronic throttle control (ETC) subsystem.

When the speed control system is active, the PCM corrects for deviations in the actual vehicle by proportionally moving the throttle plate. The PCM modulates the throttle to minimize error between the actual vehicle speed and the desired speed.

The PCM strategy uses the throttle control for smooth accelerations.

The PCM sends a serial message over the controller area network (CAN) to the IC to control the operation of the speed control telltale.

In the event of an OFF command or a deactivation request from the speed control deactivator switch, the speed control system carries out a hard deactivation and immediately returns the throttle to the idle position.

The speed control system provides self-diagnostics. The speed control is disabled anytime an error is detected in the system. No IC telltale or message center messages are displayed when faults occur. Fault codes are logged by the PCM.

An ETC system fault also causes the speed control system to be disabled. In this case, an ETC system warning telltale (wrench light) or a message center message is displayed.

Additionally, the following conditions cause the speed control system to deactivate:

- Transmission gear selector in a position other than D or OD
- Clutch pedal is pressed
- Speed control set speed is over-ridden with the accelerator pedal for a period longer than 5 minutes
- Parking brake is applied
- Vehicle speed loss from set speed of greater than 16 km/h (10 mph) occurs
- Vehicle speed falls below the minimum allowable limit of 48 km/h (30 mph)

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- Speed control switch pressed or stuck longer than 2 minutes

Inspection and Verification

1. Verify the customer concern.
2. Visually inspect for obvious signs of mechanical or electrical damage.

VISUAL INSPECTION CHART

Mechanical	Electrical
<ul style="list-style-type: none">• Throttle body	<ul style="list-style-type: none">• Auxiliary relay box fuse F01 (5A)• Central junction box (CJB) fuse(s):<ul style="list-style-type: none">○ 2 (20A)○ 14 (10A)• Wiring, terminals or connectors• Speed control switch• Stoplamp switch• Speed control deactivator switch• Clutch pedal position (CPP) switch• PCM

3. If an obvious cause for an observed or reported concern is found, correct the cause (if possible) before proceeding to the next step.
4. Verify the speedometer operates correctly without speed control by test driving the vehicle. If the speedometer does not operate correctly, refer to **INSTRUMENT CLUSTER (IC), MESSAGE CENTER, AND WARNING CHIMES** article.
5. Verify the stoplamp operate correctly with the ignition switch in the ON position. If the stoplamp do not operate correctly, refer to **EXTERIOR LIGHTING** article.
6. Verify the brake warning indicator is operating correctly. If the brake warning indicator does not operate correctly, refer to **INSTRUMENT CLUSTER (IC), MESSAGE CENTER, AND WARNING CHIMES** article.

NOTE: Make sure to use the latest scan tool software release.

7. If the cause is not visually evident, connect the scan tool to the data link connector (DLC).

NOTE: The vehicle communication module (VCM) LED prove-out confirms power and ground from the DLC are provided to the VCM.

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8. If the scan tool does not communicate with the VCM:
 - Check the VCM connection to the vehicle.
 - Check the scan tool connection to the VCM.
 - Refer to **MODULE COMMUNICATIONS NETWORK** article, No Power To The Scan Tool, to diagnose no communication with the scan tool.
9. If the scan tool does not communicate with the vehicle:
 - Verify the ignition key is in the ON position.
 - Verify the scan tool operation with a known good vehicle.
 - Refer to **MODULE COMMUNICATIONS NETWORK** article to diagnose no response from the PCM.
10. Carry out the network test.
 - If the scan tool responds with no communication for one or more modules, refer to **MODULE COMMUNICATIONS NETWORK** article.
 - If the network test passes, retrieve and record the continuous memory DTCs.
11. Clear the continuous DTCs and carry out the self-test diagnostics for the PCM.
12. If the DTCs retrieved are related to the concern, go to DTC Charts. For all other DTCs, refer to **MULTIFUNCTION ELECTRONIC MODULES** article.
13. If no DTCs related to the concern are retrieved, go to **Symptom Chart**.

DTC Charts

PCM DTC CHART

DTCs	Description	Action
P0500	Vehicle Speed Sensor A	REFER to the <u>Introduction - Gasoline Engines</u> article.
P0579	Cruise Control Multi-Function Input A Circuit Range/Performance	Go to <u>Pinpoint Test C</u> .
P0581	Cruise Control Multi-Function Circuit High	Go to <u>Pinpoint Test C</u> .
P0720	Output Shaft Speed Sensor Circuit	If equipped with a manual transmission, REFER to the <u>Introduction - Gasoline Engines</u> article. If equipped with an automatic transmission, REFER to <u>AUTOMATIC TRANSAXLE/TRANSMISSION - 4R70E/4R75E</u> article.
P0721	Output Shaft Speed Sensor Circuit Range/Performance	If equipped with a manual transmission, REFER to the <u>Introduction - Gasoline Engines</u> article. If equipped with an automatic transmission, REFER to <u>AUTOMATIC TRANSAXLE/TRANSMISSION - 4R70E/4R75E</u> article.
P0722	Output Shaft Speed Sensor Circuit No Signal	If equipped with a manual transmission, REFER to the <u>Introduction - Gasoline Engines</u> article. If equipped with an automatic transmission, REFER to <u>AUTOMATIC TRANSAXLE/TRANSMISSION -</u>

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		4R70E/4R75E article.
P1703	Brake Switch Out of Self Test Range	Go to <u>Pinpoint Test B.</u>
All other DTCs	-	REFER to <u>MULTIFUNCTION ELECTRONIC MODULES</u> article.

