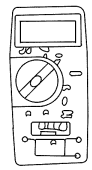
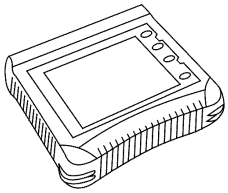
DIAGNOSIS AND TESTING

Instrument Cluster and Panel Illumination

Refer to Wiring Diagrams Cell 71, Instrument Illumination for schematic and connector information.

Special Tool(s)

 ST1137-A	73III Automotive Meter 105-R0057 or equivalent
 ST2332-A	Worldwide Diagnostic System (WDS) Vehicle Communication Module (VCM) with appropriate adapters, or equivalent diagnostic tool

Principles of Operation

When the headlamp switch is in the parking lamps or headlamps ON position, synchronized dimming of the backlights and displays occur with the instrument panel dimmer switch.

The instrument panel dimmer switch allows the brightness level of the dimmable backlights and displays to be adjusted.

Both the headlamp switch and the instrument panel dimmer switch communicate a signal to the smart junction box (SJB) which supplies voltage to the dimmable and non-dimmable backlights.

The SJB communicates with the instrument cluster through the controller are network (CAN). The instrument cluster then increases or decreases the intensity of the instrument cluster backlighting accordingly.

Fault Management

The dimmable backlighting defaults to full intensity if the instrument panel dimmer switch or circuitry fails.

Inspection and Verification

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

Visual Inspection Chart

Mechanical	Electrical
• Instrument panel dimmer switch	• Bussed electrical center (BEC) fuse(s): — 44 (10A) — 59 (30A) — 67 (30A) • Smart junction box (SJB) fuse 19 (5A) • Miniature bulb(s) • Circuitry • Accessory delay relay • Instrument cluster • Headlamp switch

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. 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.
   - check the connections to the vehicle.
   - check the ignition switch position.
5. If the diagnostic tool still does not communicate with the vehicle, refer to the diagnostic tool operating manual.
6. 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 the smart junction box (SJB), refer to Section 419-10.
   - No response/not equipped for the instrument cluster, refer to Section 413-01.
   - System passed, retrieve and record the continuous diagnostic trouble codes (DTCs), erase the continuous DTCs, and carry out self-test diagnostics for the smart junction box (SJB) and the instrument cluster.
7. If the DTCs retrieved are related to the concern and are from the SJB, go to the Smart Junction Box (SJB) Diagnostic Trouble Code (DTC) Index.

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DIAGNOSIS AND TESTING (Continued)

8. If the DTCs retrieved are related to the concern and are from the instrument cluster, refer to Section 413-01.
9. If no DTCs related to the concern are retrieved, GO to Symptom Chart.

Smart Junction Box (SJB) Diagnostic Trouble Code (DTC) Index

DTC	Description	Source	Action
B1247	Instrument Panel Dimmer Switch Circuit Open	SJB	GO to Pinpoint Test B.
B1342	ECU is Faulted	SJB	DOCUMENT and CLEAR the DTCs. REPEAT the self-test. If DTC B1342 is retrieved again, INSTALL a new SJB. REFER to Section 419-10.
B2027	LED Backlighting Output Circuit Failure	SJB	GO to Pinpoint Test C.
B2132	Dimmer Switch Circuit Short To Ground	SJB	GO to Pinpoint Test B.
B2477	Module Configuration Failure	SJB	DOCUMENT and CLEAR the DTCs. REPEAT the self-test. If DTC B2477 is retrieved again, REFER to Section 418-01.
U1900	CAN Communication Bus Fault - Receive Error	SJB	DOCUMENT and CLEAR the DTCs. REPEAT the self-test. If DTC U1900 is retrieved again, REFER to Section 418-00.
All Other DTCs	—	SJB	REFER to Section 419-10.

Symptom Chart

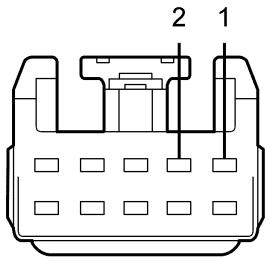
Symptom Chart

Condition	Possible Sources	Action
• The control illumination is inoperative	• Circuitry • Headlamp switch	• GO to Pinpoint Test A.
• The instrument cluster illumination is inoperative	• Circuitry • Instrument cluster	• CHECK the operation of other backlighting components. — If the other backlighting components operate correctly, INSTALL a new instrument cluster. REFER to Section 413-01. TEST the system for normal operation. — If other backlighting components are inoperative, GO to Pinpoint Test A.
• The instrument panel illumination does not dim	• Circuitry • Instrument panel dimmer switch • Smart junction box (SJB)	• GO to Pinpoint Test B.
• One or more smart junction box (SJB) controlled illumination source(s) is inoperative	• Circuitry • SJB	• GO to Pinpoint Test C.

DIAGNOSIS AND TESTING (Continued)

Connector Circuit Reference

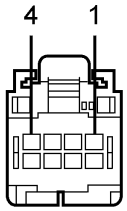
Headlamp Switch C205



N0025749

Pin Number(s)	Circuit Designation/Description	Normal Condition/Measurement
1	1205 (BK) illumination ground	Less than 5 ohms between the headlamp switch and ground.
2	2023 (YE/LB) headlamps switch illumination	Variable voltage. Less than 5 ohms between the headlamp switch and the smart junction box (SJB). Greater than 10,000 ohms between the headlamp switch and ground.

