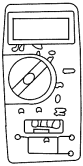
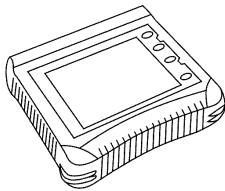
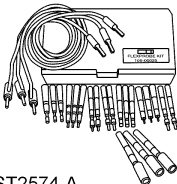


DIAGNOSIS AND TESTING

Stoplamps

Refer to Wiring Diagrams Cell 90 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>ST2574-A</p>	<p>Flex Probe Kit 105-R025B or equivalent</p>

Inspection and Verification

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

Visual Inspection Chart

Mechanical	Electrical
<ul style="list-style-type: none"> • Stoplamp switch 	<ul style="list-style-type: none"> • Bussed electrical center (BEC) fuse: <ul style="list-style-type: none"> — 59 (30A) — 67 (30A) • Smart junction box (SJB) fuse 15 (10A) (stoplamp switch) • Circuitry • Bulbs • SJB

3. If an obvious cause for an observed or reported concern is found, correct the cause (if possible) before proceeding to the next step.

NOTE: Make sure the headlamp switch is in the OFF position.

NOTE: Make sure the multifunction switch is in the LOW BEAM position.

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 circuit fault; all electronic control units no response/not equipped, refer to Section 418-00.
 - No response/not equipped for SJB, refer to Section 419-10.
 - System passed, retrieve and record the continuous diagnostic trouble codes (DTCs), erase the continuous DTCs and carry out the self-test diagnostics for the SJB.
7. If the DTCs retrieved are related to the concern, go to the Smart Junction Box (SJB) Diagnostic Trouble Code (DTC) Index.
8. If no DTCs related to the concern are retrieved, GO to [Symptom Chart](#).

DIAGNOSIS AND TESTING (Continued)**Smart Junction Box (SJB) Diagnostic Trouble Code (DTC) Index**

DTC	Description	Action
B1342	ECU is Faulted	CLEAR the DTCs. RETRIEVE the DTCs. If DTC B1342 is retrieved again, INSTALL a new SJB. REFER to Section 419-10. TEST the system for normal operation.
B1485	Brake Pedal Input Circuit Short to Battery	GO to Pinpoint Test H.
B2044	Left Rear Stop Lamp Circuit Short to Ground	GO to Pinpoint Test G.
B2045	Left Rear Stop Lamp Circuit Open	GO to Pinpoint Test G.
B2046	Right Rear Stop Lamp Circuit Short to Ground	GO to Pinpoint Test G.
B2047	Right Rear Stop Lamp Circuit Open	GO to Pinpoint Test G.
B2048	Left Rear Turn Lamp Circuit Short to Ground	GO to Pinpoint Test G.
B2049	Left Rear Turn Lamp Circuit Open	GO to Pinpoint Test G.
B2050	Right Rear Turn Lamp Circuit Short to Ground	GO to Pinpoint Test G.
B2051	Right Rear Turn Lamp Circuit Open	GO to Pinpoint Test G.
B2519	High Mount Stop Lamp Circuit Failure	If the lamp is inoperative, GO to Pinpoint Test G. If the lamp is always on, GO to Pinpoint Test H.
B2527	Left Rear Stop Lamp Circuit Failure	GO to Pinpoint Test G.
B2528	Left Rear Stop Lamp Circuit Short to Battery	GO to Pinpoint Test H.
B2529	Left Rear Turn Lamp Circuit Failure	If the lamp is inoperative, GO to Pinpoint Test G. If the lamp is always on, GO to Pinpoint Test H.
B2533	Right Rear Stop Lamp Circuit Failure	GO to Pinpoint Test G.
B2534	Right Rear Stop Lamp Circuit Short to Battery	GO to Pinpoint Test H.
All other DTCs	—	REFER to Section 419-10.

