

Power Running Board (PRB)

DTC Chart: Running Board Control Module (RBM)

Diagnostics in this manual assume a certain skill level and knowledge of Ford-specific diagnostic practices.
REFER to: Diagnostic Methods (100-00 General Information, Description and Operation).

RBM DTC Chart

DTC	Description	Action
C1002:77	Left Power Running Board Stow: Commanded Position Not Reachable	Inspect for debris or corrosion at pivot points that may cause a slow moving PRB. CLEAN or repair as necessary. TEST the system for normal operation. If the concern returns, REPLACE the LH PRB motor. REFER to: Power Running Board (PRB) Motor (501-08 Exterior Trim and Ornamentation, Removal and Installation).
C1003:77	Right Power Running Board Stow: Commanded Position Not Reachable	Inspect for debris or corrosion at pivot points that may cause a slow moving PRB. CLEAN or repair as necessary. TEST the system for normal operation. If the concern returns, REPLACE the RH PRB motor. REFER to: Power Running Board (PRB) Motor (501-08 Exterior Trim and Ornamentation, Removal and Installation).
C1004:77	Right Power Running Board Deploy: Commanded Position Not Reachable	Inspect for debris or corrosion at pivot points that may cause a slow moving PRB. CLEAN or repair as necessary. TEST the system for normal operation. If the concern returns, REPLACE the RH PRB motor. REFER to: Power Running Board (PRB) Motor (501-08 Exterior Trim and Ornamentation, Removal and Installation).
C1005:77	Left Power Running Board Deploy: Commanded Position Not Reachable	Inspect for debris or corrosion at pivot points that may cause a slow moving PRB. CLEAN or repair as necessary. TEST the system for normal operation. If the concern returns, REPLACE the LH PRB motor. REFER to: Power Running Board (PRB) Motor (501-08 Exterior Trim and Ornamentation, Removal and Installation).
C1006:11	Left Power Running Board Motor: Circuit Short To Ground	GO to Pinpoint Test D
C1006:12	Left Power Running Board Motor: Circuit Short To Battery	GO to Pinpoint Test D
C1006:13	Left Power Running Board Motor: Circuit Open	GO to Pinpoint Test D
C1006:19	Left Power Running Board Motor: Circuit Current Above Threshold	GO to Pinpoint Test D
C1007:11	Right Power Running Board Motor: Circuit Short To Ground	GO to Pinpoint Test E
C1007:12	Right Power Running Board Motor: Circuit Short To Battery	GO to Pinpoint Test E
C1007:13	Right Power Running Board Motor: Circuit Open	GO to Pinpoint Test E
C1007:19	Right Power Running Board Motor: Circuit Current Above Threshold	GO to Pinpoint Test E
C1008:3A	Left Power Running Board Position/Motion Sensor: Signal Has Too Many Pulses	Internal PRB motor damage. INSTALL a new LH PRB motor. REFER to: Power Running Board (PRB) Motor (501-08 Exterior Trim and Ornamentation, Removal and Installation).

DTC	Description	Action
C1008:93	Left Power Running Board Position/Motion Sensor: No Operation	GO to Pinpoint Test F
C1009:3A	Right Power Running Board Position/Motion Sensor: Signal Has Too Many Pulses	Internal PRB motor damage. INSTALL a new RH PRB motor. REFER to: Power Running Board (PRB) Motor (501-08 Exterior Trim and Ornamentation, Removal and Installation).
C1009:93	Right Power Running Board Position/Motion Sensor: No Operation	GO to Pinpoint Test F
C1B14:11	Sensor Supply Voltage A: Circuit Short To Ground	GO to Pinpoint Test F
C1B14:12	Sensor Supply Voltage A: Circuit Short To Battery	GO to Pinpoint Test F
U0146:00	Lost Communication with Gateway "A": No Sub Type Information	GO to Pinpoint Test G
U3000:00	Control Module: No Sub Type Information	• CLEAR the Diagnostic Trouble Codes (DTCs). CARRY OUT the RBM self-test. RETRIEVE and RECORD all Diagnostic Trouble Codes (DTCs). • If the DTC returns, INSTALL a new RBM. REFER to: Running Board Control Module (RBM) (501-08 Exterior Trim and Ornamentation, Removal and Installation).
U3000:41	Control Module: General Checksum Failure	• CLEAR the Diagnostic Trouble Codes (DTCs). CARRY OUT the RBM self-test. RETRIEVE and RECORD all Diagnostic Trouble Codes (DTCs). • If the DTC returns, INSTALL a new RBM. REFER to: Running Board Control Module (RBM) (501-08 Exterior Trim and Ornamentation, Removal and Installation). REFER to: Running Board Control Module (RBM) (501-08 Exterior Trim and Ornamentation, Removal and Installation).
U3000:49	Control Module: Internal Electronic Failure	• CLEAR the Diagnostic Trouble Codes (DTCs). CARRY OUT the RBM self-test. RETRIEVE and RECORD all Diagnostic Trouble Codes (DTCs). • If the DTC returns, INSTALL a new RBM. REFER to: Running Board Control Module (RBM) (501-08 Exterior Trim and Ornamentation, Removal and Installation).
U3000:4B	Control Module: Over Temperature	• CLEAR the Diagnostic Trouble Codes (DTCs). CARRY OUT the RBM self-test. RETRIEVE and RECORD all Diagnostic Trouble Codes (DTCs). • If the DTC returns, INSTALL a new RBM. REFER to: Running Board Control Module (RBM) (501-08 Exterior Trim and Ornamentation, Removal and Installation).
U3003:16	Control Module: Circuit Voltage Below Threshold	GO to Pinpoint Test H
U3003:17	Control Module: Circuit Voltage Above Threshold	GO to Pinpoint Test I

Symptom Chart

Diagnostics in this manual assume a certain skill level and knowledge of Ford-specific diagnostic practices.
REFER to: Diagnostic Methods (100-00 General Information, Description and Operation).

Symptom Chart: RBM

Condition	Possible Sources	Actions
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Condition	Possible Sources	Actions
The PRB Does Not Operate Correctly - Both	Refer to the Pinpoint Test	GO to Pinpoint Test A
The PRB Does Not Operate Correctly - RH Side Does Not Deploy/Stow, or Reverses Direction	Refer to the Pinpoint Test	GO to Pinpoint Test B
The PRB Does Not Operate Correctly - LH Side Does Not Deploy/Stow, or Reverses Direction	Refer to the Pinpoint Test	GO to Pinpoint Test C

Pinpoint Tests

The PRB Does Not Operate Correctly - Both

Refer to Wiring Diagrams Cell [109](#) for schematic and connector information.

NOTE: The RBM will stop functionality when battery voltage drops below 9.0 volts. The PRB system will recover at the next door ajar transition provided that the battery voltage remains above 9.0 volts.

Normal Operation and Fault Conditions

The RBM receives battery voltage from BJB fuse F50 (30A) and ground at G303. The LH and RH Hall-effect sensors (Integral to the PRB motors) receive a regulated 10 volt power supply, and ground from the RBM. The RBM monitors each motor movement using the Hall-effect sensor signal from the respective motor. The RBM receives door ajar status for each door and vehicle speed status over the MS-CAN. Door ajar signals trigger the RBM to deploy or stow the respective RH or LH PRB.