Symptom Chart

Symptom Chart

Condition	Possible Sources	Action
<ul style="list-style-type: none"> The speed control is inoperative - no DTCs 	<ul style="list-style-type: none"> PCM not configured for speed control Stoplamp concern Speed control switch Digital transmission range (TR) sensor Clutch pedal position (CPP) switch PCM 	<ul style="list-style-type: none"> Go to <u>Pinpoint Test A.</u>
<ul style="list-style-type: none"> The speed control indicator lamp is always on 	<ul style="list-style-type: none"> Wiring, terminals or connectors Instrument cluster (IC) PCM 	<ul style="list-style-type: none"> REFER to <u>INSTRUMENT CLUSTER (IC), MESSAGE CENTER, AND WARNING CHIMES</u> article.
<ul style="list-style-type: none"> The speed control does not disengage when the clutch is applied 	<ul style="list-style-type: none"> Wiring, terminals or connectors CPP switch PCM 	<ul style="list-style-type: none"> Go to <u>Pinpoint Test D.</u>

Pinpoint Tests

Pinpoint Test A: The Speed Control Is Inoperative - No DTCs

Refer to **SYSTEM WIRING DIAGRAMS - F150** , Speed Control for schematic and connector information.

Normal Operation

The PCM sends a signal through circuit 151 (LB/BK) to the speed control switches, which passes through the clockspring. The return signal receives ground through circuit 848 (DG/OG) and the clockspring. The stoplamp switch sends a voltage signal through circuit 511 (LG) to the PCM when the brake pedal is applied, and deactivates the speed control, if engaged.

Vehicles equipped with a manual transmission have an additional clutch pedal position (CPP) switch. The CPP switch, normally closed, supplies a ground signal to the PCM through circuit 306 (TN/LB). When the clutch

pedal is applied, the CPP switch moves to the open position causing the PCM to lose the ground signal and deactivate the speed control.

The speed control deactivator switch interrupts the power signal to the PCM through circuit 307 (BK/YE) when the brake pedal is applied firmly and passes the stoplamp switch trip point. This is a redundant signal to the PCM.

This pinpoint test is intended to diagnose the following:

- PCM not configured for speed control
- Stoplamp concern
- Speed control switch
- Digital transmission range (TR) sensor
- CPP switch
- PCM

PINPOINT TEST A: THE SPEED CONTROL IS INOPERATIVE - NO DTCs

NOTE: Use the correct probe adapter(s) when making measurements. Failure to use the correct probe adapter(s) may damage the connector.

A1 CHECK THE OPERATION OF THE STOPLAMP

- Key in ON position.
- Observe the stoplamp while applying and releasing the brake pedal.
- **Do the stoplamp operate correctly?**

YES : Go to A2.

NO : REFER to **EXTERIOR LIGHTING** article to diagnose the inoperative stoplamp.

A2 VERIFY PCM CONFIGURATION

- Enter the following diagnostic mode on the diagnostic tool: Programmable Parameters
- Verify that the speed control is enabled in the PCM.
- **Is the speed control enabled?**

YES : Go to A3.

NO : ENABLE the speed control in the PCM using the scan tool programmable parameters menu. TEST the system for normal operation.

A3 CHECK FOR DTCs

- Review the recorded DTCs from the PCM self-test.
- **Are any DTCs recorded?**

YES : REFER to **DTC Charts**.

NO : Go to A4.

A4 CHECK THE SPEED CONTROL SWITCH

- Key in ON position.

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- Enter the following diagnostic mode on the diagnostic tool: PCM DataLogger
- Press each speed control switch button while monitoring the SCCS (speed control switch) PID.
- **Does the PID value agree with the switch position?**

YES : If equipped with an automatic transmission, go to A5.

If equipped with a manual transmission, go to A7.

NO : If only one switch does not display the correct PID value, **INSTALL** a new speed control switch. REFER to **Speed Control Switch - Without Remote Audio/Climate Controls** or **Speed Control Switch - With Remote Audio/Climate Controls**. CLEAR the DTCs. TEST the system for normal operation.

Otherwise, go to **Pinpoint Test c**.

A5 CHECK THE DIGITAL TR SENSOR

- Enter the following diagnostic mode on the diagnostic tool: PCM DataLogger
- Monitor the PCM TR (transmission range sensor) PID.
- Select DRIVE.
- **Does the PCM TR PID value agree with the transmission range selector lever position?**

YES : Go to A6.

NO : REFER to **AUTOMATIC TRANSAXLE/TRANSMISSION - 4R70E/4R75E** article to diagnose the transmission.

A6 CHECK THE DIGITAL TR SENSOR FOR CORRECT ALIGNMENT

- Check the digital TR sensor alignment. Refer to **AUTOMATIC TRANSAXLE/TRANSMISSION - 4R70E/4R75E** article.
 - **Is the digital TR sensor aligned correctly?**
- YES** : Go to A7.
- NO** : ADJUST the digital TR sensor. REFER to **AUTOMATIC TRANSAXLE/TRANSMISSION - 4R70E/4R75E** article. TEST the system for normal operation.

A7 CHECK THE VEHICLE SPEED

NOTE: This step may require an assistant.

- Enter the following diagnostic mode on the diagnostic tool: ABS DataLogger
 - Monitor and record the ABS LF_WSPD (left front wheel speed) PID while driving the vehicle at 48 km/h (30 mph) as indicated on the speedometer.
 - Enter the following diagnostic mode on the diagnostic tool: PCM DataLogger
 - Monitor and record the PCM VSS (vehicle speed) PID while driving the vehicle at 48 km/h (30 mph).
 - **Does the speed indicated by the ABS LF_WSPD PID match the PCM VSS PID?**
- YES** : If equipped with an automatic transmission, go to A11.

If equipped with a manual transmission, go to A8.

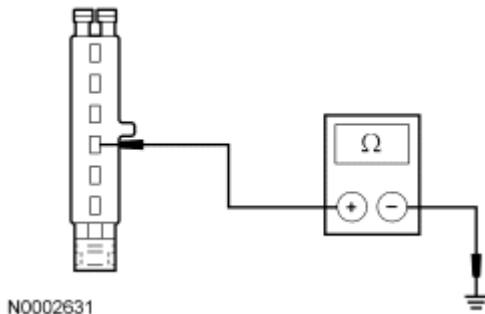
NO : REFER to the **Introduction - Gasoline Engines** article to continue diagnosis of the output shaft sensor (OSS) signal.

A8 CHECK THE PCM CPP SWITCH PID

- Key in ON position.
- Enter the following diagnostic mode on the diagnostic tool: PCM DataLogger
- Monitor the PCM CPP_TOP (CPP switch top travel) PID while pressing and releasing the clutch pedal.
- **Does the PCM CPP_TOP agree with the clutch pedal position?**
YES : Go to A11.
NO : Go to A9.