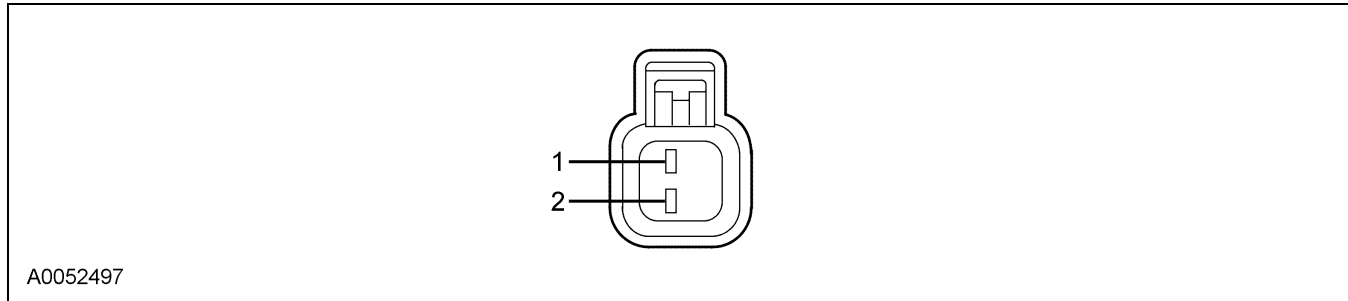
Symptom Chart**Symptom Chart**

Condition	Possible Sources	Action
<ul style="list-style-type: none"> No communication with the smart junction box (SJB) 	<ul style="list-style-type: none"> Circuitry SJB 	<ul style="list-style-type: none"> REFER to Section 419-10.
<ul style="list-style-type: none"> One or more stoplamps are inoperative 	<ul style="list-style-type: none"> Fuse Circuitry Stoplamp switch SJB 	<ul style="list-style-type: none"> GO to Pinpoint Test G.
<ul style="list-style-type: none"> The stoplamps are on continuously 	<ul style="list-style-type: none"> Circuitry Stoplamp switch SJB Powertrain control module (PCM) 	<ul style="list-style-type: none"> GO to Pinpoint Test H.

DIAGNOSIS AND TESTING (Continued)

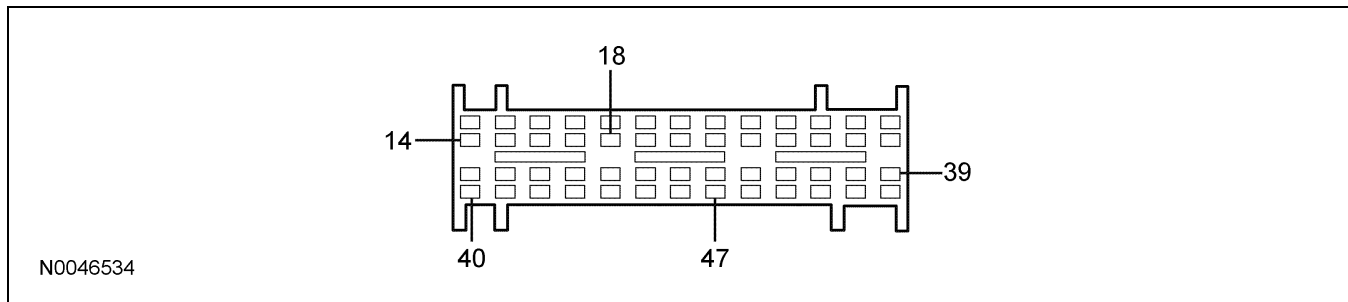
Connector Circuit Reference

High Mounted Stoplamp C475



Pin Number(s)	Circuit Designation/Description	Normal Condition/Measurement
1	1205 (BK) ground circuit	Less than 5 ohms between the stoplamp switch and ground.
2	1374 (TN/LB) high mounted stoplamp voltage feed	Greater than 10 volts when the brake pedal is applied. Less than 5 ohms between the high mounted stoplamp and the smart junction box (SJB).

