




Turn Signal and Hazard Lamps

Refer to Wiring Diagrams Cell [90](#) 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
 ST2574-A	Flex Probe Kit 105-R025B or equivalent

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"> • Multifunction switch • Hazard switch 	<ul style="list-style-type: none"> • Circuitry • Bulbs • Smart junction box (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.

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](#).

Symptom Chart

Symptom Chart

Condition	Possible Sources	Action
• No communication with the smart junction box (SJB)	• Circuitry • SJB	• REFER to Section 419-10 .
• The turn signal lamps are inoperative	• Circuitry • Multifunction switch • SJB	• GO to Pinpoint Test I .
• The turn signal lamps are always on	• Circuitry • Multifunction switch • SJB	• GO to Pinpoint Test J .
• One turn signal lamp is inoperative/always on	• Circuitry • Bussed electrical center (BEC) • SJB	• GO to Pinpoint Test K .
• The hazard lamps are inoperative	• Circuitry • Hazard switch • SJB	• GO to Pinpoint Test L .
• The hazard lamps are always on	• Circuitry • Hazard switch • SJB	• GO to Pinpoint Test M .

Pinpoint Tests

Pinpoint Test I: The Turn Signal Lamps Are Inoperative

Normal Operation

The smart junction box (SJB) sends a voltage reference signal to the multifunction switch through circuit 1393 (LB/RD) (LH turn signal) and circuit 1392 (LG/OG) (RH turn signal). When the multifunction switch is placed in the LH or RH TURN position, the signal is routed to ground through the SJB.

Possible Causes

- Circuit 1392 (LG/OG) open or short to voltage
- Circuit 1393 (LB/RD) open or short to voltage
- Multifunction switch
- SJB

PINPOINT TEST I : THE TURN SIGNAL LAMPS ARE INOPERATIVE

I1 CHECK THE HIGH BEAM OPERATION

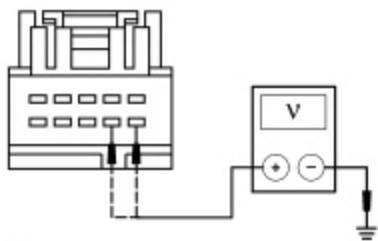
- Ignition ON.
- Place the headlamp switch in the HEADLAMPS ON position.
- Place the multifunction switch in the HIGH BEAM position.

Do the high beams operate correctly?

Yes	GO to I2 .
No	REFER to Headlamps in this section to continue diagnosis of the high beams.

I2 CHECK CIRCUIT 1393 (LB/RD) OR CIRCUIT 1392 (LG/OG) FOR A SHORT TO VOLTAGE

- Ignition OFF.
- Disconnect: Multifunction Switch [C202](#) .
- Disconnect: SJB [C2280B](#) .
- Ignition ON.
- Measure the voltage between the multifunction switch [C202](#) Pin 6 (LH turn signal), circuit 1393 (LB/RD), harness side and ground; and between the multifunction switch [C202](#) Pin 7 (RH turn signal), circuit 1392 (LG/OG), harness side and ground.



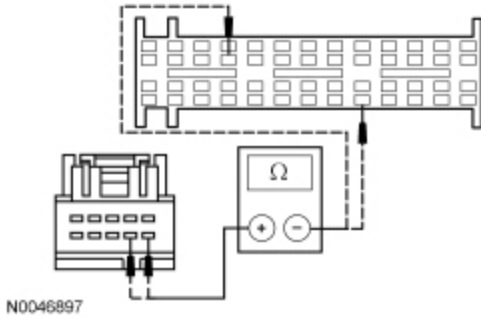
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Is any voltage present?

Yes	REPAIR the circuit in question. TEST the system for normal operation.
No	GO to I3 .

I3 CHECK CIRCUIT 1393 (LB/RD) OR CIRCUIT 1392 (LG/OG) FOR AN OPEN

- Ignition OFF.
- Measure the resistance between the multifunction switch [C202](#) Pin 6 (LH turn signal), circuit 1393 (LB/RD) and the SJB [C2280B](#) Pin 48, circuit 1393 (LB/RD), harness side; and between the multifunction switch [C202](#) Pin 7 (RH turn signal), circuit 1392 (LG/OG) and the SJB [C2280B](#) Pin 17, circuit 1392 (LG/OG), harness side.

