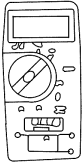
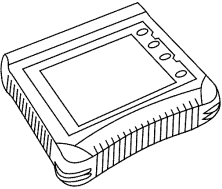
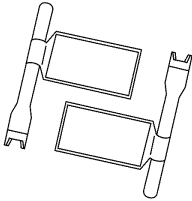


## DIAGNOSIS AND TESTING

### Speed Control

Refer to Wiring Diagrams Cell 31 for schematic and connector information.

#### Special Tool(s)

 <p>ST1137-A</p>	<p>73III Automotive Meter 105-R0057 or equivalent</p>
 <p>ST2332-A</p>	<p>Worldwide Diagnostic System (WDS) Vehicle Communication Module (VCM) with appropriate adapters, or equivalent diagnostic tool</p>
 <p>ST2621-A</p>	<p>Diagnostic Tool, Restraint System (2 required) 418-F395</p>

### Principles of Operation

The speed control system is controlled by the powertrain control module (PCM). The speed control system is designed to maintain a selected vehicle speed between 48 and 200 km/h (30 and 124 mph). The speed control system is controlled by the steering wheel mounted switches (ON, OFF, SET+, SET-, and RESUME, the stoplamp switch, clutch pedal speed control deactivator switch (manual transmission), and the speed control deactivator switch. The steering wheel mounted switches are hardwired to the PCM through the clockspring.

The speed control functions include:

- turn the speed control system on
- set and maintain the desired vehicle speed
- accelerate the vehicle speed
- decelerate the vehicle speed
- turn the vehicle speed control system off
- cancel the speed control

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

Tapping the SET+ or the SET- 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 switching 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 clutch pedal speed control deactivator switch is incorporated 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 is illuminated.

**NOTE:** The speed control deactivator switch is provided as an additional safety feature. When the brake pedal is applied, an electrical signal from the stoplamp switch is sent to the smart junction box (SJB), which then sends a message to the PCM to deactivate the speed control system. Under increased brake pedal effort, the speed control deactivator switch opens and removes the voltage signal from the PCM input circuit, deactivating the speed control system.

**NOTE:** The clockspring provides the electrical interface between the steering column wiring and the speed control switches in the steering wheel.

The inputs to the PCM are:

- output shaft speed (OSS) sensor
- transmission range (TR) sensor
- speed control switch

**DIAGNOSIS AND TESTING (Continued)**

- clutch pedal speed control deactivator switch (manual transmission)
- speed control deactivator switch
- accelerator pedal position sensor
- SJB
- parking brake

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 electronically controlled throttle body. Speed control electronics are contained entirely within the PCM.

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 actual vehicle and the desired speed.

The PCM strategy uses the throttle control for smooth accelerations.

The PCM sends a message over the controller area network (CAN) to the instrument cluster whenever the speed control telltale should be turned on or off.

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

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

An electronically controlled throttle system fault also causes the speed control system to be disabled and a 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 (automatic transmission)
- vehicle clutch pedal is applied
- speed control set speed is over-ridden with the accelerator pedal for a period longer than 5 minutes

- 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)
- parking brake is applied
- speed control switch is pressed or stuck for 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"> <li>• Throttle body</li> </ul>	<ul style="list-style-type: none"> <li>• Smart junction box (SJB) fuse 18 (10A)</li> <li>• Circuitry</li> <li>• Speed control switch</li> <li>• Clutch pedal speed control deactivator switch</li> <li>• Speed control deactivator switch</li> <li>• Stoplamp switch</li> <li>• Powertrain control module (PCM)</li> </ul>

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 Section 413-01.
5. Verify the stoplamps operate correctly with the ignition switch in the ON position. If the stoplamps do not operate correctly, refer to Section 417-01.
6. Verify the parking brake warning indicator is operating correctly. If the parking brake warning indicator does not operate correctly, refer to Section 413-01.
7. If the cause is not visually evident, connect the diagnostic tool to the data link connector (DLC) and select the vehicle to be tested from the diagnostic tool menu. If the diagnostic tool does not communicate with the vehicle:
  - check that the program card is correctly installed.

**DIAGNOSIS AND TESTING (Continued)**

- check the connections to the vehicle.
  - check the ignition switch position.
8. If the diagnostic tool still does not communicate with the vehicle, refer to the diagnostic tool operating manual.
  9. Carry out the diagnostic tool data link test. If the diagnostic tool responds with:
    - CAN circuits fault; all electronic control units no response/not equipped, refer to Section 418-00.
    - No response/not equipped for PCM, refer to Section 418-00.
  10. If the DTCs retrieved are related to the concern, go to the Powertrain Control Module (PCM) Diagnostic Trouble Code (DTC) Index.
  11. If no DTCs related to the concern are retrieved, GO to [Symptom Chart](#).

**Powertrain Control Module (PCM) Diagnostic Trouble Code (DTC) Index**

DTCs	Description	Source	Action
P0500	Vehicle Speed Error	PCM	REFER to the <a href="#">Powertrain Control/Emissions Diagnosis (PC/ED) manual</a> .
P0579	Cruise Control Multifunction Input A Circuit Range/Performance	PCM	<a href="#">GO to Pinpoint Test C.</a>
P0581	Cruise Control Multifunction Circuit High	PCM	<a href="#">GO to Pinpoint Test C.</a>
P0833	Clutch Pedal Switch B Circuit	PCM	<a href="#">GO to Pinpoint Test D.</a>
P1572	Brake Pedal Switch Circuit	PCM	<a href="#">GO to Pinpoint Test B.</a>
P1703	Brake Switch Out of Self-Test Range	PCM	<a href="#">GO to Pinpoint Test B.</a>
All Other PCM DTCs	—	PCM	REFER to the <a href="#">Powertrain Control/Emissions Diagnosis (PC/ED) manual</a> to continue diagnosis.

**Symptom Chart****Symptom Chart**

Condition	Possible Sources	Action
<ul style="list-style-type: none"> <li>• The speed control is inoperative</li> </ul>	<ul style="list-style-type: none"> <li>• Circuitry</li> <li>• Clockspring</li> <li>• Speed control switches</li> <li>• Clutch pedal speed control deactivator switch</li> <li>• Digital transmission range (TR) sensor</li> <li>• Powertrain control module (PCM)</li> </ul>	<ul style="list-style-type: none"> <li>• <a href="#">GO to Pinpoint Test A.</a></li> </ul>
<ul style="list-style-type: none"> <li>• The speed control does not disengage when the clutch is applied</li> </ul>	<ul style="list-style-type: none"> <li>• Circuitry</li> <li>• Clutch pedal speed control deactivator switch</li> <li>• Powertrain control module (PCM)</li> </ul>	<ul style="list-style-type: none"> <li>• <a href="#">GO to Pinpoint Test D.</a></li> </ul>

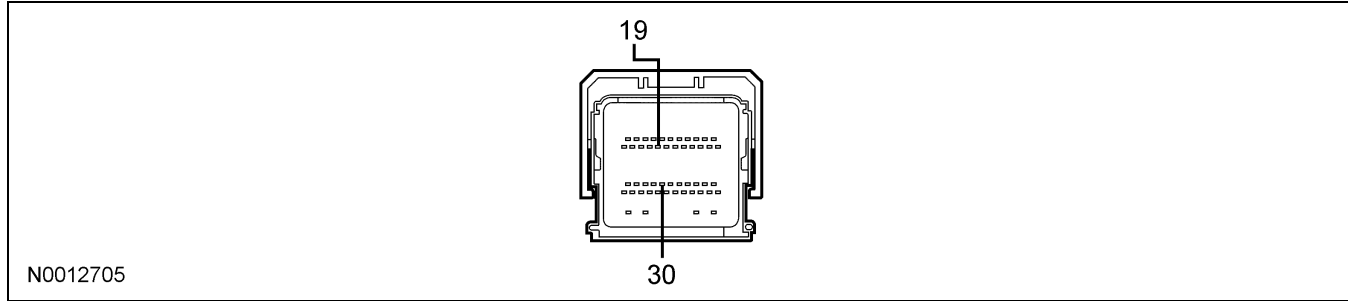
**DIAGNOSIS AND TESTING (Continued)**

**Symptom Chart (Continued)**

Condition	Possible Sources	Action
<ul style="list-style-type: none"> <li>The speed control indicator lamp is always on</li> </ul>	<ul style="list-style-type: none"> <li>Circuitry</li> <li>Instrument cluster</li> <li>Powertrain control module (PCM)</li> </ul>	<ul style="list-style-type: none"> <li>REFER to Section 413-01.</li> </ul>