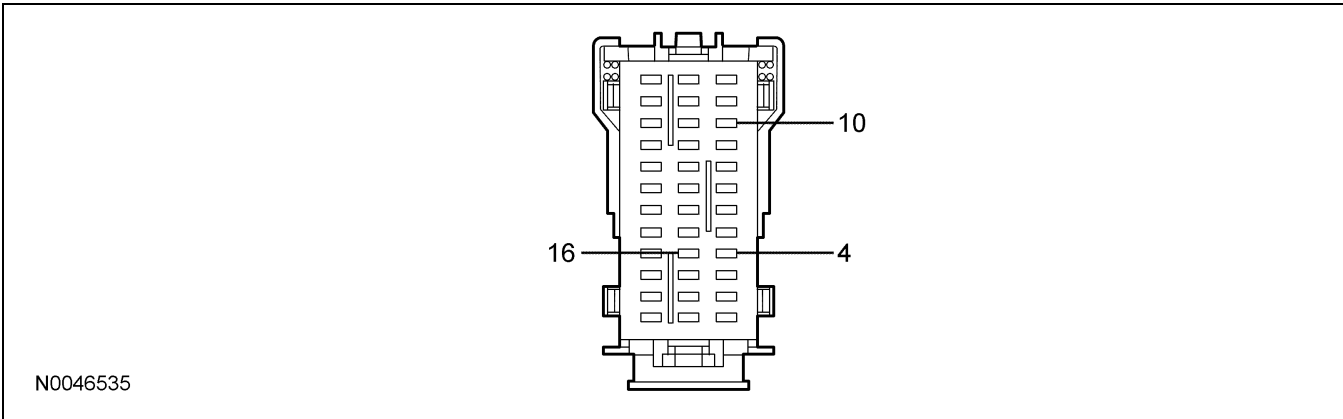
SJB C2280d



Pin Number(s)	Circuit Designation/Description	Normal Condition/Measurement
14	1363 (WH/RD) LH rear stoplamp 1 voltage feed	0 volts, less than 5 ohms between the SJB and the stoplamp.
18	1728 (LB/OG) LH rear stoplamp 2 voltage feed	0 volts, less than 5 ohms between the SJB and the stoplamp.
39	1374 (TN/LB) high mounted stoplamp voltage feed	0 volts, less than 5 ohms between the SJB and the stoplamp.
40	1783 (RD/WH) RH rear stoplamp 2 voltage feed	0 volts, less than 5 ohms between the SJB and the stoplamp.
47	1783 (RD/WH) RH rear stoplamp 1 voltage feed	0 volts, less than 5 ohms between the SJB and the stoplamp.

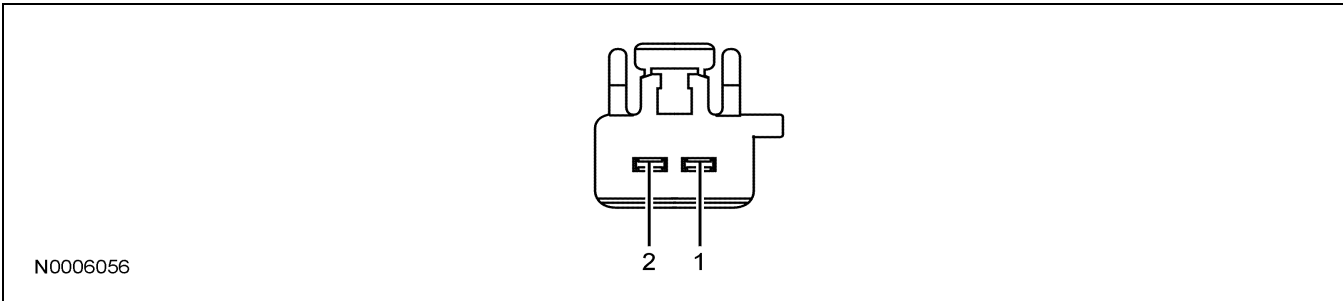
DIAGNOSIS AND TESTING (Continued)

SJB C2280h



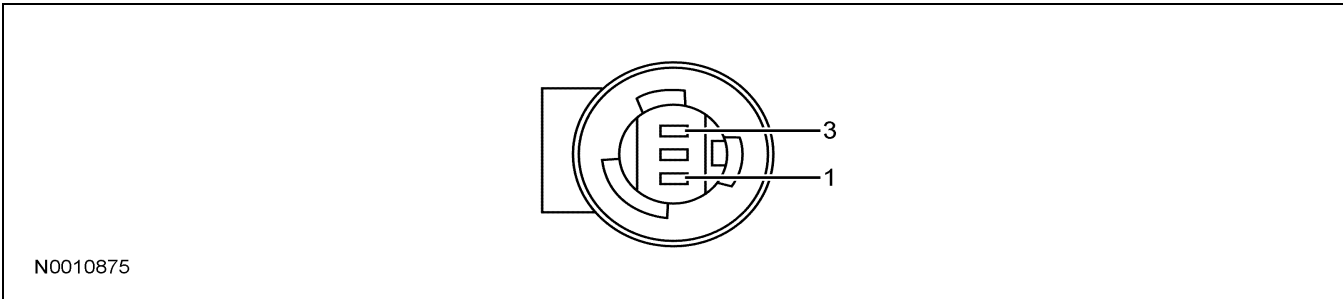
Pin Number(s)	Circuit Designation/Description	Normal Condition/Measurement
4	599 (PK/LG) stoplamp switch input circuit to powertrain control module (PCM)	0 volts, greater than 10,000 ohms between the SJB and the PCM.
10	10 (LG/RD) stoplamp switch voltage feed	0 volts, less than 5 ohms between the SJB and the stoplamp switch.
16	511 (LG) stoplamp switch input	0 volts, less than 5 ohms between the SJB and the stoplamp switch.