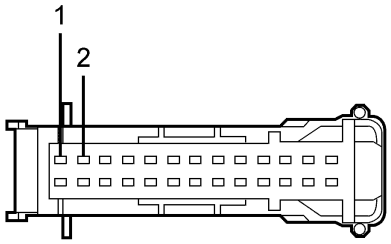
Message Center Switch C253



N0009388

Pin Number(s)	Circuit Designation/Description	Normal Condition/Measurement
1	2030 (YE/WH) message center switch illumination	Variable voltage. Less than 5 ohms between the message center switch and the smart junction box (SJB). Greater than 10,000 ohms between the message center switch and ground.
4	1205 (BK) illumination ground	Less than 5 ohms between the message center switch and ground.

Climate Control Assembly C294a

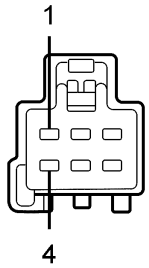


N0009389

DIAGNOSIS AND TESTING (Continued)

Pin Number(s)	Circuit Designation/Description	Normal Condition/Measurement
1	1205 (BK) illumination ground	Less than 5 ohms between the climate control assembly and ground.
2	1425 (GY/WH) climate control assembly illumination	Variable voltage. Less than 5 ohms between the climate control assembly and the smart junction box (SJB). Greater than 10,000 ohms between the climate control assembly and ground.

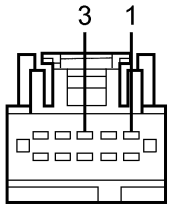
Shifter Assembly C307



N0012153

Pin Number(s)	Circuit Designation/Description	Normal Condition/Measurement
1	1205 (BK) shifter assembly illumination ground	Less than 5 ohms between the shifter assembly and ground.
4	19 (LB/RD) shifter assembly illumination	Variable voltage. Less than 5 ohms between the shifter assembly and the smart junction box (SJB). Greater than 10,000 ohms between the shifter assembly and ground.

Driver Window Control Switch C504

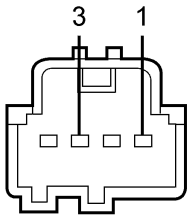


N0009390

Pin Number(s)	Circuit Designation/Description	Normal Condition/Measurement
1	1205 (BK) window control switch illumination ground	Less than 5 ohms between the driver window control switch and ground.
3	985 (RD/LB) driver window control switch illumination voltage	Greater than 10 volts with the headlamp switch in the PARK or ON position. Less than 5 ohms between the driver window control switch and the smart junction box (SJB). Greater than 10,000 ohms between the driver window control switch and ground.

DIAGNOSIS AND TESTING (Continued)

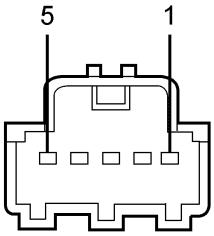
Driver Door Lock Control Switch C505, Passenger Door Lock Control Switch C605



N0009391

Pin Number(s)	Circuit Designation/Description	Normal Condition/Measurement
1	1205 (BK) door lock control switch illumination ground	Less than 5 ohms between the door lock control switch and ground.
3 (C505)	985 (RD/LB) driver door lock control switch illumination voltage	Greater than 10 volts with the headlamp switch in the PARK or ON position. Less than 5 ohms between the driver door lock control switch and the smart junction box (SJB). Greater than 10,000 ohms between the driver door lock control switch and ground.
3 (C605)	984 (YE/LB) passenger door lock control switch illumination voltage	Greater than 10 volts with the headlamp switch in the PARK or ON position. Less than 5 ohms between the passenger door lock control switch and the SJB. Greater than 10,000 ohms between the passenger door lock control switch and ground.

Rear Window Control Switch C566, Passenger Window Control Switch C604

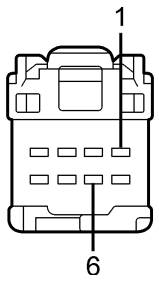


N0012437

Pin Number(s)	Circuit Designation/Description	Normal Condition/Measurement
1	1205 (BK) window control switch illumination ground	Less than 5 ohms between the window control switch and ground.
5 (C566)	333 (YE/RD) rear window control switch illumination voltage	Greater than 10 volts with the headlamp switch in the PARK or ON position. Less than 5 ohms between the rear window control switch and the smart junction box (SJB). Greater than 10,000 ohms between the rear window control switch and ground.
5 (C604)	984 (YE/LB) passenger window control switch illumination voltage	Greater than 10 volts with the headlamp switch in the PARK or ON position. Less than 5 ohms between the passenger window control switch and the SJB. Greater than 10,000 ohms between the passenger window control switch and ground.

DIAGNOSIS AND TESTING (Continued)

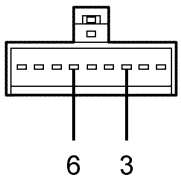
Center Stack C2039



N0009393

Pin Number(s)	Circuit Designation/Description	Normal Condition/Measurement
1	1205 (BK) center stack illumination ground	Less than 5 ohms between the center stack and ground.
6	2029 (LB/WH) center stack illumination voltage	Variable voltage. Less than 5 ohms between the center stack and the smart junction box (SJB). Greater than 10,000 ohms between the center stack and ground.