A9 CHECK CIRCUIT 570 (BK/WH) FOR AN OPEN

- Key in OFF position.
- Disconnect: CPP Switch C257



N0002631

Fig. 1: Checking Circuit 570 (BK/WH) For An Open
Courtesy of FORD MOTOR CO.

- Measure the resistance between the CPP switch C257-3, circuit 570 (BK/WH), harness side and ground.
- **Is the resistance less than 5 ohms?**
YES : Go to A10.
NO : REPAIR the circuit. TEST the system for normal operation.

A10 CHECK CIRCUIT 306 (TN/LB) FOR AN OPEN OR A SHORT TO GROUND

- Disconnect: PCM C175b

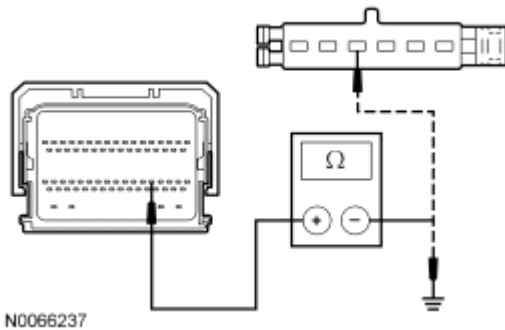


Fig. 2: Checking Circuit 306 (TN/LB) For Open Or Short To Ground (For Late Build Vehicles)

Courtesy of FORD MOTOR CO.

- Measure the resistance between the PCM C175b-38, circuit 306 (TN/LB), harness side and the CPP switch C257-4, circuit 306 (TN/LB), harness side; and between the PCM C175b-38, circuit 306 (TN/LB), harness side and ground.
- **Is the resistance less than 5 ohms between the PCM and the CPP switch, and greater than 10,000 ohms between the PCM and ground?**

YES : INSTALL a new CPP switch. REFER to **ELECTRONIC ENGINE CONTROLS** article. TEST the system for normal operation.

NO : REPAIR the circuit. TEST the system for normal operation.

A11 CHECK FOR CORRECT PCM OPERATION

- Disconnect all the PCM connectors.
- Check for:
 - corrosion
 - damaged pins
 - pushed-out pins
- Connect all the PCM connectors and make sure they seat correctly.
- Operate the system and verify the concern is still present.
- **Is the concern still present?**

YES : INSTALL a new PCM. REFER to **ELECTRONIC ENGINE CONTROLS** article. TEST the system for normal operation.

NO : The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector.

Pinpoint Test B: DTC P1703 - Brake Switch Out of Self-Test Range

Refer to **SYSTEM WIRING DIAGRAMS - F150** , Speed Control for schematic and connector information.

Normal Operation

When the brake pedal is applied, the stoplamp switch supplies voltage to the stoplamp through circuit 511 (LG). This signal is also supplied to the PCM to indicate the brake pedal is applied. When the PCM senses the voltage

from the stoplamp switch, the speed control is deactivated.

The speed control deactivator switch interrupts the power signal to the PCM through circuit 307 (BK/YE) when the brake pedal is applied firmly and passes the stoplamp switch trip point. This is a redundant signal to the PCM.

- DTC P1703 (Brake Switch Out of Self Test Range) - sets when there is an open or short in the deactivator switch circuits or when there is an open or short in the stoplamp circuits.

This pinpoint test is intended to diagnose the following:

- Fuse
- Wiring, terminals or connectors
- Speed control deactivator switch
- PCM

PINPOINT TEST B: DTC P1703 - BRAKE SWITCH OUT OF SELF-TEST RANGE

NOTE: Use the correct probe adapter(s) when making measurements. Failure to use the correct probe adapter(s) may damage the connector.

B1 CHECK THE STOPLAMP SWITCH

- Key in ON position.
- Enter the following diagnostic mode on the diagnostic tool: PCM DataLogger
- Monitor the PCM BOO (stoplamp switch) PID.
- Apply and release the brake pedal.
- **Does the PID value agree with the brake pedal position?**

YES : Go to B4.

NO : Go to B2.

B2 CHECK THE OPERATION OF THE STOPLAMP

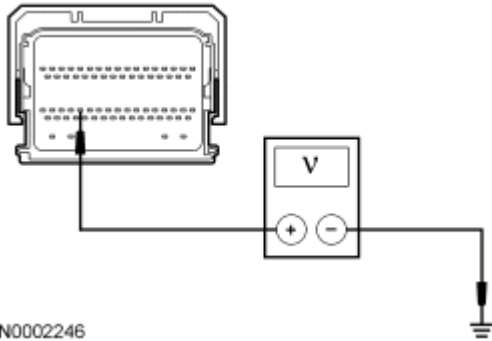
- Apply and release the brake pedal while observing the stoplamp.
- **Do the stoplamp operate correctly?**

YES : Go to B3.

NO : REFER to **EXTERIOR LIGHTING** article to diagnose the stoplamp.

B3 CHECK CIRCUIT 511 (LG) FOR AN OPEN

- Key in OFF position.
- Disconnect: PCM C175b



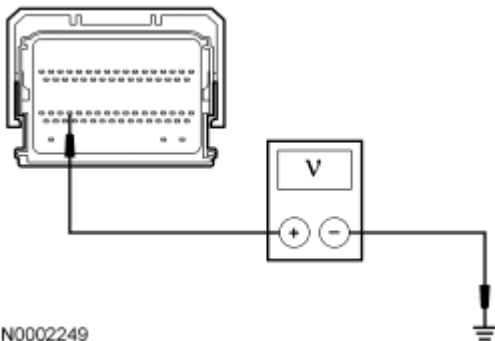
N0002246

Fig. 3: Checking Circuit 511 (LG) For An Open
Courtesy of FORD MOTOR CO.

- While applying the brake pedal, measure the voltage between the PCM C175b-46, circuit 511 (LG), harness side and ground.
- **Is the voltage greater than 10 volts?**
YES : Go to B8.
NO : REPAIR the circuit. CLEAR the DTCs. REPEAT the self-test.