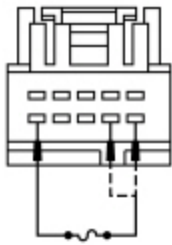


Is the resistance less than 5 ohms?

Yes	GO to 14 .
No	REPAIR the circuit in question. TEST the system for normal operation.

14 CHECK THE MULTIFUNCTION SWITCH

- Connect: SJB [C2280B](#) .
- Connect a fused (5A) jumper wire between the multifunction switch [C202](#) Pin 6 (LH turn signal), circuit 1393 (LB/RD) and the multifunction switch [C202](#) Pin 10, circuit 1396 (VT/WH), harness side; or between the multifunction switch [C202](#) Pin 7 (RH turn signal), circuit 1392 (LG/OG) and the multifunction switch [C202](#) Pin 10, circuit 1396 (VT/WH), harness side.



- Ignition ON.

Does the LH or RH turn signal operate correctly?

Yes	INSTALL a new multifunction switch. REFER to Section 211-05 . TEST the system for normal operation.
No	REMOVE the jumper wire. GO to 15 .

15 CHECK FOR CORRECT SJB OPERATION

- Ignition OFF.
- 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 J: The Turn Signal Lamps Are Always On

Normal Operation

The smart junction box (SJB) sends a voltage reference signal to the multifunction switch through circuit 1393 (LB/RD) (LH turn signal) and circuit 1392 (LG/OG) (RH turn signal). When the multifunction switch is placed in the LH or RH TURN position, the signal is routed to ground through the SJB.

Possible Causes

- Circuit 1392 (LG/OG) short to ground
- Circuit 1393 (LB/RD) short to ground
- Multifunction switch
- SJB

PINPOINT TEST J : THE TURN SIGNAL LAMPS ARE ALWAYS ON

J1 CHECK THE MULTIFUNCTION SWITCH

- Ignition OFF.
- Disconnect: Multifunction Switch [C202](#) .
- Ignition ON.

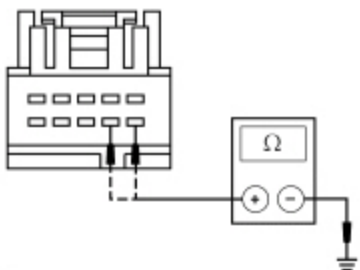
Do the turn signal lamps continue to flash on and off?

Yes	GO to J2 .
No	INSTALL a new multifunction switch. REFER to Section 211-05 . CLEAR the DTCs. REPEAT the self-test.

J2 CHECK CIRCUIT 1393 (LB/RD) OR CIRCUIT 1392 (LG/OG) FOR A SHORT TO GROUND

- Ignition OFF.
- Disconnect: SJB [C2280B](#) .

- Measure the resistance between the multifunction switch [C202](#) Pin 6 (LH turn signal), circuit 1393 (LB/RD), harness side and ground; and between the multifunction switch [C202](#) Pin 7 (RH turn signal), circuit 1392 (LG/OG), harness side and ground.



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Is the resistance greater than 10,000 ohms?

Yes	GO to J3 .
No	REPAIR the circuit in question. CLEAR the DTCs. REPEAT the self-test.

J3 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.

Pinpoint Test K: One Turn Signal Lamp Is Inoperative/Always On

Normal Operation

When the smart junction box (SJB) detects a request for the LH or RH turn signal, the SJB provides voltage, through the bussed electrical center (BEC), to the front turn lamps through circuit 1342 (GY/BK) (LH front turn lamp) or circuit 1341 (DB/OG) (RH front turn lamp). The turn lamps are grounded through circuit 1205 (BK) through the BEC.

Possible Causes

- Circuit 1341 (DB/OG) open, short to ground or voltage

- Circuit 1342 (GY/BK) open, short to ground or voltage
- Circuit 1205 (BK) open
- BEC
- SJB

PINPOINT TEST K : ONE TURN SIGNAL LAMP IS INOPERATIVE/ALWAYS ON

K1 CHECK THE STOPLAMPS

- Ignition ON.
- While observing the stoplamps, apply and release the brake pedal.

Do the stoplamps operate correctly?

Yes	GO to K2 .
No	REFER to Stoplamps in this section to continue diagnosis of the stoplamps.