Stoplamp Switch C2314



Pin Number(s)	Circuit Designation/Description	Normal Condition/Measurement
1	10 (LG/RD) battery voltage feed	Greater than 10 volts at all times. Less than 5 ohms between the stoplamp switch and the SJB.
2	511 (LG) stoplamp switch input	0 volts, less than 5 ohms between the stoplamp switch and the SJB.

LH Rear Lamp 1 C4112, LH Rear Lamp 2 C4113, RH Rear Lamp 1 C4114, RH Rear Lamp 2 C4115



DIAGNOSIS AND TESTING (Continued)

Pin Number(s)	Circuit Designation/Description	Normal Condition/Measurement
1	1205 (BK) stoplamp ground circuit	Less than 5 ohms between stoplamp and ground.
3 (C4112)	1363 (WH/RD) rear stoplamp voltage feed	0 volts, less than 5 ohms between the stoplamp and the SJB.
3 (C4113)	1728 (LB/OG) rear stoplamp voltage feed	0 volts, less than 5 ohms between the stoplamp and the SJB.
3 (C4114, C4115)	1783 (RD/WH) rear stoplamp voltage feed	0 volts, less than 5 ohms between the stoplamp and the SJB.

Pinpoint Tests

Pinpoint Test G: One Or More Stoplamps Are Inoperative

Normal Operation

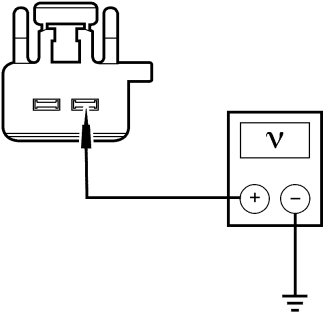
The stoplamp switch is provided voltage through circuit 10 (LG/RD). When the brake pedal is applied, the stoplamp switch routes voltage to the smart junction box (SJB) through circuit 511 (LG). The SJB then provides voltage to the stoplamps through circuits 1783 (RD/WH), 1374 (TN/LB), 1728 (LB/OG), and 1363 (WH/RD). Ground for the stoplamps is provided through circuit 1205 (BK).

Possible Causes

- Fuse
- Circuit 10 (LG/RD) open

- Circuit 511 (LG) open
- Circuit 1205 (BK) open
- Circuit 1363 (WH/RD) open or short to ground
- Circuit 1374 (TN/LB) open or short to ground
- Circuit 1728 (LB/OG) open or short to ground
- Circuit 1783 (RD/WH) open or short to ground
- Stoplamp switch
- SJB