B4 CHECK THE SPEED CONTROL DEACTIVATOR SWITCH FOR CORRECT OPERATION

- Key in ON position.



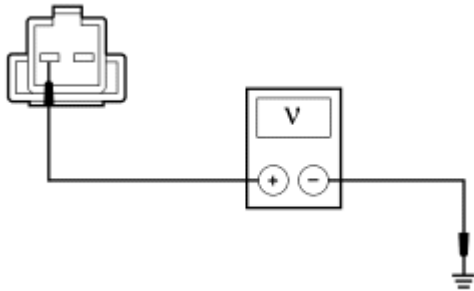
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Fig. 4: Checking Speed Control Deactivator Switch For Correct Operation
Courtesy of FORD MOTOR CO.

- While firmly applying and releasing the brake pedal, measure the voltage between the PCM C175b-47, circuit 307 (BK/YE), harness side and ground.
- **Is the voltage greater than 10 volts with the brake pedal released, and 0 volts with the brake pedal firmly applied?**
YES : Go to B8.
NO : Go to B5.

B5 CHECK CIRCUIT 295 (LB/PK) FOR AN OPEN

- Key in OFF position.
- Disconnect: Speed Control Deactivator Switch C277
- Key in ON position.

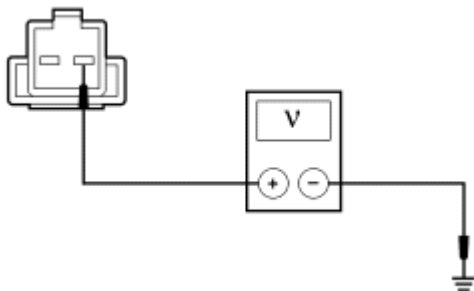


N0002250

Fig. 5: Checking Circuit 295 (LB/PK) For An Open
Courtesy of FORD MOTOR CO.

- Measure the voltage between the speed control deactivator switch C277-2, circuit 295 (LB/PK), harness side and ground.
- **Is the voltage greater than 10 volts?**
YES : Go to B6.
NO : VERIFY the central junction box (CJB) fuse 14 (10A) is OK. If OK, REPAIR the circuit. CLEAR the DTCs. REPEAT the self-test.

B6 CHECK CIRCUIT 307 (BK/YE) FOR A SHORT TO VOLTAGE



N0002251

Fig. 6: Checking Circuit 307 (BK/YE) For A Short To Voltage
Courtesy of FORD MOTOR CO.

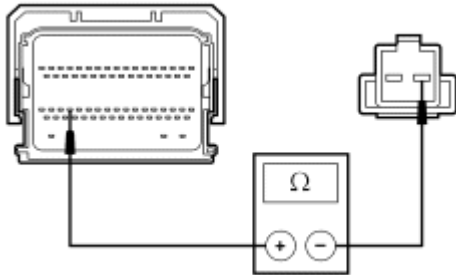
- Measure the voltage between the speed control deactivator switch C277-1, circuit 307 (BK/YE), harness side and ground.
- **Is any voltage present?**
YES : REPAIR the circuit. CLEAR the DTCs. REPEAT the self-test.
NO : Go to B7.

B7 CHECK CIRCUIT 307 (BK/YE) FOR AN OPEN

- Key in OFF position.

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Fig. 7: Checking Circuit 307 (BK/YE) For Open
Courtesy of FORD MOTOR CO.

- Measure the resistance between the PCM C175b-47, circuit 307 (BK/YE), harness side and the speed control deactivator switch C277-1, circuit 307 (BK/YE), harness side.
- **Is the resistance less than 5 ohms?**
YES : INSTALL a new speed control deactivator switch. REFER to **Speed Control Deactivator Switch**. CLEAR the DTCs. REPEAT the self-test.
NO : REPAIR the circuit. CLEAR the DTCs. REPEAT the self-test.

B8 CHECK FOR CORRECT PCM OPERATION

- Disconnect all the PCM connectors.
- Check for:
 - corrosion
 - damaged pins
 - pushed-out pins
- Connect all the PCM connectors and make sure they seat correctly.
- Operate the system and verify the concern is still present.
- **Is the concern still present?**
YES : INSTALL a new PCM. REFER to **ELECTRONIC ENGINE CONTROLS** article. TEST the system for normal operation.
NO : The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. CLEAR the DTCs. REPEAT the self-test.

Pinpoint Test C: Speed Control Switch Stuck or Circuit Failure

Refer to **SYSTEM WIRING DIAGRAMS - F150** , Speed Control for schematic and connector information.

Normal Operation

The PCM sends a reference voltage signal, which passes through the clockspring and through circuit 151 (LB/BK) to the speed control switches. The speed control switch signal return (ground) is provided by circuit 848 (DG/OG) through the clockspring.

- DTC P0579 (Cruise Control Multi-Function Input A Circuit Range/Performance) - may set when the

speed control switch is stuck or the switch circuits are open, shorted to voltage or shorted to ground.

- DTC P0581 (Cruise Control Multi-Function Circuit High) - sets when the speed control switch circuits are shorted to voltage or open.

This pinpoint test is intended to diagnose the following:

- Wiring, terminals or connectors
- Clockspring
- Speed control switch
- PCM

PINPOINT TEST C: SPEED CONTROL SWITCH STUCK OR CIRCUIT FAILURE

NOTE: Use the correct probe adapter(s) when making measurements. Failure to use the correct probe adapter(s) may damage the connector.

C1 CHECK THE SPEED CONTROL SWITCH

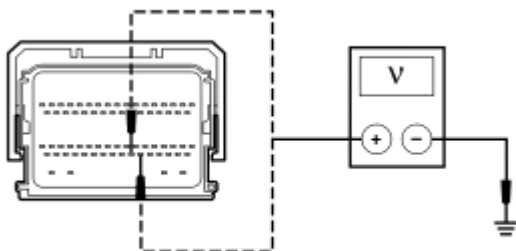
- Key in ON position.
- Enter the following diagnostic mode on the diagnostic tool: PCM DataLogger
- Press each speed control switch button while monitoring the SCCS (speed control switch) PID.
- **Does the PID read "OFF" continuously?**

YES : Go to C5.