Possible Causes

- Wiring, terminals or connectors
- Door ajar signal concern
- Vehicle speed signal concern
- Foreign material causing blockage of PRB movement
- PRB motor
- RBM

Visual Inspection and Diagnostic Pre-checks

- BJB fuse F50 (30A).
- Foreign material causing blockage of PRB movement

PINPOINT TEST A : THE PRB (POWER RUNNING BOARD) DOES NOT OPERATE CORRECTLY - BOTH

A1 CHECK FOR THE RBM (RUNNING BOARD CONTROL MODULE) FOR DIAGNOSTIC TROUBLE CODES (DTCS)

- Using a diagnostic scan tool, retrieve all Continuous Memory Diagnostic Trouble Codes (CMDTCs) for the RBM.

Are any Diagnostic Trouble Codes (DTCs) present?

Yes	REPAIR the DTC concern.
No	GO to A2

A2 CHECK FOR DOOR AJAR AND VEHICLE SPEED DIAGNOSTIC TROUBLE CODES (DTCS) IN ALL MODULES

- Using a diagnostic scan tool, retrieve all Continuous Memory Diagnostic Trouble Codes (CMDTCs) for all modules.

Are any door ajar switch or vehicle speed related Diagnostic Trouble Codes (DTCs) present in other modules?

Yes	DIAGNOSE the door ajar switch or vehicle speed concern. REFER to: Body Control Module (BCM) (419-10 Multifunction Electronic Modules, Diagnosis and Testing).
No	GO to A3

A3 CHECK THE OPERATION OF THE POWER RUNNING BOARDS "AUTOMATIC MODE"

NOTE: When a door is closed, a short delay is normal before the PRB retracts. This delay feature is to reduce excessive PRB cycling if a door is closed and another door on the same side is then opened (for example if a passenger is moving from the front seat to the rear seat).

- Set the PRB system to the AUTO (enabled) mode.
- Open and close the LH front door allowing time for the PRB to react. The LH PRB should deploy when the door is open, and retract when the door is closed.
- Open and close the LH rear door. The LH PRB should deploy when the door is open, and retract when the door is closed.
- Open and close the RH front door. The RH PRB should deploy when the door is open, and retract when the door is closed.
- Open and close the RH rear door. The RH PRB should deploy when the door is open, and retract when the door is closed.

Do both Power Running Boards (PRBs) operate correctly?

Yes	GO to A4
No	GO to A5

A4 CHECK THE OPERATION OF THE POWER RUNNING BOARDS "MANUAL MODE"

- Set the PRB system to the OUT mode. Both Power Running Boards (PRBs) should deploy.

Do both Power Running Boards (PRBs) deploy?

Yes	The system is operating as designed. REVIEW operation of the PRB system with the customer.
No	GO to A5

A5 CHECK THE POWER RUNNING BOARDS FOR FOREIGN MATERIAL

- Check the step area and door sill of both Power Running Boards (PRBs) for foreign material or blockage.
- Check all of the PRB hinge points for any corrosion that may cause binding.

Is any blockage or corrosion present?

Yes	SET the PRB system to the OUT mode and REMOVE the foreign material or corrosion. If necessary, a power washer can be used; however, avoid direct spray to the PRB motors. TEST the system for normal operation. REFER the customer to the Owner's Literature for correct cleaning instructions.
No	GO to A6

A6 CHECK THE HALL-EFFECT SENSOR POWER AND RETURN CIRCUITS

NOTE: Use a meter with a min-max feature or recording capabilities to obtain accurate measurements. The RBM disables the voltage output immediately if the PRB motor is not present.

- Ignition OFF.
- Disconnect PRB motor [C3186](#) .
- Ignition ON.
- Make sure the PRB is set to AUTO in the vehicle message center.
- Close all vehicle doors.
- Connect the meter to the RH PRB motor electrical connector, harness side.
- Set the meter to measure DC (direct current) voltage.
- Set the meter range to greater than 15 volts.
- Enable the min-max or recording feature on the meter.
- **NOTE:** Make sure all test connections are made at the PRB motor before the door is opened.

Open any RH side door.

- Measure:

RUNNING BOARD MOTOR, RIGHT

Positive Lead	Measurement / Action	Negative Lead
C3186-4		C3186-6

Is the voltage between 7 and 10.5 volts?

Yes	INSTALL a new RH or LH PRB motor. REFER to: Power Running Board (PRB) Motor (501-08 Exterior Trim and Ornamentation, Removal and Installation).
No	GO to A7

A7 CHECK HALL-EFFECT SENSOR POWER CIRCUIT FOR VOLTAGE

NOTE: Use a meter with a min-max feature or recording capabilities to obtain accurate measurements. The RBM disables the voltage output immediately if the PRB motor is not present.

- Close all vehicle doors.
- Connect the meter to the RH PRB motor electrical connector, harness side.
- Set the meter to measure DC (direct current) voltage.
- Set the meter range to greater than 15 volts.
- Enable the min-max or recording feature on the meter.
- **NOTE:** Make sure all test connections are made at the PRB motor before the door is opened.

Open any RH side door.

- Measure:

RUNNING BOARD MOTOR, RIGHT	
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Positive Lead	Measurement / Action	Negative Lead
C3186-4		Ground

Is the voltage between 7 and 10.5 volts?

Yes	GO to A9
No	GO to A8

A8 CHECK HALL-EFFECT SENSOR POWER CIRCUIT FOR AN OPEN

- Ignition OFF.
- Disconnect RBM [C3313B](#).
- Measure:

RUNNING BOARD MOTOR, RIGHT	POWER RUNNING BOARD (PRB) MODULE
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Positive Lead	Measurement / Action	Negative Lead
C3186-4	Ω	C3313B-5

Is the resistance less than 3 ohms?

Yes	GO to A10
No	REPAIR the circuit.

A9 CHECK THE HALL-EFFECT SENSOR RETURN CIRCUIT FOR AN OPEN

- Ignition OFF.
- Disconnect RBM [C3313B](#) .
- Measure:

RUNNING BOARD MOTOR, RIGHT	POWER RUNNING BOARD (PRB) MODULE
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Positive Lead	Measurement / Action	Negative Lead
C3186-6	Ω	C3313B-14

Is the resistance less than 3 ohms?

Yes	GO to A12
No	REPAIR the circuit.

A10 CHECK THE RBM (RUNNING BOARD CONTROL MODULE) GROUND CIRCUIT FOR AN OPEN

- Measure:

POWER RUNNING BOARD (PRB) MODULE	
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Positive Lead	Measurement / Action	Negative Lead
C3313B-4	Ω	Ground

Is the resistance less than 3 ohms?

Yes	GO to A11
No	REPAIR the circuit.

A11 CHECK THE RBM (RUNNING BOARD CONTROL MODULE) VBATT CIRCUIT FOR VOLTAGE

- Measure and record the voltage at the battery.
- Measure:

POWER RUNNING BOARD (PRB) MODULE	
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Positive Lead	Measurement / Action	Negative Lead
C3313B-1		Ground

Is the voltage within 0.2 volts of the recorded battery voltage?

Yes	GO to A12
No	VERIFY BCM fuse F50 (30A) is OK. If OK, REPAIR the circuit for high resistance or an open. If not OK, REFER to the Wiring Diagrams manual to identify the cause of the circuit short.

A12 CHECK FOR CORRECT RBM (RUNNING BOARD CONTROL MODULE) OPERATION

- Ignition OFF.
- Disconnect All PRB system and related in-line connectors.
- Check for:
 - corrosion “install new connector or terminals and clean module pins
 - damaged or bent pins “install new terminals or pins
 - pushed-out pins “install new pins as necessary
- Connect all PRB system and related in-line connectors and make sure they seat correctly.
- Operate the system and verify the concern is still present.