**Connector Circuit Reference**

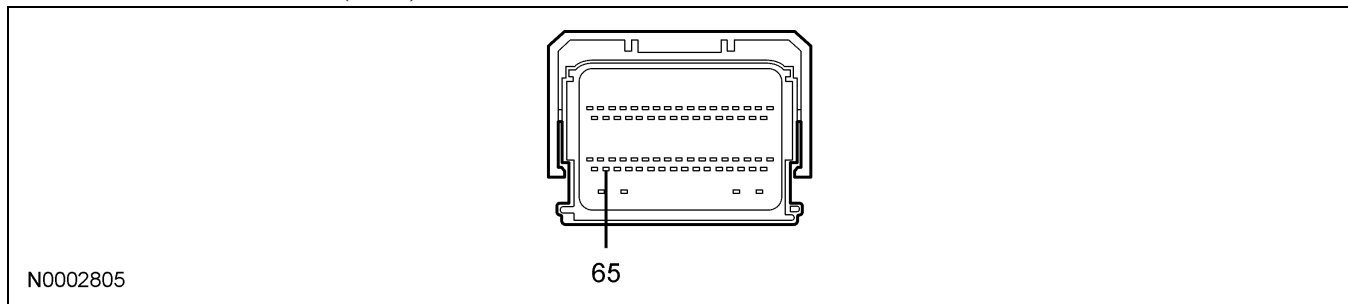
**Powertrain Control Module (PCM) C175b**



N0012705

Pin Number(s)	Circuit Designation/Description	Normal Condition/Measurement
19	248 (TN/OG) PCM speed control switch voltage reference	0 volts, less than 5 ohms between the PCM and the clockspring. Greater than 10,000 ohms between the PCM and ground.
30	133 (BK) speed control switch signal return	0 volts, less than 5 ohms between the PCM and the clockspring. Greater than 10,000 ohms between the PCM and ground.

**Powertrain Control Module (PCM) C175e**

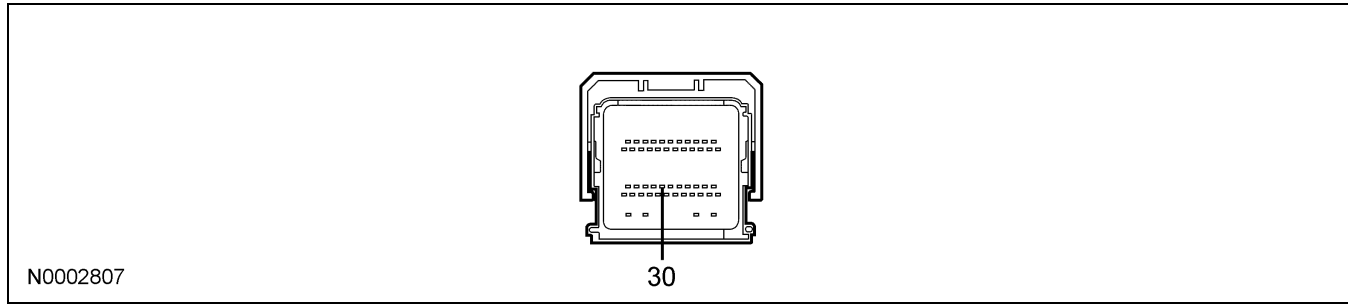


N0002805

Pin Number(s)	Circuit Designation/Description	Normal Condition/Measurement
65	535 (LB/RD) speed control deactivator switch signal	Greater than 10 volts with the ignition switch in the ON position and the brake pedal released. Less than 5 ohms between the PCM and the speed control deactivator switch. Greater than 10,000 ohms between the PCM and ground.

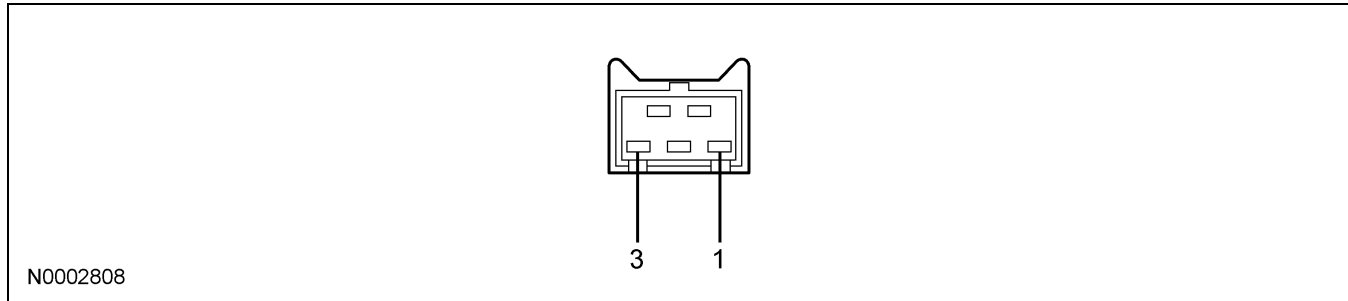
**DIAGNOSIS AND TESTING (Continued)**

**Powertrain Control Module (PCM) C175t**



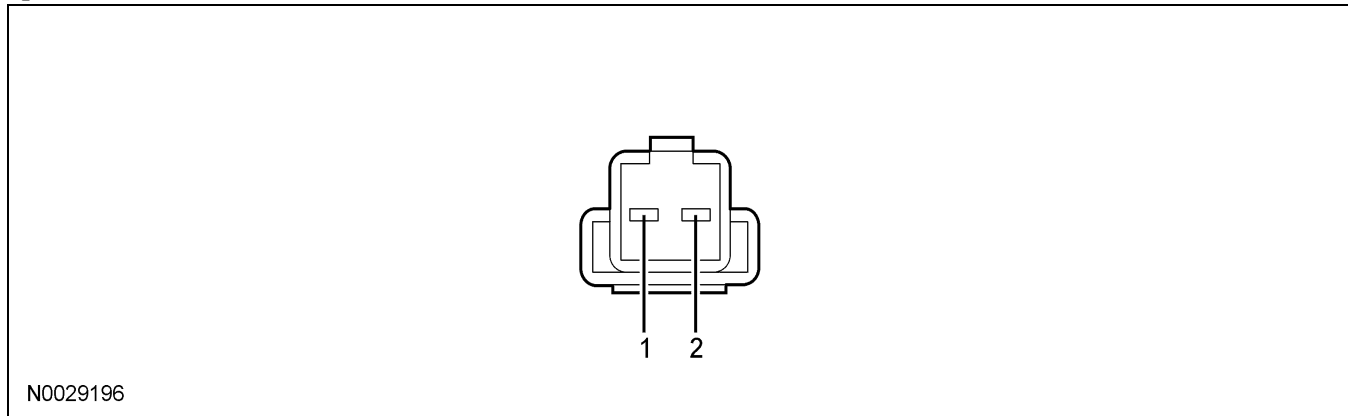
Pin Number(s)	Circuit Designation/Description	Normal Condition/Measurement
30	1899 (WH) PCM clutch pedal speed control deactivator switch voltage reference	0 volts, less than 5 ohms between the PCM and the clutch pedal speed control deactivator switch.