NO : Go to C2.

C2 CHECK THE SPEED CONTROL SWITCH CIRCUITRY FOR A SHORT TO VOLTAGE

- Key in OFF position.
- Disconnect: PCM C175b
- Key in ON position.
- Turn the parking lamps on.



N0002360

Fig. 8: Checking Speed Control Switch Circuitry For A Short To Voltage
Courtesy of FORD MOTOR CO.

- Measure the voltage between the PCM C175b-56, circuit 151 (LB/BK), harness side and ground;

and between the PCM C175b-57, circuit 848 (DG/OG), harness side and ground.

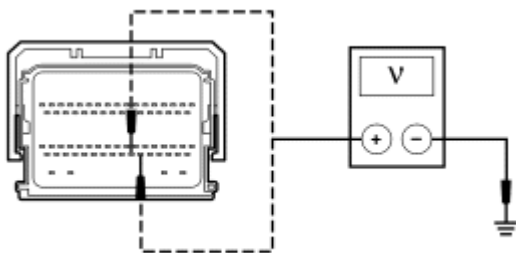
- **Is any voltage present?**

YES : TURN the parking lamps off. Go to C3 .

NO : TURN the parking lamps off. Go to C8 .

C3 CHECK CIRCUITS 151 (LB/BK) AND 848 (DG/OG) FOR A SHORT TO VOLTAGE

- Key in OFF position.
- Disconnect: Clockspring C218b
- Key in ON position.
- Turn the parking lamps on.



N0002360

Fig. 9: Checking Circuits 151 (LB/BK) & 848 (DG/OG) For A Short To Voltage
 Courtesy of FORD MOTOR CO.

- Measure the voltage between the PCM C175b-56, circuit 151 (LB/BK), harness side and ground; and between the C175b-57, circuit 848 (DG/OG), harness side and ground.
- **Is any voltage present?**
- **YES** : REPAIR the circuit in question. CLEAR the DTCs. REPEAT the self-test.
- **NO** : Go to C4.

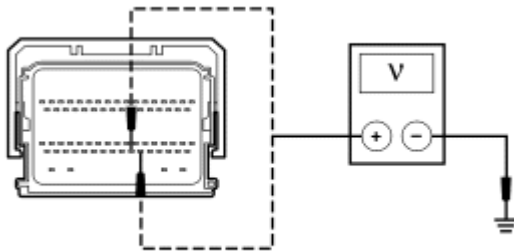
C4 CHECK THE CLOCKSPRING FOR A SHORT TO VOLTAGE

- Key in OFF position.
- Connect: Clockspring C218b
- Remove the driver air bag module. Refer to **SUPPLEMENTAL RESTRAINT SYSTEM** article.
- Connect the restraint system diagnostic tool (418-F395) to the upper clockspring air bag connector.
- Disconnect: Upper Clockspring

WARNING: Prior to reinstalling a previously removed driver air bag module, make sure to correctly position the wire clip that retains the driver air bag module to the steering wheel. Failure to follow this instruction will result in incorrect installation of the driver air bag module and increases the risk of serious personal injury or death in a crash.

- Connect the battery.

- Key in ON position.
- Turn the parking lamps on.



N0002360

Fig. 10: Checking Clockspring For A Short To Voltage
Courtesy of FORD MOTOR CO.

- Measure the voltage between the PCM C175b-56, circuit 151 (LB/BK), harness side and ground; and between the C175b-57, circuit 848 (DG/OG), harness side and ground.

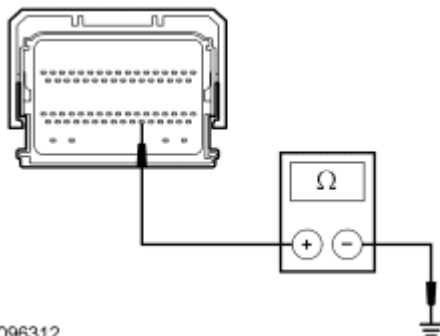
• Is any voltage present?

YES : INSTALL a new clockspring. REFER to **SUPPLEMENTAL RESTRAINT SYSTEM** article. DISCONNECT the battery. INSTALL the driver air bag module. REFER to **SUPPLEMENTAL RESTRAINT SYSTEM** article. CLEAR the DTCs. REPEAT the self-test.

NO : REPAIR the speed control switch(es) harness. DISCONNECT the battery. INSTALL the driver air bag module. REFER to **SUPPLEMENTAL RESTRAINT SYSTEM** article. CLEAR the DTCs. REPEAT the self-test.

C5 CHECK THE SPEED CONTROL SWITCH CIRCUITRY FOR A SHORT TO GROUND

- Key in OFF position.



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Fig. 11: Checking Speed Control Switch Circuitry For Short To Ground
Courtesy of FORD MOTOR CO.

- Measure the resistance between the PCM C175b-56, circuit 151 (LB/BK), harness side and ground.

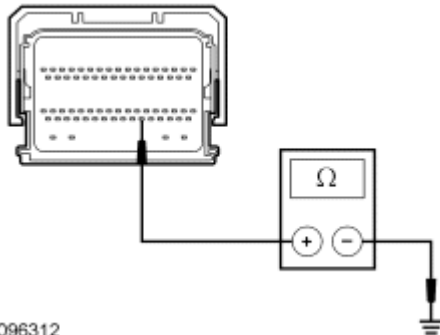
• Is the resistance greater than 10,000 ohms?

YES : Go to C9.

NO : Go to C6.

C6 CHECK CIRCUIT 151 (LB/BK) FOR A SHORT TO GROUND

- Disconnect: Clockspring C218b



A0096312

Fig. 12: Checking Circuit 151 (LB/BK) For A Short To Ground
Courtesy of FORD MOTOR CO.