Is the concern still present?

Yes	CHECK OASIS for any applicable Technical Service Bulletins (TSBs). If a TSB exists for this concern, DISCONTINUE this test and FOLLOW TSB instructions. If no Technical Service Bulletins (TSBs) address this concern, INSTALL a new RBM. REFER to: Running Board Control Module (RBM) (501-08 Exterior Trim and Ornamentation, Removal and Installation).
No	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector.

The PRB Does Not Operate Correctly - RH Side Does Not Deploy/Stow, or Reverses Direction

Refer to Wiring Diagrams Cell [109](#) for schematic and connector information.

Normal Operation and Fault Conditions

The RH Hall-effect sensors (Integral to the PRB motor) receives a regulated 10 volt power supply, and ground from the RBM. The RBM monitors PRB motor movement using the Hall-effect sensor signal from PRB motor. The RBM receives door ajar status of each door over the MS-CAN. Door ajar signals trigger the RBM to deploy or stow the RH PRB.

Possible Causes

- Wiring, terminals or connectors
- Door ajar signal concern
- Message center concern
- Foreign material causing blockage of PRB movement
- RH PRB motor
- RBM

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- Foreign material causing blockage of PRB movement

PINPOINT TEST B : THE RH (RIGHT-HAND) PRB (POWER RUNNING BOARD) DOES NOT OPERATE CORRECTLY - DOES NOT DEPLOY/STOW OR REVERSES DIRECTION

B1 CHECK FOR RBM (RUNNING BOARD CONTROL MODULE) DIAGNOSTIC TROUBLE CODES (DTCs)

- Using a diagnostic scan tool, retrieve all Diagnostic Trouble Codes (DTCs) for the RBM.

Are any Diagnostic Trouble Codes (DTCs) present?

Yes	REPAIR the DTC concern.
No	GO to B2

B2 CHECK THE OPERATION OF THE POWER RUNNING BOARDS IN AUTOMATIC MODE

NOTE: When a door is closed, a short delay is normal before the PRB retracts. This delay feature is to reduce excessive PRB cycling if a door is closed and another door on the same side is then opened (for example if a passenger is moving from the front seat to the rear seat).

- Set the PRB system to the AUTO (enabled) mode.
- Open and close the RH front door. The RH PRB should deploy when the door is open, and retract when the door is closed.
- Open and close the RH rear door. The RH PRB should deploy when the door is open, and retract when the door is closed.

Does the RH PRB operate correctly?

Yes	GO to B3
No	GO to B4

B3 CHECK THE OPERATION OF THE POWER RUNNING BOARDS IN MANUAL MODE

- Set the PRB system to the OUT mode. Both Power Running Boards (PRBs) should deploy.

Do both Power Running Boards (PRBs) deploy?

Yes	The system is operating as designed. REFER the customer to the Owner's Literature for correct PRB system operation.
No	GO to B4

B4 CHECK THE POWER RUNNING BOARDS FOR FOREIGN MATERIAL

- Check the step area and door sill of the RH PRB for foreign material or blockage.
- Check the RH PRB hinge points for any corrosion that may cause binding.

Is any blockage or corrosion present?

Yes	SET the PRB system to the OUT mode and REMOVE the foreign material or corrosion. If necessary, a power washer can be used; however, avoid direct spray to the PRB motor. TEST the system for normal operation. REFER the customer to the Owner's Literature for correct cleaning instructions.
No	GO to B5

B5 CHECK THE DOOR AJAR SWITCH OPERATION

- Ignition ON.
- Open and close the RH front and rear door, and verify the interior lights operate correctly and a door ajar message is noted on the vehicle message center. The interior lights should turn on when the door is opened and off when the door is closed. The message center should display door ajar when the doors are open and the door ajar message should turn off when the door is closed.

Do the interior lights and message center operate as expected?

Yes	GO to B6
No	If the interior lights do not light when one of the RH doors is opened, DIAGNOSE the interior lighting concern. REFER to: Interior Lighting (417-02 Interior Lighting, Diagnosis and Testing). If the interior lights do operate as expected and the door ajar message does not display on the message center when one of the RH doors is opened, DIAGNOSE the message center concern. REFER to: Instrumentation, Message Center and Warning Chimes (413-01 Instrumentation, Message Center and Warning Chimes, Diagnosis and Testing).

B6 CHECK THE RIGHT SIDE HALL-EFFECT SENSOR POWER AND RETURN CIRCUITS

NOTE: Use a meter with a min-max feature or recording capabilities to obtain accurate measurements. The RBM disables the voltage output immediately if the PRB motor is not present.

- Ignition OFF.
- Disconnect RH PRB motor [C3186](#).
- Ignition ON.
- Make sure the PRB is set to AUTO in the vehicle message center.
- Close all vehicle doors.
- Connect the meter to the RH PRB motor electrical connector, harness side.
- Set the meter to measure DC (direct current) voltage.
- Set the meter range to greater than 15 volts.
- Enable the min-max or recording feature on the meter.
- **NOTE:** Make sure all test connections are made at the PRB motor before the door is opened.

Open any RH side door.

- Measure:

RUNNING BOARD MOTOR, RIGHT

Positive Lead	Measurement / Action	Negative Lead
C3186-4		C3186-6

Is the voltage between 7 and 10.5 volts?

Yes	REPLACE the RH PRB motor. REFER to: Power Running Board (PRB) Motor (501-08 Exterior Trim and Ornamentation, Removal and Installation).
No	GO to B7

B7 CHECK RIGHT SIDE HALL-EFFECT SENSOR POWER CIRCUIT FOR AN OPEN

NOTE: Use a meter with a min-max feature or recording capabilities to obtain accurate measurements. The RBM disables the voltage output immediately if the PRB motor is not present.

- Ignition OFF.
- Disconnect LH PRB motor [C3185](#) .
- Ignition ON.
- Close all vehicle doors.
- Connect the meter to the RH PRB motor electrical connector, harness side.
- Set the meter to measure DC (direct current) voltage.
- Set the meter range to greater than 15 volts.
- Enable the min-max or recording feature on the meter.
- **NOTE:** Make sure all test connections are made at the PRB motor before the door is opened.

Open any RH side door.

- Measure:

RUNNING BOARD MOTOR, RIGHT	RUNNING BOARD MOTOR, LEFT
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Positive Lead	Measurement / Action	Negative Lead
C3186-4	Ω	C3185-4

Is the resistance less than 3 ohms?

Yes	GO to B8
No	REPAIR the circuit.

B8 CHECK RIGHT SIDE HALL-EFFECT SENSOR RETURN CIRCUIT FOR AN OPEN

NOTE: Use a meter with a min-max feature or recording capabilities to obtain accurate measurements. The RBM disables the voltage output immediately if the PRB motor is not present.

- Close all vehicle doors.
- Connect the meter to the RH PRB motor electrical connector, harness side.
- Set the meter to measure DC (direct current) voltage.
- Set the meter range to greater than 15 volts.
- Enable the min-max or recording feature on the meter.
- **NOTE:** Make sure all test connections are made at the PRB motor before the door is opened.

Open any RH side door.

- Measure:

RUNNING BOARD MOTOR, RIGHT	RUNNING BOARD MOTOR, LEFT
----------------------------	---------------------------

Positive Lead	Measurement / Action	Negative Lead
C3186-6	Ω	C3185-6

Is the resistance less than 3 ohms?