**Clutch Pedal Speed Control Deactivator Switch C277**



Pin Number(s)	Circuit Designation/Description	Normal Condition/Measurement
1	1899 (WH) powertrain control module (PCM) clutch pedal speed control deactivator switch voltage reference	Approximately 4.5 volts with the ignition switch in the ON position, less than 5 ohms between the clutch pedal speed control deactivator switch and the PCM. Greater than 10,000 ohms between the clutch pedal speed control deactivator switch and ground.
3	1205 (BK) clutch pedal speed control deactivator switch ground circuit	0 volts, less than 5 ohms between the clutch pedal speed control deactivator switch and ground.

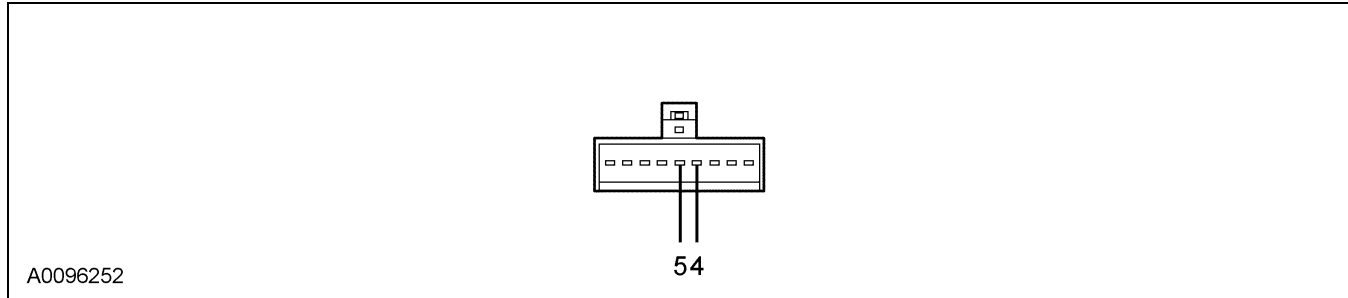
**Speed Control Deactivator Switch C278**



**DIAGNOSIS AND TESTING (Continued)**

Pin Number(s)	Circuit Designation/Description	Normal Condition/Measurement
1	535 (LB/RD) speed control deactivator switch signal	0 volts, less than 5 ohms between the speed control deactivator switch and the PCM. Greater than 10,000 ohms between the speed control deactivator switch and ground.
2	1890 (RD) switched voltage to the speed control deactivator switch	Greater than 10 volts with the ignition switch in the ON position. Greater than 10,000 ohms between the speed control deactivator switch and ground.

**Clockspring C2274**



Pin Number(s)	Circuit Designation/Description	Normal Condition/Measurement
4	248 (TN/OG) powertrain control module (PCM) speed control switch voltage reference	Approximately 4.5 volts, less than 5 ohms between the clockspring and the PCM. Greater than 10,000 ohms between the clockspring and ground.
5	133 (BK) speed control switch signal return	0 volts, less than 5 ohms between the clockspring and the PCM. Greater than 10,000 ohms between the clockspring and ground with the PCM disconnected.

**Pinpoint Test A: The Speed Control Is Inoperative**

**Normal Operation**

The powertrain control module (PCM) sends a signal through circuit 248 (TN/OG) to the speed control switches, which passes through the clockspring. The return signal is sent to the PCM through circuit 133 (BK) and the clockspring. When the brake pedal is applied the smart junction box (SJB) sends a message to the PCM to deactivate the speed control if engaged.

The speed control deactivator switch interrupts circuit 535 (LB/RD) removing the voltage signal to the PCM when the brake pedal is applied firmly and passes the stoplamp switch trip point. This is a redundant signal to the PCM.

**Possible Causes**

- parking brake switch circuitry
- speed control switch
- digital transmission range (TR) sensor
- vehicle speed signal
- PCM

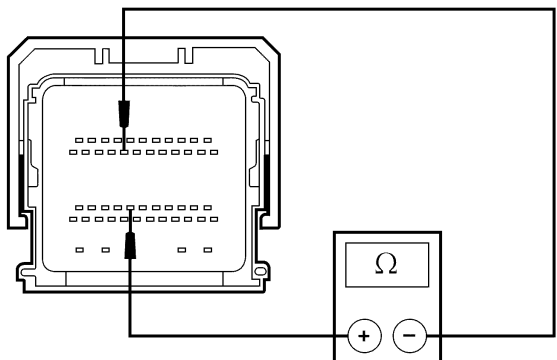
**PINPOINT TEST A: THE SPEED CONTROL IS INOPERATIVE**

Test Step		Result / Action to Take
A1	<b>CHECK FOR DIAGNOSTIC TROUBLE CODES (DTCs)</b>	<b>Yes</b> REFER to the Powertrain Control Module (PCM) Diagnostic Trouble Code (DTC) Index for correct diagnosis.
	• Review the recorded DTCs from the PCM self-test. • <b>Are any DTCs recorded?</b>	

(Continued)

**DIAGNOSIS AND TESTING (Continued)**

**PINPOINT TEST A: THE SPEED CONTROL IS INOPERATIVE (Continued)**

Test Step		Result / Action to Take														
<b>A1</b>	<b>CHECK FOR DIAGNOSTIC TROUBLE CODES (DTCs) (Continued)</b>	<b>No</b> GO to <b>A2</b> .														
<b>A2</b>	<b>CHECK THE SPEED CONTROL SWITCH</b>  <ul style="list-style-type: none"> <li>• Disconnect: PCM C175b.</li> <li>• Measure the resistance between the PCM <b>C175b-19</b>, circuit 248 (TN/OG), harness side and the PCM <b>C175b-30</b>, circuit 133 (BK), harness side.</li> </ul> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Speed Control Switch</th> <th>Resistance Value</th> </tr> </thead> <tbody> <tr> <td>OFF</td> <td>Less than 5 ohms</td> </tr> <tr> <td>SET -</td> <td>295 - 305 ohms</td> </tr> <tr> <td>SET +</td> <td>480 - 600 ohms</td> </tr> <tr> <td>RESUME</td> <td>1055 - 1,165 ohms</td> </tr> <tr> <td>ON</td> <td>2,000 - 2,205 ohms</td> </tr> <tr> <td>No switch pressed</td> <td>4,100 - 4,500 ohms</td> </tr> </tbody> </table> <div style="text-align: center;">  <p>N0002442</p> </div> <ul style="list-style-type: none"> <li>• <b>Are the speed control switch resistance values OK?</b></li> </ul>		Speed Control Switch	Resistance Value	OFF	Less than 5 ohms	SET -	295 - 305 ohms	SET +	480 - 600 ohms	RESUME	1055 - 1,165 ohms	ON	2,000 - 2,205 ohms	No switch pressed	4,100 - 4,500 ohms
Speed Control Switch	Resistance Value															
OFF	Less than 5 ohms															
SET -	295 - 305 ohms															
SET +	480 - 600 ohms															
RESUME	1055 - 1,165 ohms															
ON	2,000 - 2,205 ohms															
No switch pressed	4,100 - 4,500 ohms															
<b>A3</b>	<b>CHECK THE DIGITAL TRANSMISSION RANGE (TR) SENSOR</b>  <ul style="list-style-type: none"> <li>• Connect: PCM C175b.</li> <li>• Apply the parking brake.</li> <li>• Key in ON position.</li> <li>• Enter the following diagnostic mode on the diagnostic tool: PID Data Monitor and Record.</li> <li>• Monitor the PCM TR sensor PID.</li> <li>• Select DRIVE.</li> <li>• <b>Does the PID value agree with the transmission range selector lever position?</b></li> </ul>	<p><b>Yes</b> GO to <b>A4</b>.</p> <p><b>No</b> REFER to Section 307-01 to diagnose the TR sensor.</p>														
<b>A4</b>	<b>CHECK THE DIGITAL TR SENSOR FOR CORRECT ALIGNMENT</b>  <ul style="list-style-type: none"> <li>• Check the digital TR sensor alignment. Refer to Section 307-01.</li> <li>• <b>Is the digital TR sensor aligned correctly?</b></li> </ul>	<p><b>Yes</b> GO to <b>A5</b>.</p> <p><b>No</b> ADJUST the digital TR sensor. REFER to Section 307-01. TEST the system for normal operation.</p>														
<b>A5</b>	<b>CHECK THE VEHICLE SPEED</b>  <p><b>NOTE:</b> This step may require an assistant.</p> <ul style="list-style-type: none"> <li>• Enter the following diagnostic mode on the diagnostic tool: Anti-lock Brake System (ABS) Wheel Speed PID.</li> </ul>															