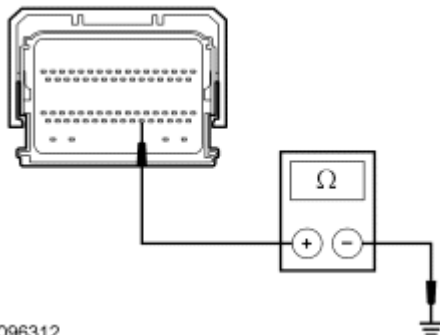
- Measure the resistance between the PCM C175b-56, circuit 151 (LB/BK), harness side and ground.
- **Is the resistance greater than 10,000 ohms?**

YES : Go to C7.

NO : REPAIR the circuit. CLEAR the DTCs. REPEAT the self-test.

C7 CHECK THE CLOCKSPRING FOR A SHORT TO GROUND

- Remove the driver air bag module. Refer to **SUPPLEMENTAL RESTRAINT SYSTEM** article.
- Disconnect: Upper Clockspring



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Fig. 13: Checking Clockspring For A Short To Ground
Courtesy of FORD MOTOR CO.

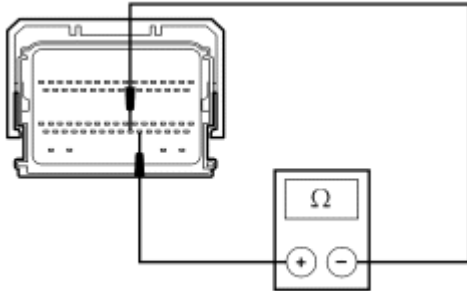
- Measure the resistance between the PCM C175b-56, circuit 151 (LB/BK), harness side and ground.
- **Is the resistance greater than 10,000 ohms?**

YES : INSTALL a new LH speed control switch (vehicles without audio steering wheel controls) or INSTALL a new speed control switch (vehicles with audio steering wheel controls). INSTALL the driver air bag module. REFER to **SUPPLEMENTAL RESTRAINT SYSTEM** article. CLEAR the DTCs. REPEAT the self-test.

NO : INSTALL a new clockspring. REFER to **SUPPLEMENTAL RESTRAINT SYSTEM** article. DISCONNECT the battery. INSTALL the driver air bag module. REFER

to **SUPPLEMENTAL RESTRAINT SYSTEM** article. CLEAR the DTCs. REPEAT the self-test..

C8 CHECK THE SPEED CONTROL SWITCH CIRCUITRY FOR AN OPEN



N0002245

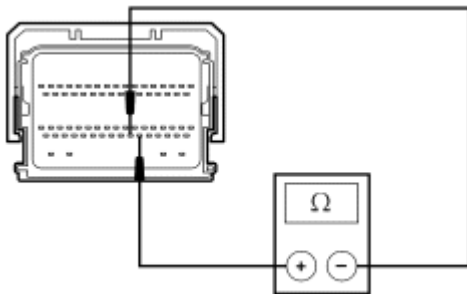
Fig. 14: Checking Speed Control Switch Circuitry For An Open
Courtesy of FORD MOTOR CO.

- Measure the resistance between the PCM C175b-56, circuit 151 (LB/BK), harness side and the PCM C175b-57, circuit 848 (DG/OG), harness side.
- **Is the resistance between 3,965 and 4,655 ohms?**

YES : Go to C13.

NO : Go to C11.

C9 CHECK THE SPEED CONTROL SWITCH CIRCUITRY FOR A SHORT



N0002245

Fig. 15: Checking Speed Control Switch Circuitry For A Short
Courtesy of FORD MOTOR CO.

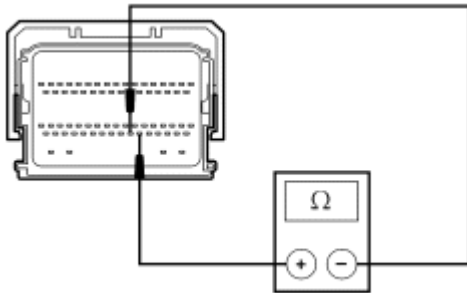
- Measure the resistance between the PCM C175b-56, circuit 151 (LB/BK), harness side and the PCM C175b-57, circuit 848 (DG/OG), harness side.
- **Is the resistance less than 300 ohms?**

YES : Go to C10.

NO : Go to C13.

C10 CHECK THE CLOCKSPEED SPRING FOR A SHORT

- Disconnect the steering wheel speed control switches.



N0002245

Fig. 16: Checking Clockspring For A Short
Courtesy of FORD MOTOR CO.

- Measure the resistance between the PCM C175b-56, circuit 151 (LB/BK), harness side and the PCM C175b-57, circuit 848 (DG/OG), harness side.

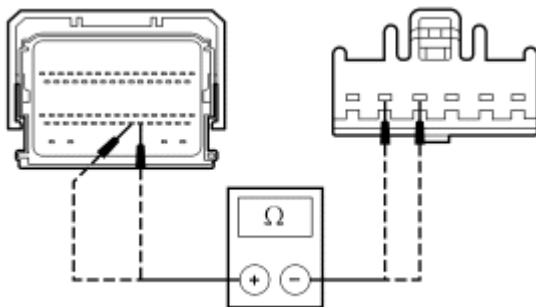
- **Is the resistance less than 300 ohms?**

YES : INSTALL a new clockspring. REFER to **SUPPLEMENTAL RESTRAINT SYSTEM** article. DISCONNECT the battery. INSTALL the driver air bag module. REFER to **SUPPLEMENTAL RESTRAINT SYSTEM** article. CLEAR the DTCs. REPEAT the self-test.

NO : REPAIR the speed control switch(es) harness. INSTALL the driver air bag module. REFER to **SUPPLEMENTAL RESTRAINT SYSTEM** article. CLEAR the DTCs. REPEAT the self-test.

C11 CHECK CIRCUITS 151 (LB/BK) AND 848 (DG/OG) FOR AN OPEN

- Disconnect: Clockspring C218b



A0079239

Fig. 17: Checking Circuits 151 (LB/BK) And 848 (DG/OG) For Open
Courtesy of FORD MOTOR CO.

- Measure the resistance between the PCM C175b-56, circuit 151 (LB/BK), harness side and the clockspring C218b-4, circuit 151 (LB/BK), harness side; and between the PCM C175b-57, circuit 848 (DG/OG), harness side and the clockspring C218b-5, circuit 848 (DG/OG), harness side.