Yes	REPLACE the RH PRB motor. REFER to: Power Running Board (PRB) Motor (501-08 Exterior Trim and Ornamentation, Removal and Installation).
No	REPAIR the circuit.

The PRB Does Not Operate Correctly - LH Side Does Not Deploy/Stow, or Reverses Direction

Refer to Wiring Diagrams Cell [109](#) for schematic and connector information.

Normal Operation and Fault Conditions

The LH Hall-effect sensor (Integral to the PRB motor) receives a regulated 10 volt power supply, and ground from the RBM. The RBM monitors PRB motor movement using the Hall-effect sensor signal from the PRB motor. The RBM receives door ajar status of each door over the MS-CAN. Door ajar signals trigger the RBM to deploy or stow the LH PRB.

Possible Causes

- Wiring, terminals or connectors

- Door ajar signal concern
- Message center concern
- Foreign material causing blockage of PRB movement
- LH PRB motor
- RBM

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- Foreign material causing blockage of PRB movement

PINPOINT TEST C : THE LH (LEFT-HAND) PRB (POWER RUNNING BOARD) DOES NOT OPERATE CORRECTLY - DOES NOT DEPLOY/STOW, OR REVERSES DIRECTION

C1 CHECK FOR RBM (RUNNING BOARD CONTROL MODULE) DIAGNOSTIC TROUBLE CODES (DTCS)

- Using a diagnostic scan tool, retrieve all Diagnostic Trouble Codes (DTCs) for the RBM.

Are any Diagnostic Trouble Codes (DTCs) present?

Yes	REPAIR the DTC concern.
No	GO to C2

C2 CHECK THE OPERATION OF THE POWER RUNNING BOARDS “ AUTOMATIC MODE

NOTE: When a door is closed, a short delay is normal before the PRB retracts. This delay feature is to reduce excessive PRB cycling if a door is closed and another door on the same side is then opened (for example if a passenger is moving from the front seat to the rear seat).

- Set the PRB system to the AUTO (enabled) mode.
- Open and close the LH front door. The LH PRB should deploy when the door is open, and retract when the door is closed.
- Open and close the LH rear door. The LH PRB should deploy when the door is open, and retract when the door is closed.

Does the LH PRB operate correctly?

Yes	GO to C3
No	GO to C4

C3 CHECK THE OPERATION OF THE POWER RUNNING BOARDS “ MANUAL MODE

- Set the PRB system to the OUT mode. Both Power Running Boards (PRBs) should deploy.

Do both Power Running Boards (PRBs) deploy?

Yes	The system is operating as designed. REFER the customer to the Owner's Literature for correct PRB system operation.
No	GO to C4

C4 CHECK THE POWER RUNNING BOARDS FOR FOREIGN MATERIAL

- Check the step area and door sill of the RH PRB for foreign material or blockage.
- Check the LH PRB hinge points for any corrosion that may cause binding.

Is any blockage or corrosion present?

Yes	SET the PRB system to the OUT mode and REMOVE the foreign material or corrosion. If necessary, a power washer can be used; however, avoid direct spray to the PRB motor. TEST the system for normal operation. REFER the customer to the Owner's Literature for correct cleaning instructions.
No	GO to C5

C5 CHECK THE DOOR AJAR SWITCH OPERATION

- Ignition ON.
- Open and close the LH front and rear door, and verify the interior lights operate correctly and a door ajar message is noted on the vehicle message center. The interior lights should turn on when the door is opened and off when the door is closed. The message center should display door ajar when the doors are open and the door ajar message should turn off when the door is closed.

Do the interior lights and message center operate as expected?

Yes	GO to C6
No	If the interior lights do not light when one of the LH doors are opened, DIAGNOSE the interior lighting concern. REFER to: Interior Lighting (417-02 Interior Lighting, Diagnosis and Testing). If the interior lights do operate as expected and the door ajar message does not display on the message center when one of the LH doors are opened, DIAGNOSE the message center concern. REFER to: Instrumentation, Message Center and Warning Chimes (413-01 Instrumentation, Message Center and Warning Chimes, Diagnosis and Testing).

C6 CHECK THE LEFT SIDE HALL-EFFECT SENSOR POWER AND RETURN CIRCUITS

NOTE: Use a meter with a min-max feature or recording capabilities to obtain accurate measurements. The RBM disables the voltage output immediately if the PRB motor is not present.

- Ignition OFF.
- Disconnect LH PRB motor [C3185](#) .
- Ignition ON.
- Make sure the PRB is set to AUTO in the vehicle message center.
- Close all vehicle doors.
- Connect the meter to the LH PRB motor electrical connector, harness side.
- Set the meter to measure DC (direct current) voltage.
- Set the meter range to greater than 15 volts.
- Enable the min-max or recording feature on the meter.
- **NOTE:** Make sure all test connections are made at the PRB motor before the door is opened.

Open any LH side door.

- Measure:

RUNNING BOARD MOTOR, LEFT

Positive Lead	Measurement / Action	Negative Lead
C3185-4		C3185-6

Is the voltage between 7 and 10.5 volts?

Yes	REPLACE the LH PRB motor. REFER to: Power Running Board (PRB) Motor (501-08 Exterior Trim and Ornamentation, Removal and Installation).
No	GO to C7

C7 CHECK LEFT HALL-EFFECT SENSOR POWER CIRCUIT FOR AN OPEN

NOTE: Use a meter with a min-max feature or recording capabilities to obtain accurate measurements. The RBM disables the voltage output immediately if the PRB motor is not present.

- Ignition OFF.
- Disconnect RH PRB motor [C3186](#).
- Ignition ON.
- Close all vehicle doors.
- Connect the meter to the LH PRB motor electrical connector, harness side.
- Set the meter to measure DC (direct current) voltage.
- Set the meter range to greater than 15 volts.
- Enable the min-max or recording feature on the meter.
- **NOTE:** Make sure all test connections are made at the PRB motor before the door is opened.

Open any LH side door.

- Measure:

RUNNING BOARD MOTOR, RIGHT	RUNNING BOARD MOTOR, LEFT
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Positive Lead	Measurement / Action	Negative Lead
C3186-4	Ω	C3185-4

Is the resistance less than 3 ohms?

Yes	REPAIR the circuit.
No	GO to C8

C8 CHECK LEFT SIDE HALL-EFFECT SENSOR RETURN CIRCUIT FOR AN OPEN

NOTE: Use a meter with a min-max feature or recording capabilities to obtain accurate measurements. The RBM disables the voltage output immediately if the PRB motor is not present.

- Close all vehicle doors.
- Connect the meter to the LH PRB motor electrical connector, harness side.
- Set the meter to measure DC (direct current) voltage.
- Set the meter range to greater than 15 volts.
- Enable the min-max or recording feature on the meter.
- **NOTE:** Make sure all test connections are made at the PRB motor before the door is opened.

Open any LH side door.

- Measure:

RUNNING BOARD MOTOR, RIGHT	RUNNING BOARD MOTOR, LEFT
----------------------------	---------------------------

Positive Lead	Measurement / Action	Negative Lead
C3186-6	Ω	C3185-6

Is the resistance less than 3 ohms?

Yes	REPAIR the circuit.
No	REPLACE the LH PRB motor. REFER to: Power Running Board (PRB) Motor (501-08 Exterior Trim and Ornamentation, Removal and Installation).