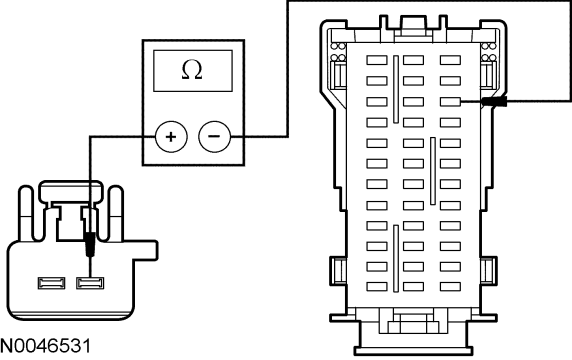
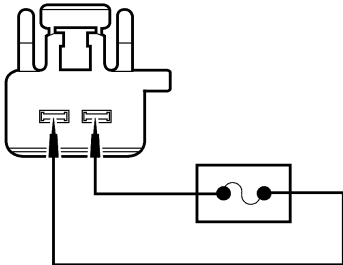
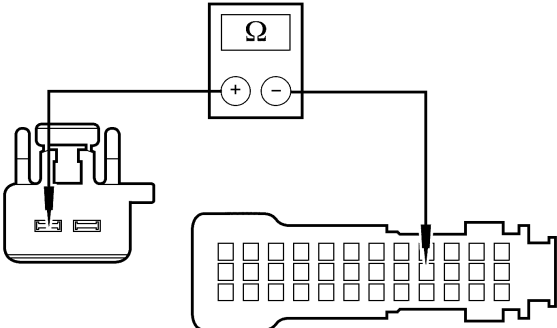
PINPOINT TEST G: ONE OR MORE STOPLAMPS ARE INOPERATIVE

Test Step		Result / Action to Take
G1	DETERMINE IF ALL THE STOPLAMPS ARE INOPERATIVE	<p>Yes GO to G2.</p> <p>No GO to G6.</p>
<ul style="list-style-type: none"> • Key in OFF position. • Apply the brake pedal and observe the rear lamps. • Are all the stoplamps inoperative? 		
G2	CHECK CIRCUIT 10 (LG/RD) FOR VOLTAGE	<p>Yes GO to G4.</p> <p>No VERIFY the SJB fuse 15 (10A) is OK. If OK, GO to G3.</p>
<ul style="list-style-type: none"> • Disconnect: Stoplamp Switch C2314. • Measure the voltage between the stoplamp switch C2314-1, circuit 10 (LG/RD), harness side and ground. <div style="text-align: center;">  </div> <p>N0005396</p> <ul style="list-style-type: none"> • Is the voltage greater than 10 volts? 		

(Continued)

DIAGNOSIS AND TESTING (Continued)

PINPOINT TEST G: ONE OR MORE STOPLAMPS ARE INOPERATIVE (Continued)

Test Step	Result / Action to Take
<p>G3 CHECK CIRCUIT 10 (LG/RD) FOR AN OPEN</p> <ul style="list-style-type: none"> • Disconnect: SJB C2280h. • Measure the resistance between the stoplamp switch C2314-1, circuit 10 (LG/RD), harness side and the SJB C2280h-10, circuit 10 (LG/RD), harness side.  <p>N0046531</p> <ul style="list-style-type: none"> • Is the resistance less than 5 ohms? 	<p>Yes GO to G9.</p> <p>No REPAIR the circuit. TEST the system for normal operation.</p>
<p>G4 CHECK THE STOPLAMP SWITCH</p> <ul style="list-style-type: none"> • Connect a fused (5A) jumper wire between the stoplamp switch C2314-1, circuit 10 (LG/RD), harness side and the stoplamp switch C2314-2, circuit 511 (LG), harness side.  <p>N0005384</p> <ul style="list-style-type: none"> • Do the stoplamps illuminate? 	<p>Yes INSTALL a new stoplamp switch. REFER to Stoplamp Switch in this section. TEST the system for normal operation.</p> <p>No REMOVE the jumper wire. GO to G5.</p>
<p>G5 CHECK CIRCUIT 511 (LG) FOR AN OPEN</p> <ul style="list-style-type: none"> • Disconnect: SJB C2280h. • Measure the resistance between the stoplamp switch C2314-2, circuit 511 (LG), harness side and the SJB C2280h-16, circuit 511 (LG), harness side.  <p>N0010879</p> <ul style="list-style-type: none"> • Is the resistance less than 5 ohms? 	<p>Yes GO to G9.</p> <p>No REPAIR the circuit. TEST the system for normal operation.</p>

(Continued)

DIAGNOSIS AND TESTING (Continued)

PINPOINT TEST G: ONE OR MORE STOPLAMPS ARE INOPERATIVE (Continued)