K2 DETERMINE IF A LAMP IS ALWAYS ON

NOTE: Make sure the multifunction switch is in the NEUTRAL position.

- Observe the front turn lamps.

Is either turn lamp illuminated?

Yes	GO to K3 .
No	GO to K6 .

K3 CHECK THE TURN LAMP VOLTAGE SUPPLY CIRCUIT FOR A SHORT TO VOLTAGE

- Ignition OFF.
- Disconnect: SJB [C2280D](#) .
- Ignition ON.

Does either turn lamp continue to illuminate?

Yes	GO to K4 .
No	GO to K15 .

K4 CHECK CIRCUIT 1341 (DB/OG) OR CIRCUIT 1342 (GY/BK) FOR A SHORT TO VOLTAGE (SJB TO BEC)

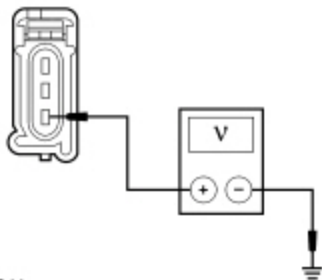
- Ignition OFF.
- Disconnect: BEC [C1035A](#) .
- Ignition ON.

Does either turn lamp continue to illuminate?

Yes	GO to K5 .
No	REPAIR circuit 1342 (GY/BK) (LH turn signal) or circuit 1341 (DB/OG) (RH turn signal). CLEAR the DTCs. REPEAT the self-test.

K5 CHECK CIRCUIT 1341 (DB/OG) OR CIRCUIT 1342 (GY/BK) FOR A SHORT TO VOLTAGE (BEC TO TURN LAMP)

- Ignition OFF.
- Disconnect: BEC [C1035C](#) .
- Disconnect: Always On Lamp.
- Ignition ON.
- Measure the voltage between the LH front turn lamp [C1023](#) Pin 3, circuit 1342 (GY/BK), harness side and ground; or between the RH front turn lamp [C1043](#) Pin 3, circuit 1341 (DB/OG), harness side and ground.



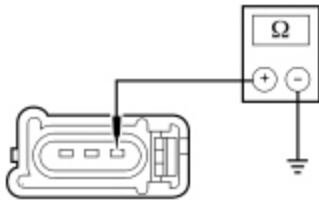
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Is any voltage present?

Yes	REPAIR the circuit in question. CLEAR the DTCs. REPEAT the self-test.
No	INSTALL a new BEC. CLEAR the DTCs. REPEAT the self-test.

K6 CHECK THE TURN LAMP GROUND CIRCUIT FOR AN OPEN

- Ignition OFF.
- Disconnect: Inoperative Turn Lamp.
- Measure the resistance between the LH turn lamp [C1023](#) Pin 1, circuit 1205 (BK), harness side and ground; or between the RH turn lamp [C1043](#) Pin 1, circuit 1205 (BK), harness side and ground.



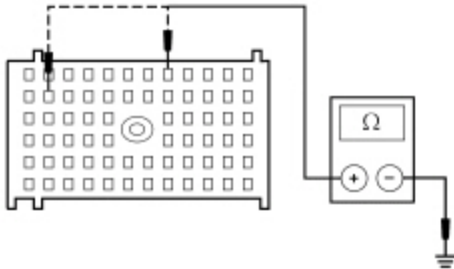
N0005400

Is the resistance less than 5 ohms?

Yes	GO to K9 .
No	GO to K7 .

K7 CHECK CIRCUIT 1205 (BK) FOR AN OPEN (BEC TO GROUND)

- Ignition OFF.
- Disconnect: BEC [C1035C](#) .
- Measure the resistance between the BEC [C1035C](#) Pin F5 (LH turn lamp), circuit 1205 (BK), harness side and ground; or between the BEC [C1035C](#) Pin E11 (RH turn lamp), circuit 1205 (BK), harness side and ground.



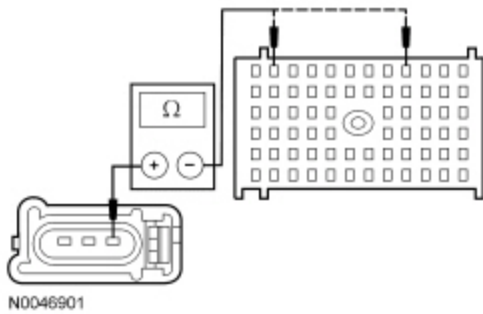
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Is the resistance less than 5 ohms?