(Continued)

**DIAGNOSIS AND TESTING (Continued)**

**PINPOINT TEST A: THE SPEED CONTROL IS INOPERATIVE (Continued)**

Test Step		Result / Action to Take
<b>A5</b>	<b>CHECK THE VEHICLE SPEED (Continued)</b>	<p><b>Yes</b> GO to <b>A6</b>.</p> <p><b>No</b> REFER to the <a href="#">Powertrain Control/Emissions Diagnosis (PC/ED) manual</a> to diagnose the output shaft speed (OSS) sensor signal.</p>
	<ul style="list-style-type: none"> <li>Monitor and record the ABS module wheel speed PID while driving the vehicle at 48 km/h (30 mph) as indicated on the speedometer.</li> <li>Enter the following diagnostic mode on the diagnostic tool: PCM Vehicle Speed PID.</li> <li>Monitor and record the PCM vehicle speed PID while driving the vehicle at 48 km/h (30 mph).</li> <li><b>Does the speed indicated by the ABS module wheel speed PID match the PCM vehicle speed PID?</b></li> </ul>	
<b>A6</b>	<b>CHECK FOR CORRECT PCM OPERATION</b>	<p><b>Yes</b> INSTALL a new PCM. REFER to Section 303-14.</p> <p><b>No</b> The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector.</p>
	<ul style="list-style-type: none"> <li>Disconnect all the PCM connectors.</li> <li>Check for:                             <ul style="list-style-type: none"> <li>corrosion</li> <li>pushed-out pins</li> </ul> </li> <li>Connect all the PCM connectors and make sure they seat correctly.</li> <li>Operate the system and verify the concern is still present.</li> <li><b>Is the concern still present?</b></li> </ul>	

**Pinpoint Test B: DTC P1703 or DTC P1572 - Brake On/Off Circuit Failure**

**Normal Operation**

When the brake pedal is applied the smart junction box (SJB) sends a message to the PCM to deactivate the speed control if engaged.

The speed control deactivator switch interrupts circuit 535 (LB/RD) removing the voltage signal to the PCM when the brake pedal is applied firmly and passes the stoplamp switch trip point. This is a redundant signal to the PCM.

**Possible Causes**

- circuit 1890 (RD) open
- circuit 535 (LB/RD) open, or short to voltage
- speed control deactivator switch
- SJB
- anti-lock brake system (ABS) module
- PCM

**PINPOINT TEST B: DTC P1703 OR DTC P1572 - BRAKE ON/OFF CIRCUIT FAILURE**

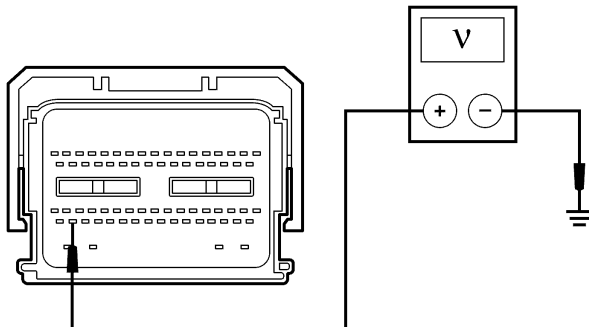
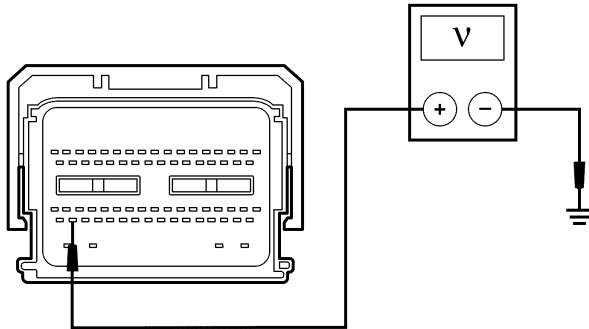
Test Step		Result / Action to Take
<b>B1</b>	<b>CHECK THE OPERATION OF THE STOPLAMPS</b>	<p><b>Yes</b> GO to <b>B2</b>.</p> <p><b>No</b> REFER to Section 417-01 to continue diagnosis of the stoplamps.</p>
	<ul style="list-style-type: none"> <li>Key in ON position.</li> <li>Operate the stoplamps.</li> <li><b>Do the stoplamps operate correctly?</b></li> </ul>	
<b>B2</b>	<b>CHECK CIRCUIT 535 (LB/RD) FOR VOLTAGE</b>	
	<ul style="list-style-type: none"> <li>Key in OFF position.</li> <li>Disconnect: Powertrain Control Module (PCM) C175e.</li> <li>Key in ON position.</li> </ul>	

(Continued)



**DIAGNOSIS AND TESTING (Continued)**

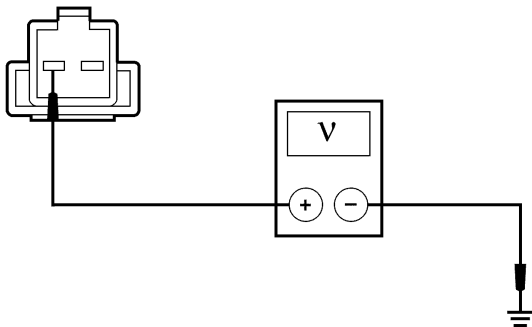
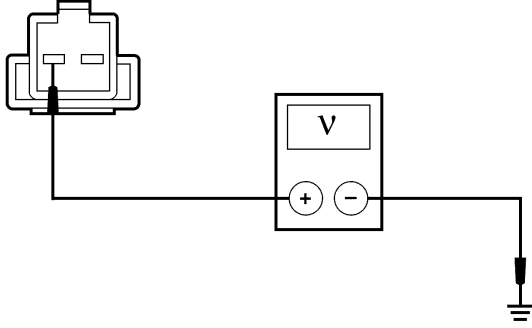
**PINPOINT TEST B: DTC P1703 OR DTC P1572 - BRAKE ON/OFF CIRCUIT FAILURE (Continued)**