- **Are the resistances less than 5 ohms?**

YES : Go to C12.

NO : REPAIR the circuit in question. CLEAR the DTCs. REPEAT the self-test.

C12 CHECK THE CLOCKSPRING

- Remove the driver air bag. Refer to **SUPPLEMENTAL RESTRAINT SYSTEM** article.

- Disconnect: Upper Clockspring

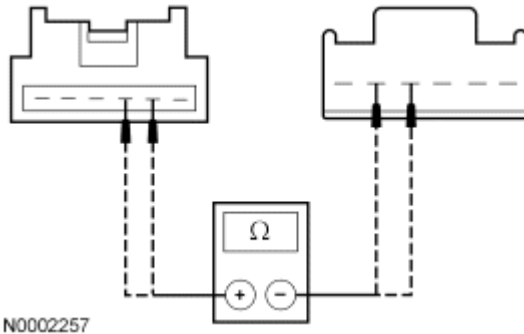


Fig. 18: Checking Clockspring
Courtesy of FORD MOTOR CO.

- Measure the resistance between the clockspring C218b pin 4, component side and the upper clockspring pin 3, component side; and between the clockspring C218b pin 5, component side and the upper clockspring pin 2, component side.
- **Are the resistances less than 5 ohms?**
YES : REPAIR the speed control switch(es) harness. INSTALL the driver air bag module. REFER to **SUPPLEMENTAL RESTRAINT SYSTEM** article. CLEAR the DTCs. REPEAT the self-test.
NO : INSTALL a new clockspring. REFER to **SUPPLEMENTAL RESTRAINT SYSTEM** article. DISCONNECT the battery. INSTALL the driver air bag module. REFER to **SUPPLEMENTAL RESTRAINT SYSTEM** article. CLEAR the DTCs. REPEAT the self-test.

C13 CHECK FOR CORRECT PCM OPERATION

- Disconnect all the PCM connectors.
- Check for:
 - corrosion
 - damaged pins
 - pushed-out pins
- Connect all the PCM connectors and make sure they seat correctly.
- Operate the system and verify the concern is still present.
- **Is the concern still present?**
YES : INSTALL a new PCM. REFER to **ELECTRONIC ENGINE CONTROLS** article. TEST the system for normal operation.
NO : The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. DISCONNECT the battery. INSTALL the driver air bag module. REFER to **SUPPLEMENTAL RESTRAINT SYSTEM** article. CLEAR the DTCs. REPEAT the self-test.

Pinpoint Test D: The Speed Control Does Not Disengage When The Clutch Is Applied

Refer to **SYSTEM WIRING DIAGRAMS - F150** , Speed Control for schematic and connector information.

Normal Operation

Vehicles equipped with a manual transmission have an additional clutch pedal position (CPP) switch. The CPP switch, normally closed, supplies a ground signal to the PCM through circuit 306 (TN/LB). When the clutch pedal is pressed, the CPP switch moves to the open position, causing the PCM to lose the ground signal and deactivate the speed control.

This pinpoint test is intended to diagnose the following:

- Wiring, terminals or connectors
- CPP switch
- PCM

PINPOINT TEST D: THE SPEED CONTROL DOES NOT DISENGAGE WHEN THE CLUTCH IS APPLIED

NOTE: Use the correct probe adapter(s) when making measurements. Failure to use the correct probe adapter(s) may damage the connector.

D1 CHECK THE PCM CPP SWITCH PID

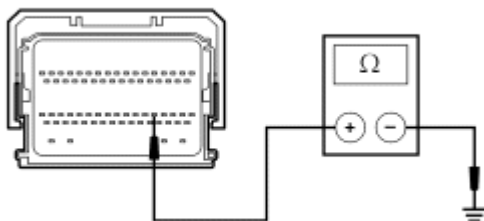
- Key in ON position.
- Enter the following diagnostic mode on the diagnostic tool: PCM DataLogger
- Monitor the PCM CPP_TOP (CPP switch top travel) PID while pressing and releasing the clutch pedal.
- **Does the PCM CPP_TOP PID agree with the clutch pedal position?**

YES : Go to D3.

NO : Go to D2.

D2 CHECK CIRCUIT 306 (TN/LB) FOR A SHORT TO GROUND

- Key in OFF position.
- Disconnect: PCM C175b
- Disconnect: CPP Switch C257



N0009508

Fig. 19: Checking Circuit 306 (TN/LB) For Short To Ground
Courtesy of FORD MOTOR CO.

- Measure the resistance between the PCM C175b-38, circuit 306 (TN/LB), harness side and ground.
- **Is the resistance greater than 10,000 ohms?**

YES : INSTALL a new CPP switch. REFER to **ELECTRONIC ENGINE CONTROLS** article.
TEST the system for normal operation.

NO : REPAIR the circuit. TEST the system for normal operation.

D3 CHECK FOR CORRECT PCM OPERATION

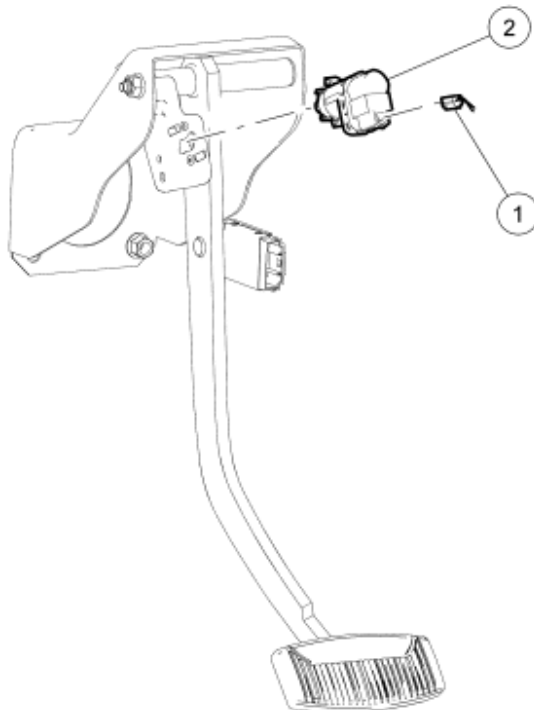
- Disconnect all the PCM connectors.
- Check for:
 - corrosion
 - damaged pins
 - pushed-out pins
- Connect all the PCM connectors and make sure they seat correctly.
- Operate the system and verify the concern is still present.
- **Is the concern still present?**

YES : INSTALL a new PCM. REFER to **ELECTRONIC ENGINE CONTROLS** article. TEST the system for normal operation.