C1006:11, C1006:12, C1006:13, C1006:19

Refer to Wiring Diagrams Cell [109](#) for schematic and connector information.

Normal operation and Fault Conditions

The RBM determines the need to move the LH PRB and applies voltage and ground on only 2 circuits to the PRB motor in order to stow (retract) or deploy (extend) the PRB. To stow the PRB, the RBM applies voltage on the LEFT RB STOW circuit and ground on the LEFT RB DEPLOY circuit. To deploy the PRB switches the voltage and ground so the voltage is applied to the LEFT RB DEPLOY circuit and ground to the LEFT RB STOW circuit. The RBM monitors the PRB motor current draw while it is operating. These Diagnostic Trouble Codes (DTCS) will set if the circuits are interrupted or if the PRB motor current is above 45 Amps.

DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Conditions
C1006:11	Left Power Running Board Motor: Circuit Short To Ground	This DTC sets if the LH PRB motor stow or deploy circuit is shorted to ground when a movement is requested.
C1006:12	Left Power Running Board Motor: Circuit Short To Battery	This DTC sets if the LH PRB motor stow or deploy circuit is shorted to voltage when a movement is requested.
C1006:13	Left Power Running Board Motor: Circuit Open	This DTC sets if the LH PRB motor stow or deploy circuit is open when a movement is requested.
C1006:19	Left Power Running Board Motor: Above Threshold	This DTC sets if the LH PRB motor current draw is above excessive.

Possible Sources

- Wiring, terminals or connectors
- LH PRB motor
- RBM

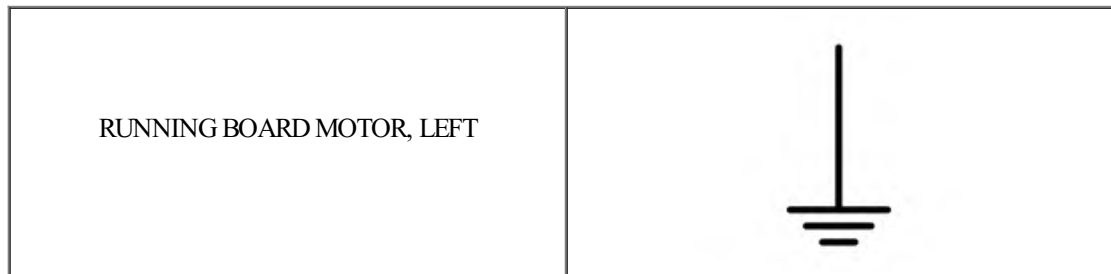
Visual Inspection and Diagnostic Pre-checks

- LH PRB motor harness connections and wiring.

PINPOINT TEST D : C1006:11, C1006:12, C1006:13, C1006:19

NOTICE: Use the correct probe adapter(s) when making measurements. Failure to use the correct probe adapter(s) may damage the connector.
D1 CHECK THE LH (LEFT-HAND) PRB (POWER RUNNING BOARD) MOTOR CONTROL CIRCUITS FOR A SHORT TO VOLTAGE
Empty space for test steps

- Ignition OFF.
- Disconnect Left PRB motor [C3185](#) .
- Ignition ON.
- Wait 10 seconds so any PRB movement commands are complete.
- Measure:



Positive Lead	Measurement / Action	Negative Lead
C3185-1		Ground
C3185-3		Ground

Is any voltage present?

Yes	REPAIR the circuit.
No	GO to D2

D2 CHECK THE LH (LEFT-HAND) PRB (POWER RUNNING BOARD) MOTOR CONTROL CIRCUITS FOR A SHORT TO GROUND

- Ignition OFF.
- Measure:

RUNNING BOARD MOTOR, LEFT	
---------------------------	--

Positive Lead	Measurement / Action	Negative Lead
C3185-1	Ω	Ground
C3185-3	Ω	Ground

Are the resistances greater than 10,000 Ohms?

Yes	GO to D3
No	REPAIR the circuit.

D3 CHECK THE LH (LEFT-HAND) PRB (POWER RUNNING BOARD) MOTOR CONTROL CIRCUITS FOR AN OPEN

- Disconnect RBM [C3313A](#) .
- Measure:

RUNNING BOARD MOTOR, LEFT	POWER RUNNING BOARD (PRB) MODULE
---------------------------	----------------------------------

Positive Lead	Measurement / Action	Negative Lead
C3185-1	Ω	C3313A-2
C3185-3	Ω	C3313A-1

Are the resistances less than 3 Ohms?

Yes	GO to D4
No	REPAIR the circuit.

D4 CHECK THE LH (LEFT-HAND) PRB (POWER RUNNING BOARD) MOTOR CIRCUITS FOR A SHORT TOGETHER

- Measure:

RUNNING BOARD MOTOR, LEFT

Positive Lead	Measurement / Action	Negative Lead
C3185-1	Ω	C3185-3
C3185-1	Ω	C3185-5
C3185-1	Ω	C3185-6
C3185-1	Ω	C3185-4
C3185-3	Ω	C3185-5
C3185-3	Ω	C3185-6
C3185-3	Ω	C3185-4
C3185-5	Ω	C3185-6
C3185-5	Ω	C3185-4
C3185-6	Ω	C3185-4

Are the resistances greater than 10,000 ohms?

Yes	GO to D5
No	REPAIR the circuit.

D5 CHECK FOR CORRECT RBM (RUNNING BOARD CONTROL MODULE) OUTPUT

NOTE: Use a meter with a min-max feature or recording capabilities to obtain accurate measurements. The RBM disables the voltage output immediately if the PRB motor is not present

- Connect RBM [C3313A](#) .
- Ignition ON.
- Make sure the PRB is set to AUTO in the vehicle message center.
- Close all vehicle doors.
- Connect the meter to the LH PRB motor electrical connector, harness side.
- Set the meter to measure DC (direct current) voltage.
- Set the meter range to greater than 15 volts.
- Enable the min-max or recording feature on the meter.
- **NOTE:** Make sure all test connections are made at the PRB motor before the LH door is opened.

Open any LH side door.

- Measure:

RUNNING BOARD MOTOR, LEFT

Positive Lead	Measurement / Action	Negative Lead
C3185-3		C3185-1

Is the voltage greater than 10 volts?

Yes	REPLACE the PRB motor. REFER to: Power Running Board (PRB) Motor (501-08 Exterior Trim and Ornamentation, Removal and Installation).
No	GO to D6

D6 CHECK FOR CORRECT RBM (RUNNING BOARD CONTROL MODULE) OPERATION

- Ignition OFF.
- Disconnect All PRB system and related in-line connectors.
- Check for:
 - corrosion “ install new connector or terminals and clean module pins
 - damaged or bent pins “ install new terminals or pins
 - pushed-out pins “ install new pins as necessary
- Connect all PRB system and related in-line connectors and make sure they seat correctly.
- Operate the system and verify the concern is still present.

Is the concern still present?

Yes	CHECK OASIS for any applicable Technical Service Bulletins (TSBs). If a TSB exists for this concern, DISCONTINUE this test and FOLLOW TSB instructions. If no Technical Service Bulletins (TSBs) address this concern, INSTALL a new RBM. REFER to: Running Board Control Module (RBM) (501-08 Exterior Trim and Ornamentation, Removal and Installation).
No	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector.

C1007:11, C1007:12, C1007:13, C1007:19

Refer to Wiring Diagrams Cell [109](#) for schematic and connector information.