Yes	GO to K8 .
No	REPAIR the circuit. CLEAR the DTCs. REPEAT the self-test.

K8 CHECK CIRCUIT 1205 (BK) FOR AN OPEN (TURN LAMP TO BEC)

- Measure the resistance between the LH front turn lamp [C1023](#) Pin 1, circuit 1205 (BK), harness side and the BEC [C1035C](#) Pin F4, circuit 1205 (BK), harness side; or between the RH front turn lamp [C1043](#) Pin 1, circuit 1205 (BK), harness side and the BEC [C1035C](#) Pin F11, circuit 1205 (BK), harness side.

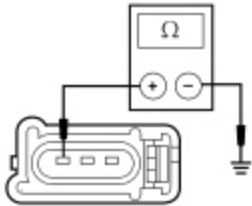


Is the resistance less than 5 ohms?

Yes	INSTALL a new BEC. CLEAR the DTCs. REPEAT the self-test.
No	REPAIR the circuit. CLEAR the DTCs. REPEAT the self-test.

K9 CHECK THE TURN LAMP VOLTAGE SUPPLY CIRCUIT FOR A SHORT TO GROUND

- Disconnect: SJB [C2280D](#) .
- Measure the resistance between the LH turn lamp [C1023](#) Pin 3, circuit 1342 (GY/BK), harness side and ground; or between the RH turn lamp [C1043](#) Pin 3, circuit 1341 (DB/OG), harness side and ground.

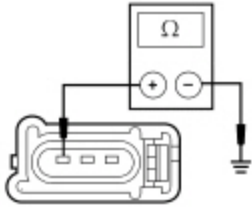


Is the resistance greater than 10,000 ohms?

Yes	GO to K12 .
No	GO to K10 .

K10 CHECK CIRCUIT 1341 (DB/OG) OR CIRCUIT 1342 (GY/BK) FOR A SHORT TO GROUND (SJB TO BEC)

- Disconnect: BEC [C1035A](#) .
- Measure the resistance between the LH turn lamp [C1023](#) Pin 3, circuit 1342 (GY/BK), harness side and ground; or between the RH turn lamp [C1043](#) Pin 3, circuit 1341 (DB/OG), harness side and ground.



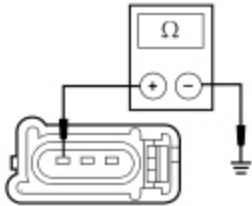
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Is the resistance greater than 10,000 ohms?

Yes	REPAIR the circuit in question. CLEAR the DTCs. REPEAT the self-test.
No	GO to K11 .

K11 CHECK CIRCUIT 1341 (DB/OG) OR CIRCUIT 1342 (GY/BK) FOR A SHORT TO GROUND (BEC TO TURN LAMP)

- Disconnect: BEC [C1035C](#) .
- Measure the resistance between the LH turn lamp [C1023](#) Pin 3, circuit 1342 (GY/BK), harness side and ground; or between the RH turn lamp [C1043](#) Pin 3, circuit 1341 (DB/OG), harness side and ground.



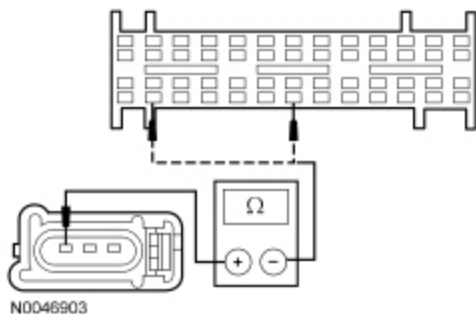
N0046902

Is the resistance greater than 10,000 ohms?

Yes	INSTALL a new BEC. CLEAR the DTCs. REPEAT the self-test.
No	REPAIR the circuit in question. CLEAR the DTCs. REPEAT the self-test.

K12 CHECK THE TURN LAMP VOLTAGE SUPPLY CIRCUIT FOR AN OPEN

- Disconnect: SJB [C2280D](#) .
- Measure the resistance between the LH front turn lamp [C1023](#) Pin 3, circuit 1342 (GY/BK), harness side and the SJB [C2280D](#) Pin 46, circuit 1342 (GY/BK), harness side; or between the RH front turn lamp [C1043](#) Pin 3, circuit 1341 (DB/OG), harness side and the SJB [C2280D](#) Pin 41, circuit 1341 (DB/OG), harness side.