Clockspring C2274

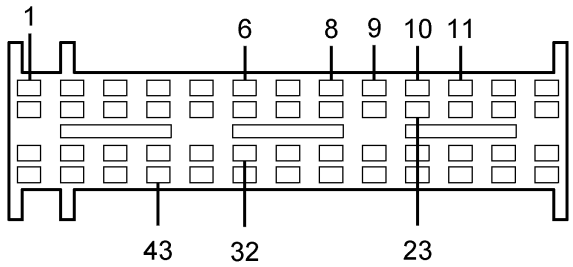


N0012154

Pin Number(s)	Circuit Designation/Description	Normal Condition/Measurement
3	203 (OG/LB) steering wheel speed control switches illumination	Variable voltage. Less than 5 ohms between the clockspring and the smart junction box (SJB). Greater than 10,000 ohms between the clockspring and ground.
6	1205 (BK) steering wheel speed control switches illumination ground	Less than 5 ohms between the clockspring and ground.

DIAGNOSIS AND TESTING (Continued)

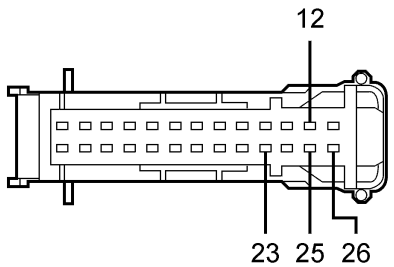
Smart Junction Box (SJB) C2280b



N0012155

Pin Number(s)	Circuit Designation/Description	Normal Condition/Measurement
1	1405 (LB/BK) instrument panel dimmer switch signal return	Less than 5 ohms between the SJB and the instrument panel dimmer switch. Greater than 10,000 ohms between the SJB and ground.
6	2023 (YE/LB) headlamp switch illumination	Less than 5 ohms between the SJB and the headlamp switch. Greater than 10,000 ohms between the SJB and ground.
8	1403 (BK/WH) instrument panel dimmer switch illumination	Less than 5 ohms between the SJB and the instrument panel dimmer switch. Greater than 10,000 ohms between the SJB and ground.
9	2030 (YE/WH) message center switch illumination	Less than 5 ohms between the SJB and the message center switch. Greater than 10,000 ohms between the SJB and ground.
10	203 (OG/LB) steering wheel switches illumination	Less than 5 ohms between the SJB and the steering wheel switches. Greater than 10,000 ohms between the SJB and ground.
11	2029 (LB/WH) center stack illumination	Less than 5 ohms between the SJB and the center stack. Greater than 10,000 ohms between the SJB and ground.
23	1425 (GY/WH) climate control assembly illumination	Less than 5 ohms between the SJB and the climate control assembly. Greater than 10,000 ohms between the SJB and ground.
32	1036 (BN/WH) instrument panel dimmer switch reference voltage	Less than 5 ohms between the SJB and the instrument panel dimmer switch. Greater than 10,000 ohms between the SJB and ground.
43	1035 (OG/RD) instrument panel dimmer switch panel dim signal	0 volts. Less than 5 ohms between the SJB and the instrument panel dimmer switch. Greater than 10,000 ohms between the SJB and ground.

Smart Junction Box (SJB) C2280e

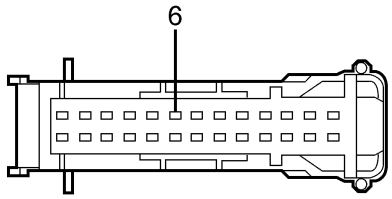


N0012814

DIAGNOSIS AND TESTING (Continued)

Pin Number(s)	Circuit Designation/Description	Normal Condition/Measurement
12	19 (LB/RD) shifter assembly illumination	Variable voltage. Less than 5 ohms between the SJB and the shifter assembly. Greater than 10,000 ohms between the SJB and ground.
23	333 (YE/RD) rear window control switch illumination	Less than 5 ohms between the SJB and the rear window control switch. Greater than 10,000 ohms between the SJB and ground.
25	984 (YE/LB) passenger door lock control switch and passenger door window control switch illumination	Less than 5 ohms between the SJB and the passenger door lock control switch; and between the SJB and the passenger door window control switch. Greater than 10,000 ohms between the SJB and ground.
26	985 (RD/LB) driver door lock control switch and driver door window control switch illumination	Less than 5 ohms between the SJB and the driver door lock control switch; and between the SJB and the driver door window control switch. Greater than 10,000 ohms between the SJB and ground.

Smart Junction Box (SJB) C2280f

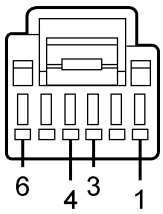


N0009396

Pin Number(s)	Circuit Designation/Description	Normal Condition/Measurement
6	293 (OG/RD) overhead console illumination	Less than 5 ohms between the SJB and the overhead console. Greater than 10,000 ohms between the SJB and ground.