Normal operation and Fault Conditions

The RBM determines the need to move the RH PRB and applies voltage and ground on only 2 circuits to the PRB motor in order to stow (retract) or deploy (extend) the PRB. To stow the PRB, the RBM applies voltage on the RIGHT RB STOW circuit and ground on the RIGHT RB DEPLOY circuit. To deploy the PRB the RBM switches the voltage and ground so the voltage is applied to the RIGHT RB DEPLOY circuit and ground to the RIGHT RB STOW circuit. The RBM monitors the PRB motor current draw while it is operating. These Diagnostic Trouble Codes (DTCS) will set if the circuits are interrupted or if the PRB motor current is above 45 Amps.

DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Conditions
C1007:11	Right Power Running Board Motor: Circuit Short To Ground	This DTC sets if the RH PRB motor stow or deploy circuit is shorted to ground when a movement is requested.
C1007:12	Right Power Running Board Motor: Circuit Short To Battery	This DTC sets if the RH PRB motor stow or deploy circuit is shorted to voltage when a movement is requested.
C1007:13	Right Power Running Board Motor: Circuit Open	This DTC sets if the RH PRB motor stow or deploy circuit is open when a movement is requested.
C1007:19	Right Power Running Board Motor: Above Threshold	This DTC sets if the RH PRB motor current draw is excessive.

Possible Sources

- Wiring, terminals or connectors
- RH PRB motor
- RBM

Visual Inspection and Diagnostic Pre-checks

- RH PRB motor harness connections and wiring.

PINPOINT TEST E : C1007:11, C1007:12, C1007:13, C1007:19

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

E1 CHECK THE RH (RIGHT-HAND) PRB (POWER RUNNING BOARD) MOTOR CONTROL CIRCUITS FOR A SHORT TO VOLTAGE

- Ignition OFF.
- Disconnect RH PRB motor [C3186](#) .
- Ignition ON.
- Wait 10 seconds so any PRB movement commands are complete.
- Measure:

RUNNING BOARD MOTOR, RIGHT	
----------------------------	--

Positive Lead	Measurement / Action	Negative Lead
C3186-1		Ground
C3186-3		Ground

Is any voltage present?

Yes	REPAIR the circuit.
No	GO to E2

E2 CHECK THE RH (RIGHT-HAND) PRB (POWER RUNNING BOARD) MOTOR CONTROL CIRCUITS FOR A SHORT TO GROUND

- Ignition OFF.
- Measure:

RUNNING BOARD MOTOR, RIGHT	
----------------------------	--

Positive Lead	Measurement / Action	Negative Lead
C3186-1	Ω	Ground
C3186-3	Ω	Ground

Are the resistances greater than 10,000 Ohms?

Yes	GO to E3
No	REPAIR the circuit.

E3 CHECK THE RH (RIGHT-HAND) PRB (POWER RUNNING BOARD) MOTOR CONTROL CIRCUITS FOR AN OPEN

- Disconnect RBM [C3313A](#) .
- Measure:

RUNNING BOARD MOTOR, RIGHT	POWER RUNNING BOARD (PRB) MODULE
----------------------------	----------------------------------

Positive Lead	Measurement / Action	Negative Lead
C3186-1	Ω	C3313A-3
C3186-3	Ω	C3313A-4

Are the resistances less than 3 Ohms?

Yes	GO to E4
No	REPAIR the circuit.

E4 CHECK THE RH (RIGHT-HAND) PRB (POWER RUNNING BOARD) MOTOR CIRCUITS FOR A SHORT TOGETHER

- Measure:

RUNNING BOARD MOTOR, RIGHT

Positive Lead	Measurement / Action	Negative Lead
C3186-1	Ω	C3186-3
C3186-1	Ω	C3186-5
C3186-1	Ω	C3186-6
C3186-1	Ω	C3186-4
C3186-3	Ω	C3186-5
C3186-3	Ω	C3186-6
C3186-3	Ω	C3186-4
C3186-5	Ω	C3186-6
C3186-5	Ω	C3186-4
C3186-6	Ω	C3186-4

Are the resistances greater than 10,000 ohms?

Yes	GO to E5
No	REPAIR the circuit.

E5 CHECK FOR CORRECT RBM (RUNNING BOARD CONTROL MODULE) OUTPUT

NOTE: Use a meter with a min-max feature or recording capabilities to obtain accurate measurements. The RBM disables the voltage output immediately if the PRB motor is not present

- Connect RBM [C3313A](#) .
- Ignition ON.
- Make sure the PRB is set to AUTO in the vehicle message center.
- Close all vehicle doors.
- Connect the meter to the LH PRB motor electrical connector, harness side.
- Set the meter to measure DC (direct current) voltage.
- Set the meter range to greater than 15 volts.
- Enable the min-max or recording feature on the meter.
- **NOTE:** Make sure all test connections are made at the PRB motor before the RH door is opened.

Open any RH side door.

- Measure:

RUNNING BOARD MOTOR, RIGHT

Positive Lead	Measurement / Action	Negative Lead
C3186-3		C3186-1

Is the voltage greater than 10 volts?

Yes	REPLACE the RH PRB motor. REFER to: Power Running Board (PRB) Motor (501-08 Exterior Trim and Ornamentation, Removal and Installation).
No	GO to E6

E6 CHECK FOR CORRECT RBM (RUNNING BOARD CONTROL MODULE) OPERATION

- Ignition OFF.
- Disconnect All PRB system and related in-line connectors.
- Check for:
 - corrosion – install new connector or terminals and clean module pins
 - damaged or bent pins – install new terminals or pins
 - pushed-out pins – install new pins as necessary
- Connect all PRB system and related in-line connectors and make sure they seat correctly.
- Operate the system and verify the concern is still present.

Is the concern still present?

Yes	CHECK OASIS for any applicable Technical Service Bulletins (TSBs). If a TSB exists for this concern, DISCONTINUE this test and FOLLOW TSB instructions. If no Technical Service Bulletins (TSBs) address this concern, INSTALL a new RBM. REFER to: Running Board Control Module (RBM) (501-08 Exterior Trim and Ornamentation, Removal and Installation).
No	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector.

C1008:93, C1009:93, C1B14:11, C1B14:12

Refer to Wiring Diagrams Cell [109](#) for schematic and connector information.

Normal operation and Fault Conditions

The RBM monitors the movement, position and current draw of each PRB with a hall-effect switch that is integral to each PRB motor. The RBM supplies a shared 10 volt controlled voltage and a shared ground circuit to the PRB motor hall-effect sensors, and receives separate sensor signals from the RH and LH hall-effect sensors. Voltage varies on the LEFT or RIGHT RB hall-effect signal circuit as the motor moves the PRB. An open or shorted circuit will set these DTC.

DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Conditions
C1008:93	Left Power Running Board Position/Motion Sensor: No Operation	This DTC sets if the system voltage is between 9.5 - 16 volts, the LH PRB motion is commanded and the left RB hall effect signal circuit at the RBM does not change.
C1009:93	Right Power Running Board Position/Motion Sensor: No Operation	This DTC sets if the system voltage is between 9.5 - 16 volts, the RH PRB motion is commanded and the right RB hall effect signal circuit at the RBM does not change.
C1B14:11	Sensor Supply Voltage A: Circuit Short To Ground	This DTC sets if the system voltage is between 9.5 - 16 volts, any PRB motion is commanded and the hall effect power circuit at the RBM is less than 7.5 volts.
C1B14:12	Sensor Supply Voltage A: Circuit Short To Battery	This DTC sets if the system voltage is between 9.5 - 16 volts, any PRB motion is commanded and the hall effect power circuit at the RBM is greater than 10 volts.