	Test Step	Result / Action to Take
<b>B2</b>	<b>CHECK CIRCUIT 535 (LB/RD) FOR VOLTAGE (Continued)</b>	
	<ul style="list-style-type: none"> <li>Measure the voltage between the PCM C175e-65, circuit 535 (LB/RD), harness side and ground.</li> </ul>  <p>A0096713</p> <ul style="list-style-type: none"> <li>Is the voltage greater than 10 volts?</li> </ul>	<p><b>Yes</b> GO to <b>B3</b>.</p> <p><b>No</b> GO to <b>B6</b>.</p>
<b>B3</b>	<b>CHECK THE SPEED CONTROL DEACTIVATOR SWITCH FOR CORRECT OPERATION</b>	
	<ul style="list-style-type: none"> <li>While firmly applying and releasing the brake pedal, measure the voltage between the PCM C175e-65, circuit 535 (LB/RD), harness side and ground.</li> </ul>  <p>A0096713</p> <ul style="list-style-type: none"> <li>Is the voltage greater than 10 volts with the brake pedal released and 0 volts with the brake pedal firmly applied?</li> </ul>	<p><b>Yes</b> GO to <b>B10</b>.</p> <p><b>No</b> GO to <b>B4</b>.</p>
<b>B4</b>	<b>CHECK CIRCUIT 535 (LB/RD) FOR A SHORT TO VOLTAGE</b>	
	<ul style="list-style-type: none"> <li>Key in OFF position.</li> <li>Disconnect: Speed Control Deactivator Switch C278.</li> <li>Key in ON position.</li> </ul>	

(Continued)

**DIAGNOSIS AND TESTING (Continued)**

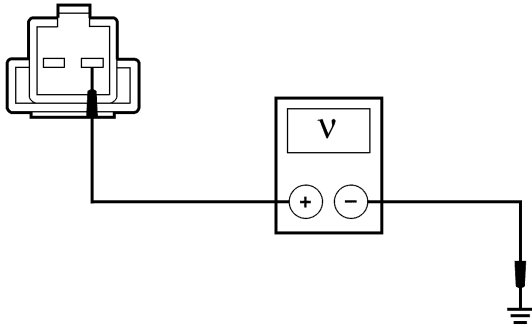
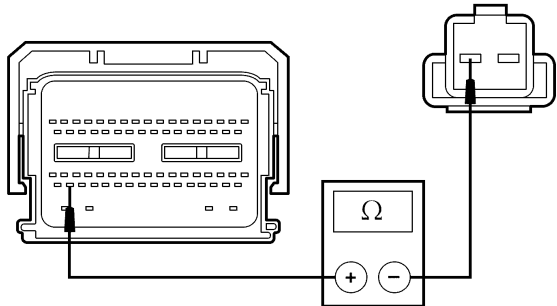
**PINPOINT TEST B: DTC P1703 OR DTC P1572 - BRAKE ON/OFF CIRCUIT FAILURE (Continued)**

Test Step		Result / Action to Take
<b>B4</b>	<p><b>CHECK CIRCUIT 535 (LB/RD) FOR A SHORT TO VOLTAGE (Continued)</b></p> <ul style="list-style-type: none"> <li>Measure the voltage between the speed control deactivator switch C278-1, circuit 535 (LB/RD), harness side and ground.</li> </ul>  <p>N0002250</p> <ul style="list-style-type: none"> <li><b>Is any voltage present?</b></li> </ul>	<p><b>Yes</b> GO to <b>B5</b>.</p> <p><b>No</b> INSTALL a new speed control deactivator switch. REFER to Speed Control Deactivator Switch in this section. CLEAR the DTCs. REPEAT the self test.</p>
<b>B5</b>	<p><b>CHECK THE ANTI-LOCK BRAKE SYSTEM (ABS) MODULE FOR A SHORT TO VOLTAGE</b></p> <ul style="list-style-type: none"> <li>Key in OFF position.</li> <li>Disconnect: ABS Module C135.</li> <li>Key in ON position.</li> <li>Measure the voltage between the speed control deactivator switch C278-1, circuit 535 (LB/RD), harness side and ground.</li> </ul>  <p>N0002250</p> <ul style="list-style-type: none"> <li><b>Is any voltage present?</b></li> </ul>	<p><b>Yes</b> REPAIR the circuit. CLEAR the DTCs. REPEAT the self-test.</p> <p><b>No</b> GO to <b>B9</b>.</p>
<b>B6</b>	<p><b>CHECK CIRCUIT 1890 (RD) FOR AN OPEN</b></p> <ul style="list-style-type: none"> <li>Key in OFF position.</li> <li>Disconnect: Speed Control Deactivator Switch C278.</li> <li>Key in ON position.</li> </ul>	

(Continued)

**DIAGNOSIS AND TESTING (Continued)**

**PINPOINT TEST B: DTC P1703 OR DTC P1572 - BRAKE ON/OFF CIRCUIT FAILURE (Continued)**

Test Step		Result / Action to Take
<b>B6</b>	<p><b>CHECK CIRCUIT 1890 (RD) FOR AN OPEN (Continued)</b></p> <ul style="list-style-type: none"> <li>Measure the voltage between the speed control deactivator switch <b>C278-2</b>, circuit 1890 (RD), harness side and ground.</li> </ul>  <p>N0002251</p> <ul style="list-style-type: none"> <li>Is the voltage greater than 10 volts?</li> </ul>	<p><b>Yes</b> GO to <b>B7</b>.</p> <p><b>No</b> REPAIR the circuit. CLEAR the DTCs. REPEAT the self-test.</p>
<b>B7</b>	<p><b>CHECK CIRCUIT 535 (LB/RD) FOR AN OPEN</b></p> <ul style="list-style-type: none"> <li>Key in OFF position.</li> <li>Measure the resistance between the speed control deactivator switch <b>C278-1</b>, circuit 535 (LB/RD), harness side and the PCM <b>C175e-65</b>, circuit 535 (LB/RD), harness side.</li> </ul>  <p>N0029198</p> <ul style="list-style-type: none"> <li>Is the resistance less than 5 ohms?</li> </ul>	<p><b>Yes</b> INSTALL a new speed control deactivator switch. REFER to Speed Control Deactivator Switch in this section. CLEAR the DTCs. REPEAT the self-test.</p> <p><b>No</b> GO to <b>B8</b>.</p>
<b>B8</b>	<p><b>CHECK THE BUSSED ELECTRICAL CENTER (BEC) FOR AN OPEN</b></p> <ul style="list-style-type: none"> <li>Key in OFF position.</li> <li>Disconnect: BEC C1035a.</li> <li>Disconnect: BEC C1035b.</li> </ul>	

(Continued)

**DIAGNOSIS AND TESTING (Continued)**

**PINPOINT TEST B: DTC P1703 OR DTC P1572 - BRAKE ON/OFF CIRCUIT FAILURE (Continued)**

Test Step		Result / Action to Take
<b>B8</b>	<p><b>CHECK THE BUSSED ELECTRICAL CENTER (BEC) FOR AN OPEN (Continued)</b></p> <ul style="list-style-type: none"> <li>Measure the resistance between the BEC C1035a pin E2, component side and the BEC C1035b pin F3, component side.</li> </ul> <p>N0012048</p> <ul style="list-style-type: none"> <li><b>Is the resistance less than 5 ohms?</b></li> </ul>	<p><b>Yes</b> REPAIR circuit 535 (LB/RD). CLEAR the DTCs. REPEAT the self-test.</p> <p><b>No</b> INSTALL a new BEC. CLEAR the DTCs. REPEAT the self-test.</p>
<b>B9</b>	<p><b>CHECK FOR CORRECT ABS MODULE OPERATION</b></p> <ul style="list-style-type: none"> <li>Disconnect the ABS module connector.</li> <li>Check for:                             <ul style="list-style-type: none"> <li>corrosion</li> <li>pushed-out pins</li> </ul> </li> <li>Connect the ABS module connector and make sure it is seated correctly.</li> <li>Operate the system and verify the concern is still present.</li> <li><b>Is the concern still present?</b></li> </ul>	<p><b>Yes</b> INSTALL a new ABS module. REFER to Section 206-09. CLEAR the DTCs. REPEAT the self test.</p> <p><b>No</b> 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.</p>
<b>B10</b>	<p><b>CHECK FOR CORRECT PCM OPERATION</b></p> <ul style="list-style-type: none"> <li>Disconnect all the PCM connectors.</li> <li>Check for:                             <ul style="list-style-type: none"> <li>corrosion</li> <li>pushed-out pins</li> </ul> </li> <li>Connect all the PCM connectors and make sure they seat correctly.</li> <li>Operate the system and verify the concern is still present.</li> <li><b>Is the concern still present?</b></li> </ul>	<p><b>Yes</b> INSTALL a new PCM. REFER to Section 303-14. CLEAR the DTCs. REPEAT the self-test.</p> <p><b>No</b> 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.</p>