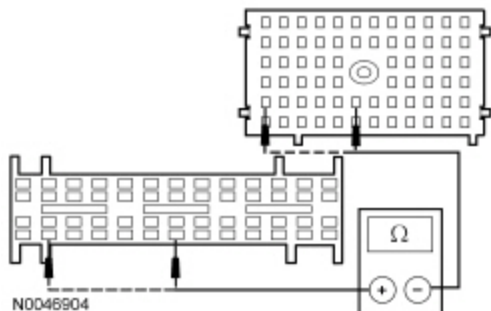


Is the resistance less than 5 ohms?

Yes	GO to K15 .
No	GO to K13 .

K13 CHECK CIRCUIT 1341 (DB/OG) OR CIRCUIT 1342 (GY/BK) FOR AN OPEN (SJB TO BEC)

- Disconnect: BEC [C1035A](#) .
- Measure the resistance between the SJB [C2280D](#) Pin 46 (LH turn lamp), circuit 1342 (GY/BK), harness side and the BEC [C1035A](#) Pin E1, circuit 1342 (GY/BK), harness side; or between the SJB [C2280D](#) Pin 41 (RH turn lamp), circuit 1341 (DB/OG), harness side and the BEC [C1035A](#) Pin E6, circuit 1341 (DB/OG), harness side.

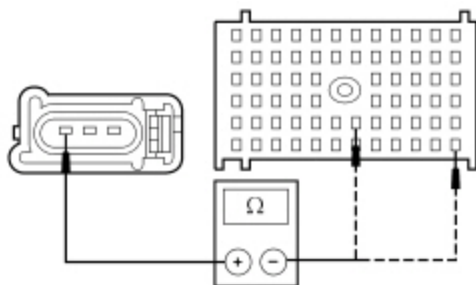


Is the resistance less than 5 ohms?

Yes	GO to K14 .
No	REPAIR the circuit in question. CLEAR the DTCs. REPEAT the self-test.

K14 CHECK CIRCUIT 1341 (DB/OG) OR CIRCUIT 1342 (GY/BK) FOR AN OPEN (BEC TO TURN LAMP)

- Disconnect: BEC [C1035C](#) .
- Measure the resistance between the LH turn lamp [C1023](#) Pin 3, circuit 1342 (GY/BK), harness side and the BEC [C1035C](#) Pin A1, circuit 1342 (GY/BK), harness side; or between the RH turn lamp [C1043](#) Pin 3, circuit 1341 (DB/OG), harness side and the BEC [C1035C](#) Pin B6, circuit 1341 (DB/OG), harness side.



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Is the resistance less than 5 ohms?

Yes	INSTALL a new BEC. CLEAR the DTCs. REPEAT the self-test.
No	REPAIR the circuit in question. CLEAR the DTCs. REPEAT the self-test.

K15 CHECK FOR CORRECT SJB OPERATION

- Ignition OFF.
- 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.

Pinpoint Test L: The Hazard Lamps Are Inoperative

Normal Operation

The smart junction box (SJB) sends a voltage reference signal to the hazard switch through circuit 1689 (RD/WH). When the hazard switch is pressed, the signal is routed to ground through circuit 1205 (BK).

Possible Causes

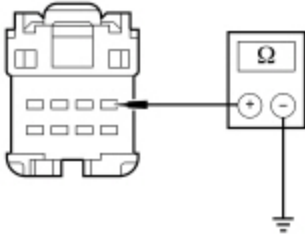
- Circuit 1205 (BK) open
- Circuit 1689 (RD/WH) open

- Hazard switch
- SJB

PINPOINT TEST L : THE HAZARD LAMPS ARE INOPERATIVE

L1 CHECK CIRCUIT 1205 (BK) FOR AN OPEN

- Ignition OFF.
- Disconnect: Hazard Switch [C2039](#) .
- Measure the resistance between the hazard switch [C2039](#) Pin 1, circuit 1205 (BK), harness side and ground.