Possible Sources

- Wiring, terminals or connectors
- RH or LH PRB motor
- RBM

Visual Inspection and Diagnostic Pre-checks

- RH and LH PRB motor harness connections and wiring.

PINPOINT TEST F : C1008:93, C1009:93, C1B14:11, C1B14:12

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

F1 CHECK THE HALL EFFECT POWER AND RETURN CIRCUITS BETWEEN THE PRB (POWER RUNNING BOARD) MOTORS FOR AN OPEN

- Ignition OFF.
- Disconnect LH PRB motor [C3185](#) .
- Disconnect RH PRB motor [C3186](#) .
- Measure:

RUNNING BOARD MOTOR, LEFT	RUNNING BOARD MOTOR, RIGHT
---------------------------	----------------------------

Positive Lead	Measurement / Action	Negative Lead
C3185-4	Ω	C3186-4
C3185-6	Ω	C3186-6

Are the resistances less than 3 ohms?

Yes	GO to F2
No	REPAIR the circuit.

F2 CHECK THE HALL-EFFECT SENSOR POWER AND RETURN CIRCUITS

NOTE: Use a meter with a min-max feature or recording capabilities to obtain accurate measurements. The RBM disables the voltage output immediately if the PRB motor is not present.

- Ignition ON.
- Make sure the PRB is set to AUTO in the vehicle message center.
- Close all vehicle doors.
- Connect the meter to the RH PRB motor electrical connector, harness side.
- Set the meter to measure DC (direct current) voltage.
- Set the meter range to greater than 15 volts.
- Enable the min-max or recording feature on the meter.
- **NOTE:** Make sure all test connections are made at the PRB motor before the door is opened.

Open any RH side door.

- Measure:

RUNNING BOARD MOTOR, RIGHT

Positive Lead	Measurement / Action	Negative Lead
C3186-4		C3186-6

Is the voltage between 7 and 10.5 volts?

Yes	GO to F7
No	If the voltage was less than 7 volts, GO to F3 If the voltage was greater than 10.5 volts, GO to F6

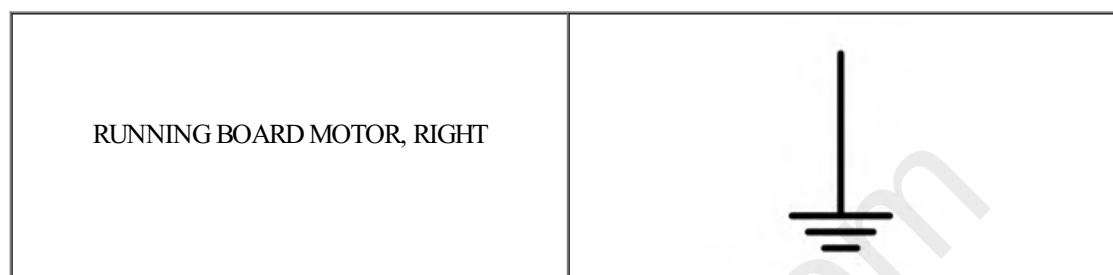
F3 CHECK HALL-EFFECT SENSOR POWER CIRCUIT FOR VOLTAGE

NOTE: Use a meter with a min-max feature or recording capabilities to obtain accurate measurements. The RBM disables the voltage output immediately if the PRB motor is not present.

- Close all vehicle doors.
- Connect the meter to the RH PRB motor electrical connector, harness side.
- Set the meter to measure DC (direct current) voltage.
- Set the meter range to greater than 15 volts.
- Enable the min-max or recording feature on the meter.
- **NOTE:** Make sure all test connections are made at the PRB motor before the door is opened.

Open any RH side door.

- Measure:



Positive Lead	Measurement / Action	Negative Lead
C3186-4		Ground

Is the voltage between 7 and 10.5 volts?

Yes	GO to F5
No	GO to F4

F4 CHECK HALL-EFFECT SENSOR POWER CIRCUIT FOR AN OPEN OR SHORT TO GROUND

- Ignition OFF.
- Disconnect RBM [C3313B](#).
- Measure:

RUNNING BOARD MOTOR, RIGHT	POWER RUNNING BOARD (PRB) MODULE
----------------------------	----------------------------------

Positive Lead	Measurement / Action	Negative Lead
C3186-4	Ω	C3313B-5
C3186-4	Ω	Ground

Is the resistance less than 3 ohms between the PRB motor and the RBM module; and greater than 10,000 ohms between the PRB motor and ground?

Yes	GO to F9
No	REPAIR the circuit.

F5 CHECK THE HALL-EFFECT SENSOR RETURN CIRCUIT FOR AN OPEN

- Ignition OFF.
- Disconnect RBM [C3313B](#) .
- Measure:

RUNNING BOARD MOTOR, RIGHT	POWER RUNNING BOARD (PRB) MODULE
----------------------------	----------------------------------

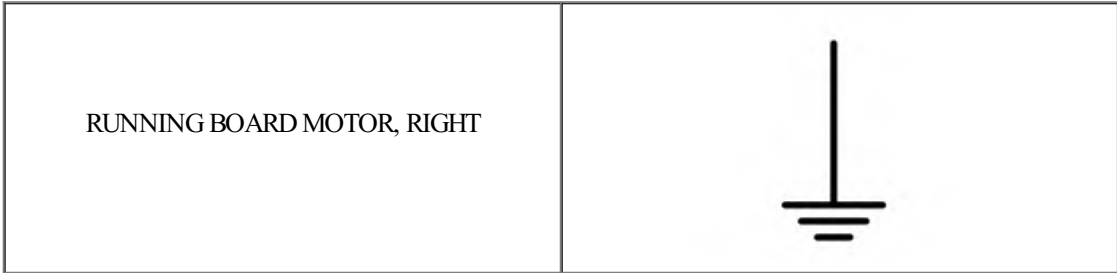
Positive Lead	Measurement / Action	Negative Lead
C3186-6	Ω	C3313B-14

Is the resistance less than 3 ohms?

Yes	GO to F9
No	REPAIR the circuit.

F6 CHECK THE HALL-EFFECT SENSOR POWER CIRCUIT FOR A SHORT TO VOLTAGE

- Ignition OFF.
- Disconnect RBM [C3313B](#) .
- Ignition ON.
- Measure:



Positive Lead	Measurement / Action	Negative Lead
C3186-4		Ground

Is any voltage present?

Yes	REPAIR the circuit.
No	GO to F9

F7 CHECK THE HALL-EFFECT SENSOR SIGNAL CIRCUIT FOR A SHORT TO VOLTAGE

- Ignition OFF.
- Disconnect RBM [C3313B](#) .
- Ignition ON.
- For DTC C1009:93 (RH side), measure:

RUNNING BOARD MOTOR, RIGHT	
----------------------------	--

Positive Lead	Measurement / Action	Negative Lead
C3186-5		Ground

- For DTC C1008:93 (LH side), measure:

RUNNING BOARD MOTOR, LEFT	
---------------------------	--

Positive Lead	Measurement / Action	Negative Lead
C3185-5		Ground

Is any voltage present?