**DIAGNOSIS AND TESTING (Continued)**

**Pinpoint Test C: DTC P0579 or DTC P0581 - Speed Control Switch Circuit Failure**

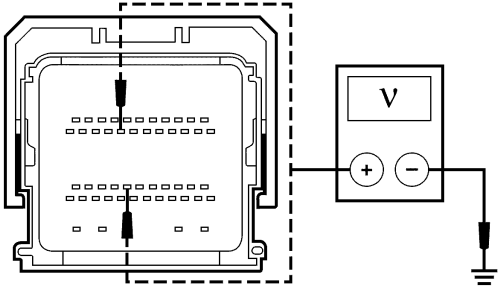
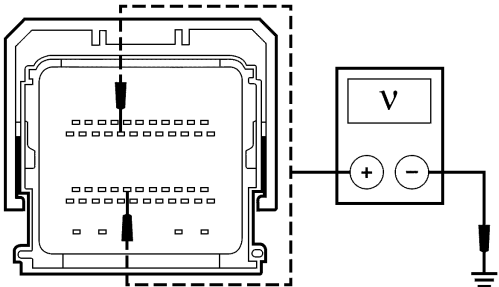
**Possible Causes**

- circuit 248 (TN/OG) open, short to voltage, or short to ground
- circuit 133 (BK) open or short to voltage
- clockspring
- speed control switch
- PCM

**Normal Operation**

The powertrain control module (PCM) sends a signal through circuit 248 (TN/OG) to the speed control switches which passes through the clockspring. The return signal is sent through circuit 133 (BK) and the clockspring.


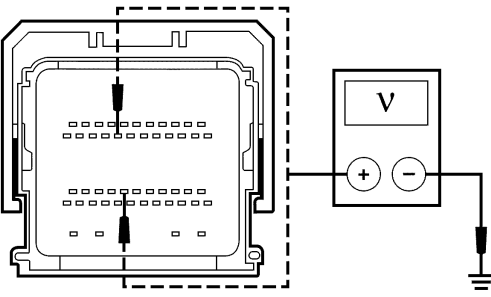
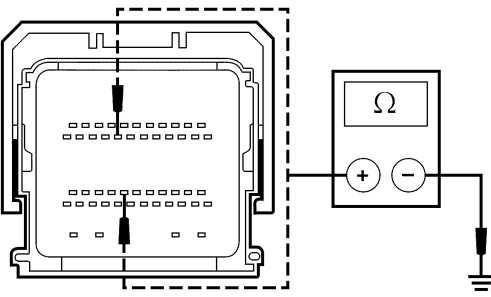
**PINPOINT TEST C: DTC P0579 OR DTC P0581 - SPEED CONTROL SWITCH CIRCUIT FAILURE**

	Test Step	Result / Action to Take
<p><b>C1</b></p>	<p><b>CHECK THE SPEED CONTROL SWITCH CIRCUITRY FOR A SHORT TO VOLTAGE</b></p> <ul style="list-style-type: none"> <li>• Key in OFF position.</li> <li>• Disconnect: Powertrain Control Module (PCM) C175b.</li> <li>• Key in ON position.</li> <li>• Turn the parking lamps on.</li> <li>• Measure the voltage between the PCM C175b-19, circuit 248 (TN/OG), harness side and ground; and between the PCM C175b-30, circuit 133 (BK), harness side and ground.</li> </ul>  <p>A0082239</p> <ul style="list-style-type: none"> <li>• <b>Is any voltage present?</b></li> </ul>	<p><b>Yes</b> TURN the parking lamps off. GO to <b>C2</b>.</p> <p><b>No</b> TURN the parking lamps off. GO to <b>C4</b>.</p>
<p><b>C2</b></p>	<p><b>CHECK CIRCUITS 248 (TN/OG) AND 133 (BK) FOR A SHORT TO VOLTAGE</b></p> <ul style="list-style-type: none"> <li>• Key in OFF position.</li> <li>• Disconnect: Clockspring C2274.</li> <li>• Key in ON position.</li> <li>• Turn the parking lamps on.</li> <li>• Measure the voltage between the PCM C175b-19, circuit 248 (TN/OG), harness side and ground; and between the PCM C175b-30, circuit 133 (BK), harness side and ground.</li> </ul>  <p>A0082239</p> <ul style="list-style-type: none"> <li>• <b>Is any voltage present?</b></li> </ul>	<p><b>Yes</b> REPAIR the circuit in question. CLEAR the DTCs. REPEAT the self-test.</p> <p><b>No</b> TURN the parking lamps off. GO to <b>C3</b>.</p>

(Continued)

**DIAGNOSIS AND TESTING (Continued)**

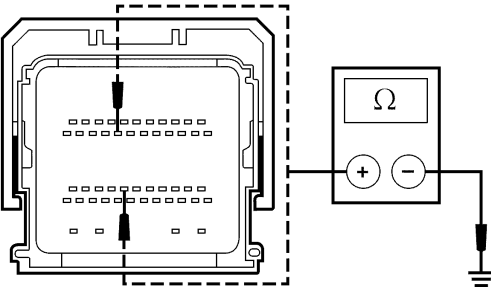
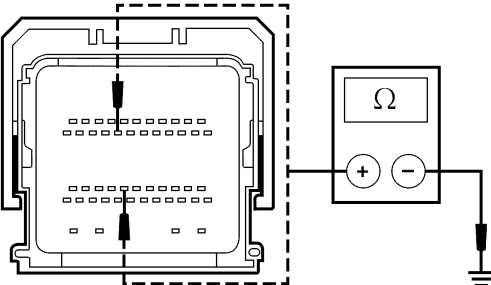
**PINPOINT TEST C: DTC P0579 OR DTC P0581 - SPEED CONTROL SWITCH CIRCUIT FAILURE (Continued)**