DIAGNOSIS AND TESTING (Continued)

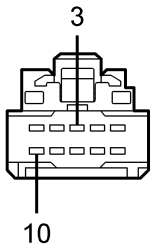
Instrument Panel Dimmer Switch C2298



N0009397

Pin Number(s)	Circuit Designation/Description	Normal Condition/Measurement
1	1036 (BN/WH) instrument panel dimmer switch reference voltage	Greater than 10 volts with the headlamp switch in the PARK or ON position. Less than 5 ohms between the instrument panel dimmer switch and the smart junction box (SJB). Greater than 10,000 ohms between the instrument panel dimmer switch and ground.
3	1403 (BK/WH) instrument panel dimmer switch illumination voltage	Variable voltage. Less than 5 ohms between the instrument panel dimmer switch and the SJB. Greater than 10,000 ohms between the instrument panel dimmer switch and ground.
4	1405 (LB/BK) instrument panel dimmer switch signal return	Less than 5 ohms between the instrument panel dimmer switch and the SJB. Greater than 10,000 ohms between the instrument panel dimmer switch and ground.
6	1035 (OG/RD) instrument panel dimmer switch panel dim signal	Less than 5 ohms between the instrument panel dimmer switch and the SJB. Greater than 10,000 ohms between the instrument panel dimmer switch and ground.

Overhead Console C9013



N0025606

Pin Number(s)	Circuit Designation/Description	Normal Condition/Measurement
3	293 (OG/RD) overhead console illumination voltage	Variable voltage. Less than 5 ohms between the overhead console and the smart junction box (SJB). Greater than 10,000 ohms between the overhead console and ground.
10	1205 (BK) overhead console illumination ground	Less than 5 ohms between the overhead console and ground.

DIAGNOSIS AND TESTING (Continued)

Pinpoint Test A: The Control Illumination is Inoperative

Normal Operation

When the headlamp switch is placed in the PARK or headlamp ON position, the smart junction box (SJB) supplies either a pulse width modulated (PWM) signal or 12 volts to the various backlighting sources in the instrument panel, doors and console.

Possible Causes

- exterior lighting system
- SJB

PINPOINT TEST A: THE CONTROL ILLUMINATION IS INOPERATIVE

Test Step		Result / Action to Take
A1	**CHECK THE PARKING LAMPS OPERATION**	
	• Monitor the parking lamps in the OFF position and in the PARK position. • **Do the parking lamps operate correctly?**	**Yes** GO to **A2**. **No** REFER to Section 417-01 to continue diagnosis of the exterior lighting system.
A2	**CHECK FOR CORRECT SJB OPERATION**	

	• Disconnect all the SJB connectors.
	• Check for:
	  • corrosion
	  • pushed-out pins
	• Connect all the SJB 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 SJB. REFER to Section 419-10. 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: The Instrument Panel Illumination Does Not Dim

Normal Operation

When the parking lamp switch is placed in the PARK or headlamps ON position, a voltage signal is supplied to the instrument panel dimmer switch through circuit 1036 (BN/WH) from the smart junction box (SJB). The dimmer switch passes this voltage through a variable resister and then returns the signal to the SJB on circuit 1035 (OG/RD). The SJB uses the return signal to determine the backlighting intensity desired by the operator. A pulse width modulated (PWM) signal is sent from the SJB to each of the dimmable backlights, maintaining the operators desired level of lighting intensity.

The dimmable backlighting defaults to full intensity if the instrument panel dimmer switch or circuitry fails.

Possible Causes

- circuit 1035 (OG/RD) open, short to ground, or short to voltage
- circuit 1036 (BN/WH) open or short to ground
- circuit 1405 (LB/BK) short to voltage
- instrument panel dimmer switch
- SJB

DIAGNOSIS AND TESTING (Continued)

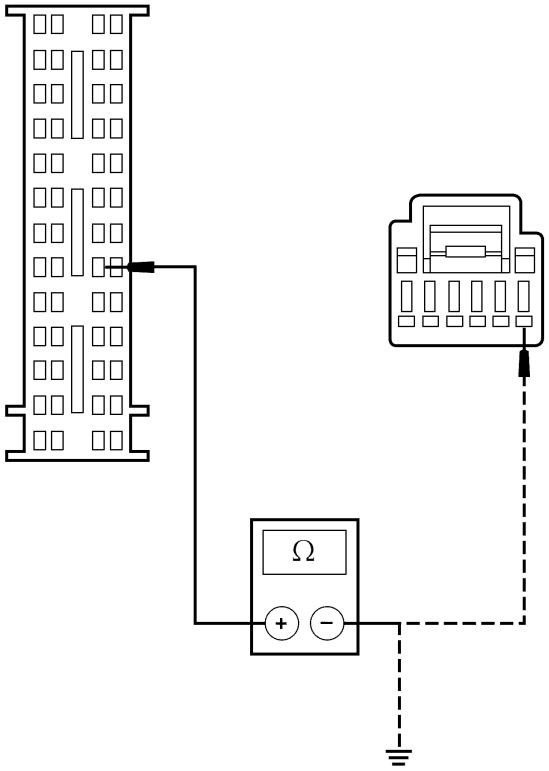
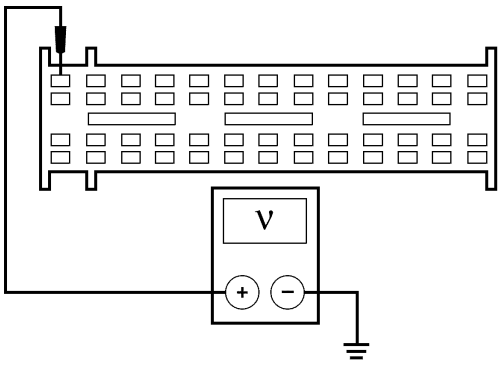
PINPOINT TEST B: THE INSTRUMENT PANEL ILLUMINATION DOES NOT DIM