Test Step			Result / Action to Take
G6	CHECK CIRCUIT 1205 (BK) FOR AN OPEN		
<ul style="list-style-type: none"> Key in OFF position. Disconnect: Inoperative Stoplamp. Measure the resistance between the inoperative stoplamp, harness side and ground as follows: 			
	Inoperative Stoplamp	Connector-Pin	Circuit
	High mounted stoplamp	C475-1	1205 (BK)
	LH rear lamp 1	C4112-1	1205 (BK)
	LH rear lamp 2	C4113-1	1205 (BK)
	RH rear lamp 1	C4114-1	1205 (BK)
	RH rear lamp 2	C4115-1	1205 (BK)
<ul style="list-style-type: none"> Is the resistance less than 5 ohms? 			<p>Yes GO to G7.</p> <p>No REPAIR the circuit. CLEAR the DTCs. REPEAT the self-test.</p>
G7	CHECK THE STOPLAMP VOLTAGE SUPPLY CIRCUIT FOR A SHORT TO GROUND		
<ul style="list-style-type: none"> Disconnect: SJB C2280d. Measure the resistance between the inoperative stoplamp, harness side and ground as follows: 			
	Inoperative Stoplamp	Connector-Pin	Circuit
	High mounted stoplamp	C475-2	1374 (TN/LB)
	LH rear lamp 1	C4112-3	1363 (WH/RD)
	LH rear lamp 2	C4113-3	1728 (LB/OG)
	RH rear lamp 1	C4114-3	1783 (RD/WH)
	RH rear lamp 2	C4115-3	1783 (RD/WH)
<ul style="list-style-type: none"> Is the resistance greater than 10,000 ohms? 			<p>Yes GO to G8.</p> <p>No REPAIR the circuit in question. CLEAR the DTCs. REPEAT the self-test.</p>
G8	CHECK THE STOPLAMP VOLTAGE SUPPLY CIRCUIT FOR AN OPEN		
<ul style="list-style-type: none"> Measure the resistance between the inoperative stoplamp, harness side and the SJB, harness side as follows: 			

(Continued)

DIAGNOSIS AND TESTING (Continued)**PINPOINT TEST G: ONE OR MORE STOPLAMPS ARE INOPERATIVE (Continued)**

Test Step			Result / Action to Take	
G8	CHECK THE STOPLAMP VOLTAGE SUPPLY CIRCUIT FOR AN OPEN (Continued)		<p>Yes GO to G9.</p> <p>No REPAIR the circuit in question. CLEAR the DTCs. REPEAT the self-test.</p>	
	Inoperative Stoplamp Connector-Pin	SJB Connector-Pin		Circuit
	High mounted stoplamp C475-2	C2280d-39		1374 (TN/LB)
	LH rear lamp 1 C4112-3	C2280d-14		1363 (WH/RD)
	LH rear lamp 2 C4113-3	C2280d-18		1728 (LB/OG)
	RH rear lamp 1 C4114-3	C2280d-47		1783 (RD/WH)
	RH rear lamp 2 C4115-3	C2280d-40		1783 (RD/WH)
	<ul style="list-style-type: none"> • Is the resistance less than 5 ohms? 			
G9	CHECK FOR CORRECT SJB OPERATION		<p>Yes INSTALL a new SJB. REFER to Section 419-10. TEST the system for normal operation.</p> <p>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.</p>	
	<ul style="list-style-type: none"> • Disconnect all the SJB connectors. • Check for: <ul style="list-style-type: none"> — 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? 			

Pinpoint Test H: The Stoplamps Are On Continuously**Normal Operation**

When the brake pedal is applied, the stoplamp switch routes voltage to the smart junction box (SJB) through circuit 511 (LG). Voltage is also routed to the powertrain control module (PCM) through circuit 599 (PK/LG). The SJB then provides voltage to the stoplamps through circuits 1783 (RD/WH), 1374 (TN/LB), 1728 (LB/OG), and 1363 (WH/RD). Ground for the stoplamps is provided through circuit 1205 (BK).