Test Step		Result / Action to Take
<b>C3</b>	<p><b>CHECK THE CLOCKSPRING FOR A SHORT TO VOLTAGE</b></p> <ul style="list-style-type: none"> <li>• Key in OFF position.</li> <li>• Connect: Clockspring C2274.</li> <li>• Remove the driver air bag module. Refer to Section 501-20B.</li> <li>• Connect the restraint system diagnostic tools (418-F395) to the upper clockspring air bag connector.</li> <li>• Disconnect: Upper Clockspring.</li> <li>•  <b>WARNING: Make sure there is no one inside the vehicle and that there is nothing blocking or set in front of any air bag module when the battery is connected. Failure to follow these instructions may result in personal injury.</b></li> <li>• Connect the battery.</li> <li>• Key in ON position.</li> <li>• Turn the parking lamps on.</li> <li>• Measure the voltage between the PCM C175b-19, circuit 248 (TN/OG), harness side and ground; and between the PCM C175b-30, circuit 133 (BK), harness side and ground.</li> </ul>  <p>A0082239</p> <ul style="list-style-type: none"> <li>• <b>Is any voltage present?</b></li> </ul>	<p><b>Yes</b>                  INSTALL a new clockspring. REFER to Section 501-20B. DISCONNECT the battery. INSTALL the driver air bag module. REFER to Section 501-20B. CLEAR the DTCs. REPEAT the self-test.</p> <p><b>No</b>                  INSTALL a new speed control switch. REFER to Speed Control Switch in this section. DISCONNECT the battery. INSTALL the driver air bag module. REFER to Section 501-20B. CLEAR the DTCs. REPEAT the self-test.</p>
<b>C4</b>	<p><b>CHECK THE SPEED CONTROL SWITCH CIRCUITRY FOR A SHORT TO GROUND</b></p> <ul style="list-style-type: none"> <li>• Key in OFF position.</li> <li>• Measure the resistance between the PCM C175b-19, circuit 248 (TN/OG), harness side and ground; and between the PCM C175b-30, circuit 133 (BK), harness side and ground.</li> </ul>  <p>A0082240</p> <ul style="list-style-type: none"> <li>• <b>Are the resistances greater than 10,000 ohms?</b></li> </ul>	<p><b>Yes</b>                  GO to C7.</p> <p><b>No</b>                  GO to C5.</p>
<b>C5</b>	<p><b>CHECK THE CLOCKSPRING FOR A SHORT TO GROUND</b></p> <ul style="list-style-type: none"> <li>• Remove the driver air bag module. Refer to Section 501-20B.</li> <li>• Disconnect: Upper Clockspring.</li> </ul>	

(Continued)

**DIAGNOSIS AND TESTING (Continued)**

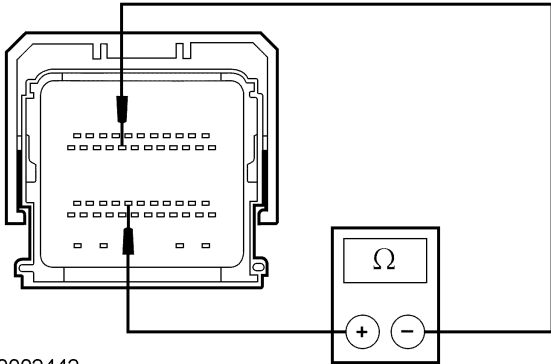
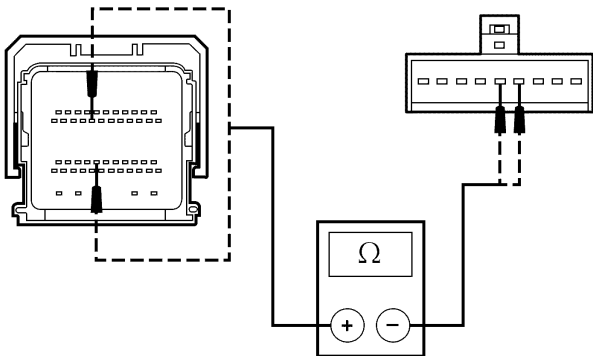
**PINPOINT TEST C: DTC P0579 OR DTC P0581 - SPEED CONTROL SWITCH CIRCUIT FAILURE (Continued)**

Test Step		Result / Action to Take
<p><b>C5</b></p> <p><b>CHECK THE CLOCKSPRING FOR A SHORT TO GROUND (Continued)</b></p> <ul style="list-style-type: none"> <li>Measure the resistance between the PCM <b>C175b-19</b>, circuit 248 (TN/OG), harness side and ground; and between the PCM <b>C175b-30</b>, circuit 133 (BK), harness side and ground.</li> </ul>  <p>A0082240</p> <ul style="list-style-type: none"> <li><b>Are the resistances greater than 10,000 ohms?</b></li> </ul>	<p><b>Yes</b>                  INSTALL a new speed control switch. REFER to Speed Control Switch in this section. INSTALL the driver air bag module. REFER to Section 501-20B. CLEAR the DTCs. REPEAT the self-test.</p> <p><b>No</b>                  GO to <b>C6</b>.</p>	
<p><b>C6</b></p> <p><b>CHECK CIRCUITS 248 (TN/OG) AND 133 (BK) FOR A SHORT TO GROUND</b></p> <ul style="list-style-type: none"> <li>Disconnect: Clockspring C2274.</li> <li>Measure the resistance between the PCM <b>C175b-19</b>, circuit 248 (TN/OG), harness side and ground; and between the PCM <b>C175b-30</b>, circuit 133 (BK), harness side and ground.</li> </ul>  <p>A0082240</p> <ul style="list-style-type: none"> <li><b>Are the resistances greater than 10,000 ohms?</b></li> </ul>	<p><b>Yes</b>                  INSTALL a new clockspring. REFER to Section 501-20B. INSTALL the driver air bag module. REFER to Section 501-20B. CLEAR the DTCs. REPEAT the self-test.</p> <p><b>No</b>                  REPAIR the circuit in question. INSTALL the driver air bag module. REFER to Section 501-20B. CLEAR the DTCs. REPEAT the self-test.</p>	

(Continued)

**DIAGNOSIS AND TESTING (Continued)**

**PINPOINT TEST C: DTC P0579 OR DTC P0581 - SPEED CONTROL SWITCH CIRCUIT FAILURE (Continued)**

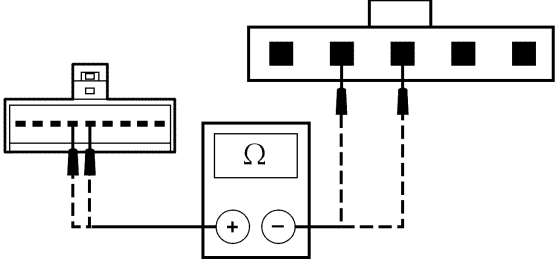
Test Step		Result / Action to Take
<b>C7</b>	<p><b>CHECK THE SPEED CONTROL SWITCH CIRCUITRY FOR AN OPEN</b></p> <ul style="list-style-type: none"> <li>Measure the resistance between the PCM <b>C175b-19</b>, circuit 248 (TN/OG), harness side and the PCM <b>C175b-30</b>, circuit 133 (BK), harness side.</li> </ul>  <p>N0002442</p> <ul style="list-style-type: none"> <li>Is the resistance between 4,100 and 4,500 ohms?</li> </ul>	<p><b>Yes</b> GO to <b>C10</b>.</p> <p><b>No</b> GO to <b>C8</b>.</p>
<b>C8</b>	<p><b>CHECK CIRCUITS 248 (TN/OG) AND 133 (BK) FOR AN OPEN</b></p> <ul style="list-style-type: none"> <li>Disconnect: Clockspring C2274.</li> <li>Measure the resistance between the PCM <b>C175b-19</b>, circuit 248 (TN/OG), harness side and the clockspring <b>C2274-4</b>, circuit 248 (TN/OG), harness side; and between the PCM <b>C175b-30</b>, circuit 133 (BK), harness side and the clockspring <b>C2274-5</b>, circuit 133 (BK), harness side.</li> </ul>  <p>V0002809</p> <ul style="list-style-type: none"> <li>Are the resistances less than 5 ohms?</li> </ul>	<p><b>Yes</b> GO to <b>C9</b>.</p> <p><b>No</b> REPAIR the circuit in question. CLEAR the DTCs. REPEAT the self-test.</p>
<b>C9</b>	<p><b>CHECK THE CLOCKSPRING</b></p> <ul style="list-style-type: none"> <li>Remove the driver air bag module. Refer to Section 501-20B.</li> <li>Disconnect: Upper Clockspring.</li> </ul>	

(Continued)