Test Step		Result / Action to Take
B1	**MONITOR THE INSTRUMENT PANEL ILLUMINATION OPERATION**	
	• Place the headlamp switch in the PARK position. • Rotate the dimmer switch from maximum brightness to minimum brightness. • Monitor all instrument panel illumination sources for correct operation. • **Do all the dimmable instrument panel illumination sources dim correctly?**	**Yes** The system is OK. **No** If only the instrument cluster does not dim, INSTALL a new instrument cluster. REFER to Section 413-01. TEST the system for normal operation. For all others, GO to **B2**.
B2	**CHECK THE SMART JUNCTION BOX (SJB) INSTRUMENT PANEL DIMMER SWITCH PIDs**	
	• Key in ON position. • Enter the following diagnostic mode on the diagnostic tool: SJB Instrument Panel Dimmer Switch PIDs. • Turn the headlamps to the PARK position. • Monitor the SJB instrument panel dimmer switch PIDs while rotating the instrument panel dimmer switch from full OFF to full ON. • **Do the SJB instrument panel dimmer switch PIDs agree with the instrument panel dimmer switch position?**	**Yes** GO to **B8**. **No** GO to **B3**.
B3	**CHECK CIRCUIT 1036 (BN/WH) FOR AN OPEN AND A SHORT TO GROUND**	
	• Key in OFF position. • Disconnect: SJB C2280b. • Disconnect: Instrument Panel Dimmer Switch C2298.	

(Continued)

DIAGNOSIS AND TESTING (Continued)

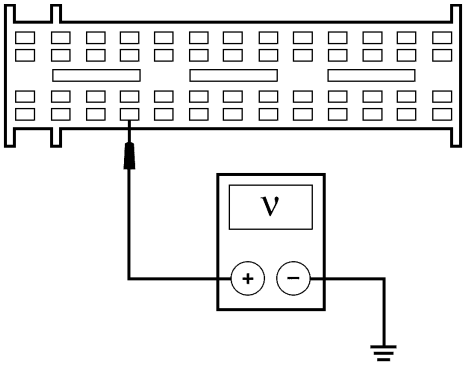
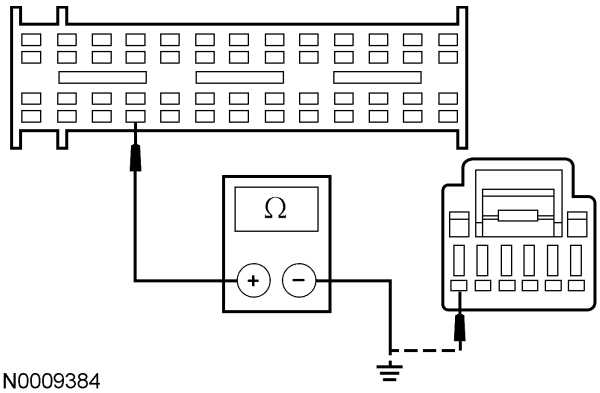
PINPOINT TEST B: THE INSTRUMENT PANEL ILLUMINATION DOES NOT DIM (Continued)

Test Step		Result / Action to Take
B3	**CHECK CIRCUIT 1036 (BN/WH) FOR AN OPEN AND A SHORT TO GROUND (Continued)**	
	• Measure the resistance between the SJB C2280b-32, circuit 1036 (BN/WH), harness side and the instrument panel dimmer switch C2298-1, circuit 1036 (BN/WH), harness side; and between the SJB C2280b-32, circuit 1036 (BN/WH), harness side and ground.  N0012438 • **Is the resistance less than 5 ohms between the SJB and the instrument panel dimmer switch, and greater than 10,000 ohms between the SJB and ground?**	**Yes** GO to **B4**. **No** REPAIR the circuit. CLEAR the DTCs. REPEAT the self-test.
B4	**CHECK CIRCUIT 1405 (LB/BK) FOR A SHORT TO VOLTAGE**	
	• Key in ON position. • Measure the voltage between the SJB C2280b-1, circuit 1405 (LB/BK), harness side and ground.  N0009383 • **Is any voltage indicated?**	**Yes** GO to **B5**. **No** REPAIR the circuit. CLEAR the DTCs. REPEAT the self-test.

(Continued)

DIAGNOSIS AND TESTING (Continued)

PINPOINT TEST B: THE INSTRUMENT PANEL ILLUMINATION DOES NOT DIM (Continued)

Test Step		Result / Action to Take
B5	**CHECK CIRCUIT 1035 (OG/RD) FOR A SHORT TO VOLTAGE**	
	• Measure the voltage between the SJB C2280b-43, circuit 1035 (OG/RD), harness side and ground.  N0009386 • **Is any voltage indicated?**	**Yes** GO to **B6**. **No** REPAIR the circuit. CLEAR the DTCs. REPEAT the self-test.
B6	**CHECK CIRCUIT 1035 (OG/RD) FOR AN OPEN AND A SHORT TO GROUND**	
	• Key in OFF position. • Measure the resistance between the SJB C2280b-43, circuit 1035 (OG/RD), harness side and the instrument panel dimmer switch C2298-6, circuit 1035 (OG/RD), harness side; and between the SJB C2280b-43, circuit 1035 (OG/RD), harness side and ground.  N0009384 • **Is the resistance less than 5 ohms between the SJB and the instrument panel dimmer switch, and greater than 10,000 ohms between the SJB and ground?**	**Yes** GO to **B7**. **No** REPAIR the circuit. CLEAR the DTCs. REPEAT the self-test.
B7	**CHECK THE INSTRUMENT PANEL DIMMER SWITCH OPERATION**	
	• Carry out the instrument panel dimmer switch component test. Refer to Wiring Diagrams Cell 149 for component testing. • **Does the instrument panel dimmer switch pass the component test?**	**Yes** GO to **B8**. **No** INSTALL a new instrument panel dimmer switch. REFER to Section 417-01. CLEAR the DTCs. REPEAT the self-test.
B8	**CHECK FOR CORRECT SJB OPERATION**	

	• Disconnect all the SJB connectors.
	• Check for:
	  • corrosion
	  • pushed-out pins
	• Connect all the SJB 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 SJB. REFER to Section 419-10. 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.