NO : The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector.

REMOVAL AND INSTALLATION

SPEED CONTROL DEACTIVATOR SWITCH



N0012622

Fig. 20: Exploded View Of Speed Control Deactivator Switch
Courtesy of FORD MOTOR CO.

2008 Lincoln Mark LT

2008 ACCESSORIES & BODY, CAB Speed Control - F-150 & Mark LT

Item	Part Number	Description
1	12A581	Speed control deactivator switch electrical connector
2	9C872	Speed control deactivator switch

REMOVAL AND INSTALLATION

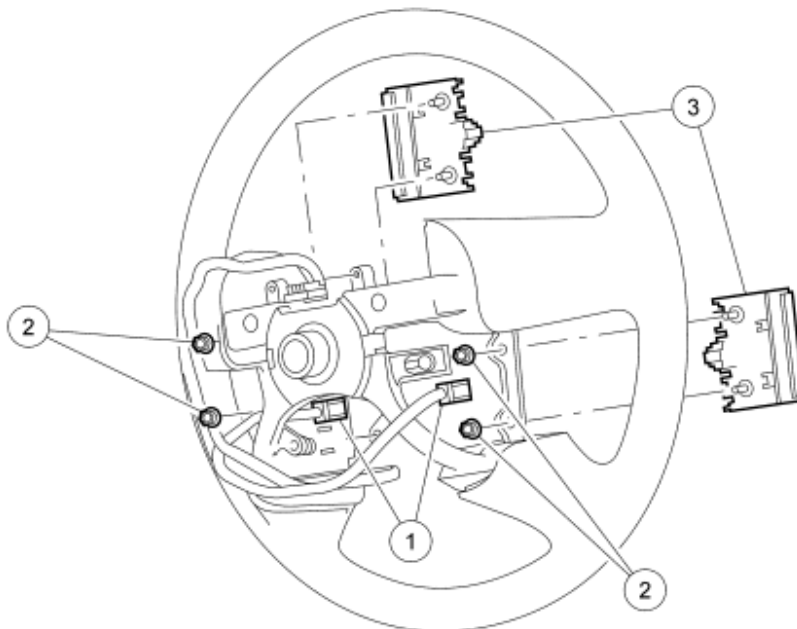
NOTE: Do not press the brake pedal when removing or installing the speed control deactivator switch or damage to the switch will occur.

1. Disconnect the speed control deactivator switch electrical connector.
2. Rotate the speed control deactivator switch counterclockwise 45 degrees and remove it.

NOTE: The speed control deactivator switch is self-adjusting. Do not press the brake pedal during installation. Initial installation of the speed control deactivator switch allows for one adjustment. If additional adjustments are necessary, install a new speed control deactivator switch.

3. To install, reverse the removal procedure.

SPEED CONTROL SWITCH - WITHOUT REMOTE AUDIO/CLIMATE CONTROLS



N0009517

Fig. 21: Exploded View Of Speed Control Switch - Without Remote Audio/Climate Controls
Courtesy of FORD MOTOR CO.

2008 Lincoln Mark LT

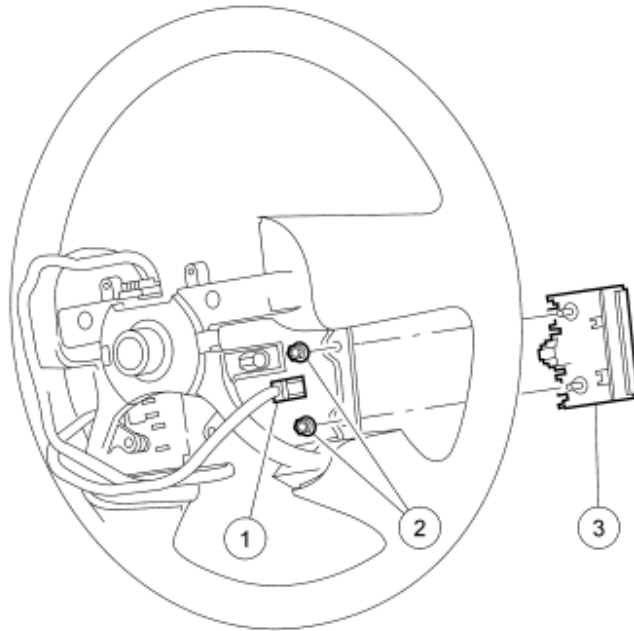
2008 ACCESSORIES & BODY, CAB Speed Control - F-150 & Mark LT

Item	Part Number	Description
1	-	Speed control switches electrical connectors
2	2001855	Speed control switch nuts (4 required)
3	9C888	Speed control switches

REMOVAL AND INSTALLATION

1. Remove the driver air bag module. For additional information, refer to **SUPPLEMENTAL RESTRAINT SYSTEM** article.
2. Disconnect the speed control switches electrical connectors.
3. Remove the 4 nuts and the speed control switches.
4. To install, reverse the removal procedure.

SPEED CONTROL SWITCH - WITH REMOTE AUDIO/CLIMATE CONTROLS



N0009518

Fig. 22: Exploded View Of Speed Control Switch - With Remote Audio/Climate Controls
Courtesy of FORD MOTOR CO.

Item	Part Number	Description
1	-	Speed control switch electrical connector
2	2001855	Speed control switch nuts (2 required)
3	9C888	Speed control switch

REMOVAL AND INSTALLATION

1. Remove the driver air bag module. For additional information, refer to **SUPPLEMENTAL RESTRAINT SYSTEM** article.
2. Disconnect the speed control switch electrical connector.
3. Remove the 2 nuts and the speed control switch.
4. To install, reverse the removal procedure.