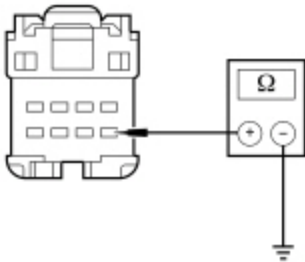
N0010903

Is the resistance less than 5 ohms?

Yes	GO to L2 .
No	REPAIR the circuit. TEST the system for normal operation.

L2 CHECK CIRCUIT 1689 (RD/WH) FOR SHORT TO GROUND

- Disconnect: SJB [C2280B](#) .
- Measure the resistance between the hazard switch [C2039](#) Pin 5, circuit 1689 (RD/WH), harness side and ground.



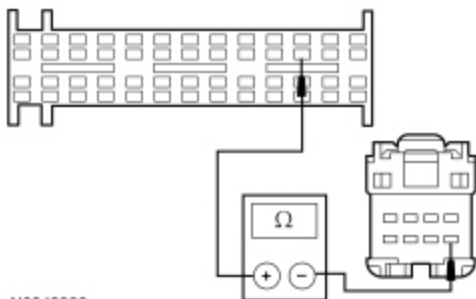
N0010905

Is the resistance greater than 10,000 ohms?

Yes	GO to L3 .
No	REPAIR the circuit. CLEAR the DTCs. REPEAT the self-test.

L3 CHECK CIRCUIT 1689 (RD/WH) FOR AN OPEN

- Measure the resistance between the SJB [C2280B](#) Pin 24, circuit 1689 (RD/WH), harness side and the hazard switch [C2039](#) Pin 5, circuit 1689 (RD/WH), harness side.

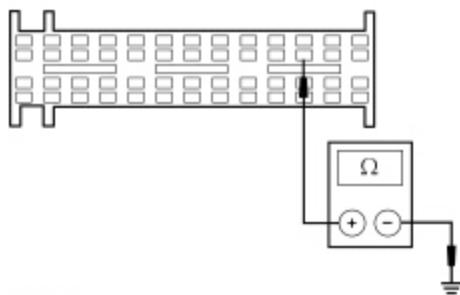


Is resistance less than 5 ohms?

Yes	GO to L4 .
No	REPAIR the circuit. CLEAR the DTCs. REPEAT the self-test.

L4 CHECK THE HAZARD SWITCH

- Connect: Hazard Switch [C2039](#) .
- While pressing and releasing the hazard switch, measure the resistance between the SJB [C2280B](#) Pin 24, circuit 1689 (RD/WH), harness side and ground.



Is the resistance less than 5 ohms with the hazard switch pressed and greater than 10,000 ohms with the hazard switch released?

Yes	GO to L5 .
No	INSTALL a new hazard switch. CLEAR the DTCs. REPEAT the self-test.

L5 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.

Pinpoint Test M: The Hazard Lamps Are Always On

Normal Operation

The smart junction box (SJB) sends a voltage reference signal to the hazard switch through circuit 1689 (RD/WH). When the hazard switch is pressed, the signal is routed to ground through circuit 1205 (BK).

Possible Causes

- Circuit 1689 (RD/WH) short to ground
- Hazard switch
- SJB

PINPOINT TEST M : THE HAZARD LAMPS ARE ALWAYS ON

M1 CHECK THE HAZARD SWITCH

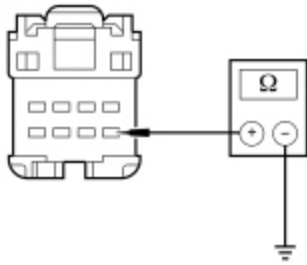
- Ignition OFF.
- Disconnect: Hazard Switch [C2039](#) .

Do the hazard lamps continue to flash on and off?

Yes	GO to M2 .
No	INSTALL a new hazard switch. CLEAR the DTCs. REPEAT the self-test.

M2 CHECK CIRCUIT 1689 (RD/WH) FOR SHORT TO GROUND

- Disconnect: SJB [C2280B](#) .
- Measure the resistance between the hazard switch [C2039](#) Pin 5, circuit 1689 (RD/WH), harness side and ground.



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Is the resistance greater than 10,000 ohms?

Yes	GO to M3 .
No	REPAIR the circuit. CLEAR the DTCs. REPEAT the self-test.

M3 CHECK FOR CORRECT SJB OPERATION

- Ignition OFF.
- 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.