DIAGNOSIS AND TESTING (Continued)

Pinpoint Test C: One Or More Smart Junction Box (SJB) Controlled Illumination Source(s) Is Inoperative

Normal Operation

Dimmable Backlighting

When the headlamp lamp switch is placed in the PARK or headlamps ON position, a voltage signal is supplied to the instrument panel dimmer switch through circuit 1036 (BN/WH) from the smart junction box (SJB). The dimmer switch passes this voltage through a variable resister and then returns the signal to the SJB on circuit 1035 (OG/RD). The SJB uses the return signal to determine the backlighting intensity desired by the operator. A pulse width modulated (PWM) signal is sent from the SJB to each of the dimmable backlights maintaining the operator's desired level of lighting intensity.

Non-Dimable Backlighting

When the ignition switch is placed in the ACCY or the ON position, a voltage signal is supplied to the SJB. The SJB activates the accessory delay relay, supplying voltage to the non-dimmable backlights.

Possible Causes

- circuit 19 (LB/RD) open or short to ground
- circuit 1403 (BK/WH) open or short to ground
- circuit 2030 (YE/WH) open or short to ground
- circuit 293 (OG/RD) open or short to ground
- circuit 203 (OG/LB) open or short to ground
- circuit 2023 (YE/LB) open or short to ground
- circuit 2029 (LB/WH) open or short to ground
- circuit 985 (RD/LB) open or short to ground
- circuit 333 (YE/RD) open or short to ground
- circuit 984 (YE/LB) open or short to ground
- circuit 1425 (GY/WH) open or short to ground
- circuit 1205 (BK) open
- circuit 1405 (LB/BK) open
- illuminated component
- clockspring
- SJB
- accessory delay relay
- speed control switch

PINPOINT TEST C: ONE OR MORE SMART JUNCTION BOX (SJB) CONTROLLED ILLUMINATION SOURCE(S) IS INOPERATIVE

Test Step		Result / Action to Take
C1	**CHECK THE INSTRUMENT PANEL ILLUMINATION OPERATION**	
	• Key in ON position. • Place the headlamp switch in the PARK position. • Rotate the dimmer switch to the maximum brightness position. • Monitor all instrument panel illumination sources for correct operation. • **Are all the instrument panel illumination sources inoperable?**	**Yes** GO to Pinpoint Test A. **No** If the inoperable illumination source(s) are non-dimmable, GO to **C2**. For all others GO to **C6**.
C2	**CHECK THE NON-DIMMABLE BACKLIGHTING OPERATION**	
	• Monitor all instrument panel illumination non-dimmable sources for correct operation. • **Are all the instrument panel non-dimmable illumination sources inoperable?**	**Yes** GO to **C3**. **No** GO to **C4**.
C3	**CHECK THE ACCESSORY DELAY RELAY**	
	• Key in OFF position. • Carry out the accessory delay relay component test. Refer to Wiring Diagrams Cell 149 for component testing. • **Does the accessory delay relay pass the component test?**	**Yes** GO to **C12**. **No** INSTALL a new accessory delay relay. CLEAR the DTCs. REPEAT The self-test.
C4	**CHECK CIRCUIT 984 (YE/LB), 985 (RD/LB), AND 333 (YE/RD) FOR AN OPEN AND A SHORT TO GROUND**	
	• Key in OFF position. • Disconnect: SJB C2280e. • Disconnect: Suspect lamp. • Measure the resistance between the SJB, harness side and the suspect lamp, harness side; and between the SJB, harness side and ground as follows:	

(Continued)

DIAGNOSIS AND TESTING (Continued)

PINPOINT TEST C: ONE OR MORE SMART JUNCTION BOX (SJB) CONTROLLED ILLUMINATION SOURCE(S) IS INOPERATIVE (Continued)