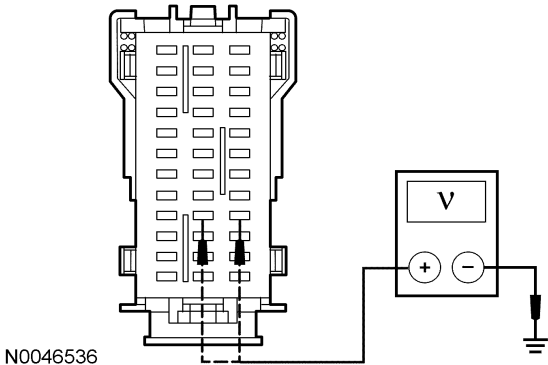
Possible Causes

- Circuit 511 (LG) short to voltage
- Circuit 599 (PK/LG) short to voltage

- Circuit 1363 (WH/RD) short to voltage
- Circuit 1374 (TN/LB) short to voltage
- Circuit 1728 (LB/OG) short to voltage
- Circuit 1783 (RD/WH) short to voltage
- Stoplamp switch
- SJB
- PCM

DIAGNOSIS AND TESTING (Continued)

PINPOINT TEST H: THE STOPLAMPS ARE ON CONTINUOUSLY

Test Step		Result / Action to Take
H1	USE THE RECORDED DIAGNOSTIC TROUBLE CODES (DTCs) FROM THE SJB SELF-TEST	
	<ul style="list-style-type: none"> • Key in OFF position. • Using the recorded results from the SJB self-test: • Was DTC B1485, B2519, B2528 or B2534 present? 	<p>Yes For DTC B1485, GO to H2. For DTC B2519, B2528 or B2534, GO to H5.</p> <p>No GO to H7.</p>
H2	CHECK THE STOPLAMP SWITCH	
	<ul style="list-style-type: none"> • Disconnect: Stoplamp Switch C2314. • Do the stoplamps continue to illuminate? 	<p>Yes GO to H3.</p> <p>No INSTALL a new stoplamp switch. REFER to Stoplamp Switch in this section. CLEAR the DTCs. REPEAT the self-test.</p>
H3	CHECK THE PCM	
	<ul style="list-style-type: none"> • Disconnect: PCM C175b. • Do the stoplamps continue to illuminate? 	<p>Yes GO to H4.</p> <p>No GO to H6.</p>
H4	CHECK CIRCUITS 511 (LG) AND 599 (PK/LG) FOR A SHORT TO VOLTAGE	
	<ul style="list-style-type: none"> • Disconnect: SJB C2280h. • Measure the voltage between the SJB C2280h-16, circuit 511 (LG), harness side and ground; and between the SJB C2280h-4, circuit 599 (PK/LG), harness side and ground.  <p>N0046536</p> <ul style="list-style-type: none"> • Is any voltage present? 	<p>Yes REPAIR the circuit in question. CLEAR the DTCs. REPEAT the self-test.</p> <p>No GO to H7.</p>
H5	CHECK CIRCUITS 1363 (WH/RD), 1728 (LB/OG), 1783 (RD/WH) AND 1374 (TN/LB) FOR A SHORT TO VOLTAGE	
	<ul style="list-style-type: none"> • Disconnect: SJB C2280d. • Do any stoplamps continue to illuminate? 	<p>Yes For the high mounted stoplamp, REPAIR circuit 1374 (TN/LB). CLEAR the DTCs. REPEAT the self-test. For the LH rear stoplamp 1, REPAIR circuit 1363 (WH/RD). CLEAR the DTCs. REPEAT the self-test. For the LH rear stoplamp 2, REPAIR circuit 1728 (LB/OG). CLEAR the DTCs. REPEAT the self-test. For either RH rear stoplamp, REPAIR circuit 1783 (RD/WH). CLEAR the DTCs. REPEAT the self-test.</p> <p>No GO to H7.</p>

(Continued)

DIAGNOSIS AND TESTING (Continued)**PINPOINT TEST H: THE STOPLAMPS ARE ON CONTINUOUSLY (Continued)**

Test Step		Result / Action to Take
H6	CHECK FOR CORRECT PCM OPERATION	
	<ul style="list-style-type: none"> • Disconnect all the PCM connectors. • Check for: <ul style="list-style-type: none"> — corrosion — 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? 	<p>Yes INSTALL a new PCM. REFER to Section 303-14. CLEAR the DTCs. REPEAT the self-test.</p> <p>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.</p>
H7	CHECK FOR CORRECT SJB OPERATION	
	<ul style="list-style-type: none"> • Disconnect all the SJB connectors. • Check for: <ul style="list-style-type: none"> — 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? 	<p>Yes INSTALL a new SJB. REFER to Section 419-10. TEST the system for normal operation.</p> <p>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.</p>