**DIAGNOSIS AND TESTING (Continued)**

**PINPOINT TEST C: DTC P0579 OR DTC P0581 - SPEED CONTROL SWITCH CIRCUIT FAILURE (Continued)**

Test Step		Result / Action to Take
<b>C9</b>	<b>CHECK THE CLOCKSPRING (Continued)</b>	
	<ul style="list-style-type: none"> <li>Measure the resistance between the clockspring C2274 pin 4, component side and the upper clockspring connector pin 2, component side; and between the clockspring C2274 pin 5, component side and the upper clockspring connector pin 3, component side.</li> </ul>  <p>N0012049</p> <ul style="list-style-type: none"> <li><b>Are the resistances less than 5 ohms?</b></li> </ul>	<p><b>Yes</b> INSTALL a new speed control switch. REFER to Speed Control Switch in this section. CLEAR the DTCs. REPEAT the self-test.</p> <p><b>No</b> INSTALL a new clockspring. REFER to Section 501-20B. INSTALL the driver air bag module. REFER to Section 501-20B. CLEAR the DTCs. REPEAT the self-test.</p>
<b>C10</b>	<b>CHECK FOR CORRECT PCM OPERATION</b>	
	<ul style="list-style-type: none"> <li>Disconnect all the PCM connectors.</li> <li>Check for:                             <ul style="list-style-type: none"> <li>corrosion</li> <li>pushed-out pins</li> </ul> </li> <li>Connect all the PCM connectors and make sure they seat correctly.</li> <li>Operate the system and verify the concern is still present.</li> <li><b>Is the concern still present?</b></li> </ul>	<p><b>Yes</b> INSTALL a new PCM. REFER to Section 303-14. INSTALL the driver air bag module. REFER to Section 501-20B. TEST the system for normal operation.</p> <p><b>No</b> The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. INSTALL the driver air bag module. REFER to Section 501-20B. CLEAR the DTCs. REPEAT the self-test.</p>

**Pinpoint Test D: DTC P0833 - Clutch Pedal Switch B Circuit**

**Normal Operation**

Vehicles equipped with a manual transmission have an additional clutch pedal speed control deactivator switch. The clutch pedal speed control deactivator switch, normally closed, supplies a ground signal to the powertrain control module (PCM) through circuit 1899 (WH). When the clutch pedal is pressed, the clutch pedal speed control deactivator switch moves to the open position causing the PCM to lose a ground signal and deactivate the speed control. Circuit 1205 (BK) supplies a ground to the clutch pedal speed control deactivator switch.

**Possible Causes**

- circuit 1899 (WH) open
- circuit 1205 (BK) open
- clutch pedal speed control deactivator switch
- PCM

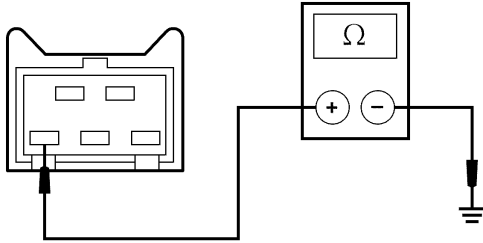
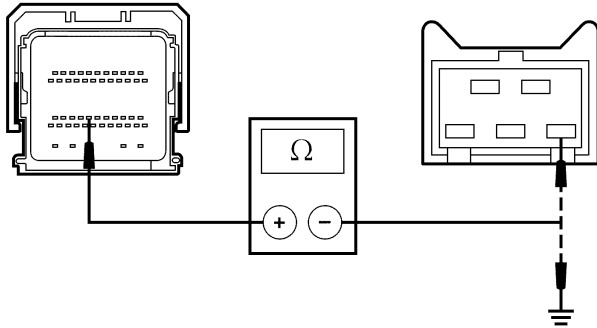
**PINPOINT TEST D: DTC P0833 - CLUTCH PEDAL SWITCH B CIRCUIT**

Test Step		Result / Action to Take
<b>D1</b>	<b>CHECK THE CLUTCH PEDAL SPEED CONTROL DEACTIVATOR SWITCH PID</b>	
	<ul style="list-style-type: none"> <li>Key in ON position.</li> </ul>	

(Continued)

**DIAGNOSIS AND TESTING (Continued)**

**PINPOINT TEST D: DTC P0833 - CLUTCH PEDAL SWITCH B CIRCUIT (Continued)**

Test Step		Result / Action to Take
<b>D1</b>	<b>CHECK THE CLUTCH PEDAL SPEED CONTROL DEACTIVATOR SWITCH PID (Continued)</b>	
	<ul style="list-style-type: none"> <li>Enter the following diagnostic mode on the diagnostic tool: Powertrain Control Module (PCM) Clutch Pedal Speed Control Deactivator Switch PID.</li> <li>Monitor the PCM clutch pedal speed control deactivator switch PID while pressing and releasing the clutch pedal.</li> <li><b>Does the clutch pedal speed control deactivator switch PID agree with the clutch pedal position?</b></li> </ul>	<p><b>Yes</b> GO to <b>D4</b>.</p> <p><b>No</b> GO to <b>D2</b>.</p>
<b>D2</b>	<b>CHECK CIRCUIT 1205 (BK) FOR AN OPEN</b>	
	<ul style="list-style-type: none"> <li>Key in OFF position.</li> <li>Disconnect: Clutch Pedal Speed Control Deactivator Switch C277.</li> <li>Measure the resistance between the clutch pedal speed control deactivator switch <b>C277-3</b>, circuit 1205 (BK), harness side and ground.</li> </ul>  <p>N0012707</p> <ul style="list-style-type: none"> <li><b>Is the resistance less than 5 ohms?</b></li> </ul>	<p><b>Yes</b> GO to <b>D3</b>.</p> <p><b>No</b> REPAIR the circuit. CLEAR the DTCs. REPEAT the self-test.</p>
<b>D3</b>	<b>CHECK CIRCUIT 1899 (WH) FOR AN OPEN OR A SHORT TO GROUND</b>	
	<ul style="list-style-type: none"> <li>Disconnect: PCM C175t.</li> <li>Measure the resistance between the PCM <b>C175t-30</b>, circuit 1899 (WH), harness side and the clutch pedal speed control deactivator switch <b>C277-1</b>, circuit 1899 (WH), harness side; and between the PCM <b>C175t-30</b>, circuit 1899 (WH), harness side and ground.</li> </ul>  <p>N0012708</p> <ul style="list-style-type: none"> <li><b>Is the resistance less than 5 ohms between the PCM and the clutch pedal speed control deactivator switch, and greater than 10,000 ohms between the PCM and ground?</b></li> </ul>	<p><b>Yes</b> INSTALL a new clutch pedal speed control deactivator switch. REFER to Speed Control Deactivator Switch in this section. CLEAR the DTCs. REPEAT the self-test.</p> <p><b>No</b> REPAIR the circuit. CLEAR the DTCs. REPEAT the self-test.</p>

(Continued)

**DIAGNOSIS AND TESTING (Continued)****PINPOINT TEST D: DTC P0833 - CLUTCH PEDAL SWITCH B CIRCUIT (Continued)**

Test Step		Result / Action to Take
<b>D4</b>	<b>CHECK FOR CORRECT PCM OPERATION</b>	
	<ul style="list-style-type: none"> <li>• Disconnect all the PCM connectors.</li> <li>• Check for: <ul style="list-style-type: none"> <li>• corrosion</li> <li>• pushed-out pins</li> </ul> </li> <li>• Connect all the PCM connectors and make sure they seat correctly.</li> <li>• Operate the system and verify the concern is still present.</li> <li>• <b>Is the concern still present?</b></li> </ul>	<p><b>Yes</b> INSTALL a new PCM. REFER to Section 303-14. TEST the system for normal operation.</p> <p><b>No</b> The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. TEST the system for normal operation.</p>