<table>
<tr><th colspan="2">Test Step</th><th>Result / Action to Take</th></tr>
<tr><td>C4</td><td>CHECK CIRCUIT 984 (YE/LB), 985 (RD/LB), AND 333 (YE/RD) FOR AN OPEN AND A SHORT TO GROUND (Continued)</td><td rowspan="2">Yes
GO to C5.
No
REPAIR the circuit in question. CLEAR the DTCs. REPEAT the self-test.</td></tr>
<tr><td colspan="2">
<table>
<tr><th>Suspect Lamp Location</th><th>SJB Connector-Pin</th><th>Lamp Connector-Pin</th><th>Circuit</th></tr>
<tr><td>Driver Door Lock Control Switch</td><td>C2280e-26</td><td>C505-3</td><td>985 (RD/LB)</td></tr>
<tr><td>Driver Door Window Control Switch</td><td>C2280e-26</td><td>C504-3</td><td>985 (RD/LB)</td></tr>
<tr><td>Passenger Door Lock Control Switch</td><td>C2280e-25</td><td>C605-3</td><td>984 (YE/LB)</td></tr>
<tr><td>Passenger Window Control Switch</td><td>C2280e-25</td><td>C604-5</td><td>984 (YE/LB)</td></tr>
<tr><td>Rear Window Control Switch</td><td>C2280e-23</td><td>C566-5</td><td>333 (YE/RD)</td></tr>
</table>
• Is the resistance less than 5 ohms between the SJB and the suspect lamp, and greater than 10,000 ohms between the SJB and ground?
</td></tr>
<tr><td>C5</td><td>CHECK NON-DIMMABLE LAMPS CIRCUIT 1205 (BK) FOR AN OPEN</td><td rowspan="2">Yes
INSTALL a new component in question. CLEAR the DTCs. REPEAT the self-test.
No
REPAIR the circuit in question. CLEAR the DTCs. REPEAT the self-test.</td></tr>
<tr><td colspan="2">
• Measure the resistance between the suspect lamp, harness side and ground as follows:
<table>
<tr><th>Suspect Lamp Location</th><th>Lamp Connector-Pin</th><th>Circuit</th></tr>
<tr><td>Driver Door Lock Control Switch</td><td>C505-1</td><td>1205 (BK)</td></tr>
<tr><td>Driver Door Control Switch</td><td>C504-1</td><td>1205 (BK)</td></tr>
<tr><td>Passenger Door Lock Control Switch</td><td>C605-1</td><td>1205 (BK)</td></tr>
<tr><td>Passenger Window Control Switch</td><td>C604-1</td><td>1205 (BK)</td></tr>
<tr><td>Rear Window Control Switch</td><td>C566-1</td><td>1205 (BK)</td></tr>
</table>
• Is the resistance less than 5 ohms?
</td></tr>
<tr><td>C6</td><td>CHECK THE DIMMABLE BACKLIGHTING OPERATION</td><td rowspan="2">Yes
GO to C12.
No
GO to C7.</td></tr>
<tr><td colspan="2">
• Monitor all instrument panel illumination dimmable sources for correct operation.
• Are all the instrument panel dimmable illumination sources inoperable?
</td></tr>
<tr><td>C7</td><td>CHECK THE INOPERABLE LAMP CIRCUIT FOR VOLTAGE</td><td rowspan="2"></td></tr>
<tr><td colspan="2">
• Disconnect: Suspect Lamp.
• Key in ON position.
• Turn the headlamp switch ON.
</td></tr>
</table>

(Continued)

DIAGNOSIS AND TESTING (Continued)

PINPOINT TEST C: ONE OR MORE SMART JUNCTION BOX (SJB) CONTROLLED ILLUMINATION SOURCE(S) IS INOPERATIVE (Continued)

<table>
<tr><th colspan="2">Test Step</th><th>Result / Action to Take</th></tr>
<tr><td>C7</td><td>CHECK THE INOPERABLE LAMP CIRCUIT FOR VOLTAGE (Continued)</td><td rowspan="2">Yes
For the instrument panel dimmer switch, GO to C10. For all others, GO to C9.
No
GO to C8.</td></tr>
<tr><td colspan="2">• Rotate the instrument panel dimmer switch to the full intensity position.
• Measure the voltage between the suspect lamp and ground as follows:

<table>
<tr><th>Suspect Lamp Location</th><th>Lamp Connector-Pin</th><th>Circuit</th></tr>
<tr><td>Speed Control Switch</td><td>Steering Wheel Control Harness Connector</td><td>203 (OG/LB)</td></tr>
<tr><td>Overhead Console</td><td>C9013-3</td><td>293 (OG/RD)</td></tr>
<tr><td>Instrument Panel Dimmer Switch</td><td>C2298-3</td><td>1403 (BK/WH)</td></tr>
<tr><td>Climate Control Head</td><td>C294a-2</td><td>1425 (GY/WH)</td></tr>
<tr><td>Headlamp Switch</td><td>C205-2</td><td>2023 (YE/LB)</td></tr>
<tr><td>Instrument Panel Center Switches</td><td>C2039-6</td><td>2029 (LB/WH)</td></tr>
<tr><td>Message Center</td><td>C253-1</td><td>2030 (YE/WH)</td></tr>
</table>
• Is the voltage greater than 10 volts?</td></tr>
<tr><td>C8</td><td>CHECK CIRCUITS 19 (LB/RD), 203 (OG/LB), 293 (OG/RD), 1403 (BK/WH), 1425 (GY/WH), 2023 (YE/LB), 2029 (LB/WH), AND 2030 (YE/WH), FOR AN OPEN AND A SHORT TO GROUND</td><td></td></tr>
<tr><td colspan="2">• Turn the headlamp switch OFF.
• Key in OFF position.
• Disconnect: Smart Junction Box (SJB).
• Disconnect: Suspect lamp.
• Measure the resistance between the SJB, harness side and the suspect lamp, harness side; and between the SJB, harness side and ground as follows:</td><td></td></tr>
</table>

(Continued)

DIAGNOSIS AND TESTING (Continued)

PINPOINT TEST C: ONE OR MORE SMART JUNCTION BOX (SJB) CONTROLLED ILLUMINATION SOURCE(S) IS INOPERATIVE (Continued)

C8 CHECK CIRCUITS 19 (LB/RD), 203 (OG/LB), 293 (OG/RD), 1403 (BK/WH), 1425 (GY/WH), 2023 (YE/LB), 2029 (LB/WH), AND 2030 (YE/WH), FOR AN OPEN AND A SHORT TO GROUND (Continued)

Suspect Lamp Location	SJB Connector-Pin	Lamp Connector-Pin	Circuit
Speed Control Switch	C2280b-10	Clockspring C2274-3	203 (OG/LB)
Convertible Top Switch	C2280f-6	Overhead Console C9013-3	293 (OG/RD)
Instrument Panel Dimmer Switch	C2280b-8	C2298-3	1403 (BK/WH)
Climate Control Assembly	C2280b-23	C294a-2	1425 (GY/WH)
Headlamp Switch	C2280b-6	C205-2	2023 (YE/LB)
Instrument Panel Center Switches	C2280b-11	Center Stack C2039-6	2029 (LB/WH)
Message Center Switch	C2280b-9	C253-1	2030 (YE/WH)
Shifter Assembly (Automatic Transmission)	C2280e-12	C307-4	19 (LB/RD)

- **Is the resistance less than 5 ohms between the SJB and the suspect lamp, and greater than 10,000 ohms between the SJB and ground?**

Yes
GO to **C12**.

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

C9 CHECK DIMMABLE LAMPS CIRCUIT 1205 (BK) FOR AN OPEN

- Measure the resistance between the suspect lamp, harness side and ground as follows:

Suspect Lamp Location	Lamp Connector-Pin	Circuit
Speed Control Switch	Clockspring C2274-6	1205 (BK)
Convertible Top Switch	Overhead Console C9013-10	1205 (BK)
Climate Control Assembly	C294a-1	1205 (BK)
Headlamp Switch	C205-1	1205 (BK)
Instrument Panel Center Switches	Center Stack C2039-1	1205 (BK)
Message Center Switch	C253-4	1205 (BK)

- **Is the resistance less than 5 ohms?**

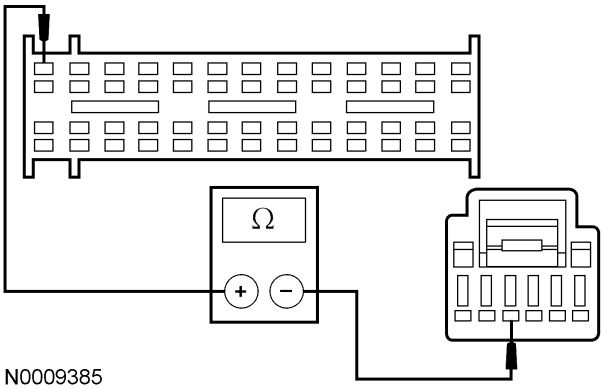
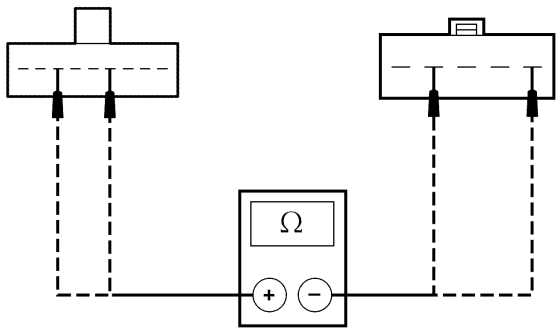
Yes
For the speed control switch, GO to **C11**. For all others, INSTALL a new component. CLEAR the DTCs. REPEAT the self-test.

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

(Continued)

DIAGNOSIS AND TESTING (Continued)

PINPOINT TEST C: ONE OR MORE SMART JUNCTION BOX (SJB) CONTROLLED ILLUMINATION SOURCE(S) IS INOPERATIVE (Continued)

Test Step		Result / Action to Take
C10	**CHECK CIRCUIT 1405 (LB/BK) FOR AN OPEN**	
	• Measure the resistance between the SJB C2280b-1, circuit 1405 (LB/BK), harness side and the instrument panel dimmer switch C2298-4, circuit 1405 (LB/BK), harness side.  N0009385 • **Is the resistance less than 5 ohms?**	**Yes** INSTALL a new instrument panel dimmer switch. REFER to Section 417-01. CLEAR the DTCs. REPEAT the self-test. **No** REPAIR the circuit. CLEAR the DTCs. REPEAT the self-test.
C11	**CHECK THE CLOCKSPRING FOR AN OPEN**	
	• Remove the driver air bag module. Refer to Section 501-20B. • Disconnect: Steering Wheel Control Harness. • Measure the resistance between the clockspring C2274 pin 3, component side, and the top of the clockspring pin 1, component side and between the clockspring C2274 pin 6, component side and the top of the clockspring pin 4, component side.  N0012156 • **Are the resistances less than 5 ohms?**	**Yes** INSTALL a new speed control switch. REFER to Section 310-03. INSTALL the drive air bag module. REFER to Section 501-20B. CLEAR the DTCs. REPEAT the self-test. **No** 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.
C12	**CHECK FOR CORRECT SJB OPERATION**	

	• Disconnect all the SJB connectors.
	• Check for:
	  • corrosion
	  • pushed-out pins
	• Connect all the SJB 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 SJB. REFER to Section 419-10. 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.