Yes	REPAIR the circuit.
No	GO to F8

F8 CHECK THE HALL-EFFECT SENSOR SIGNAL CIRCUIT FOR AN OPEN OR SHORT TO GROUND

- Ignition OFF.
- For DTC C1009:93 (RH side), measure:

RUNNING BOARD MOTOR, RIGHT	POWER RUNNING BOARD (PRB) MODULE
----------------------------	----------------------------------

Positive Lead	Measurement / Action	Negative Lead
C3186-5	Ω	C3313B-10
C3186-5	Ω	Ground

- For DTC C1008:93 (LH side), measure:

RUNNING BOARD MOTOR, LEFT	POWER RUNNING BOARD (PRB) MODULE
---------------------------	----------------------------------

Positive Lead	Measurement / Action	Negative Lead
C3185-5	Ω	C3313B-9
C3185-5	Ω	Ground

Is the resistance less than 3 ohms between the PRB motor and RBM; and greater than 10,000 ohms between the PRB motor and ground?

Yes	For DTC C1009:93, REPLACE the RH PRB motor. REFER to: Power Running Board (PRB) Motor (501-08 Exterior Trim and Ornamentation, Removal and Installation). For DTC C1008:93, REPLACE the LH PRB motor. REFER to: Power Running Board (PRB) Motor (501-08 Exterior Trim and Ornamentation, Removal and Installation).
No	REPAIR the circuit.

F9 CHECK THE RBM (RUNNING BOARD CONTROL MODULE) FOR CORRECT OPERATION

- Ignition OFF.
- Disconnect All PRB system and related in-line connectors.
- Check for:
 - corrosion – install new connector or terminals and clean module pins
 - damaged or bent pins – install new terminals or pins
 - pushed-out pins – install new pins as necessary
- Connect all PRB system and related in-line connectors and make sure they seat correctly.
- Operate the system and verify the concern is still present.

Is the concern still present?

Yes	CHECK OASIS for any applicable Technical Service Bulletins (TSBs). If a TSB exists for this concern, DISCONTINUE this test and FOLLOW TSB instructions. If no Technical Service Bulletins (TSBs) address this concern, INSTALL a new RBM. REFER to: Running Board Control Module (RBM) (501-08 Exterior Trim and Ornamentation, Removal and Installation).
No	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector.

U0146

Refer to Wiring Diagrams Cell [14](#) for schematic and connector information.

Normal operation and Fault Conditions

With normal battery voltage and the ignition ON, the GWM sends messages to the RBM over the MS-CAN. If the RBM does not receive these messages within a certain time frame, the RBM sets a DTC. For information on the messages sent to the RBM by the GWM, refer to the Network Message Chart.

REFER to: Power Running Board (PRB) - System Operation and Component Description (501-08 Exterior Trim and Ornamentation, Description and Operation).

DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Conditions
U0146	Lost Communication with Gateway "A": No Sub Type Information	This DTC sets if messages received from the GWM are missing for 5 seconds or more.

Possible Sources

- Communications concern
- GWM
- RBM

PINPOINT TEST G : U0146

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

G1 CHECK THE COMMUNICATION NETWORK

- Ignition ON.
- Using a diagnostic scan tool, carry out the Network Test.

Does the GWM pass the Network Test?

Yes	GO to G2
No	DIAGNOSE the GWM does not respond to the scan tool. REFER to: Communications Network (418-00 Module Communications Network, Diagnosis and Testing).

G2 RECHECK THE RBM (RUNNING BOARD CONTROL MODULE) DIAGNOSTIC TROUBLE CODES (DTCS).

- Using a diagnostic scan tool, clear the Diagnostic Trouble Codes (DTCs).
- Ignition OFF.
- Ignition ON.
- Using a diagnostic scan tool, carry out the RBM self-test.

Is DTC U0146:00 retrieved again?

Yes	GO to G3
No	The system is operating correctly at this time. The DTC may have been set due to high network traffic or an intermittent fault condition.

G3 CHECK THE GWM (GATEWAY MODULE A) DIAGNOSTIC TROUBLE CODES (DTCS)

- Using a diagnostic scan tool, check GWM Diagnostic Trouble Codes (DTCs).

Are any Diagnostic Trouble Codes (DTCS) present in the GWM?

Yes	DIAGNOSE the GWM Diagnostic Trouble Codes (DTCS). REFER to: Communications Network (418-00 Module Communications Network, Diagnosis and Testing).
No	GO to G4

G4 CHECK FOR DTC (DIAGNOSTIC TROUBLE CODE) U0146:00 SET IN OTHER MODULES

- Using a diagnostic scan tool, carry out the self-test to retrieve all Continuous Memory Diagnostic Trouble Codes (CMDTCs) from all modules.

Is DTC U0146:00 set in other modules?

Yes	GO to G5
No	GO to G6

G5 CHECK FOR CORRECT GWM (GATEWAY MODULE A) OPERATION

- Ignition OFF.
- Disconnect All GWM and related in-line connectors.
- Check for:
 - corrosion “ install new connector or terminals and clean module pins
 - damaged or bent pins “ install new terminals or pins
 - pushed-out pins “ install new pins as necessary
- Connect all GWM system and related in-line connectors and make sure they seat correctly.
- Operate the system and verify the concern is still present.

Is the concern still present?

Yes	CHECK OASIS for any applicable Technical Service Bulletins (TSBs). If a TSB exists for this concern, DISCONTINUE this test and FOLLOW TSB instructions. If no Technical Service Bulletins (TSBs) address this concern, INSTALL a new GWM. REFER to: Gateway Module A (GWM) (418-00 Module Communications Network, Removal and Installation).
No	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector.

G6 CHECK FOR CORRECT RBM (RUNNING BOARD CONTROL MODULE) OPERATION

- Ignition OFF.
- Disconnect All PRB system and related in-line connectors.
- Check for:
 - corrosion “ install new connector or terminals and clean module pins
 - damaged or bent pins “ install new terminals or pins
 - pushed-out pins “ install new pins as necessary
- Connect all PRB system and related in-line connectors and make sure they seat correctly.
- Operate the system and verify the concern is still present.

Is the concern still present?

Yes	CHECK OASIS for any applicable Technical Service Bulletins (TSBs). If a TSB exists for this concern, DISCONTINUE this test and FOLLOW TSB instructions. If no Technical Service Bulletins (TSBs) address this concern, INSTALL a new RBM. REFER to: Running Board Control Module (RBM) (501-08 Exterior Trim and Ornamentation, Removal and Installation).
No	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector.

U3003:16

Refer to Wiring Diagrams Cell [109](#) for schematic and connector information.

Normal operation and Fault Conditions

The RBM receives battery voltage from BJB fuse F50 (30A) at all times and ground at G303.

DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Conditions
U3003:16	Battery Voltage: Circuit Voltage Below Threshold	This DTC sets in continuous memory and on-demand if the supply voltage falls below 8.7 volts after a PRB movement is requested.

Possible Sources

- Wiring, terminals or connectors
- Battery condition
- Charging system concern
- RBM

Visual Inspection and Diagnostic Pre-checks

- Make sure the vehicle battery terminals and cables are free of any corrosion and other contaminants.
- Make sure the vehicle battery terminals are tightened to their correct torque specifications.

PINPOINT TEST H : U3003:16

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

H1 RECHECK FOR DTC (DIAGNOSTIC TROUBLE CODE) U3003:16

- Turn the engine off.
- Ignition ON.
- Using a diagnostic scan tool, carry out the RBM self-test.
- Clear the RBM Diagnostic Trouble Codes (DTCs).
- Ignition OFF.
- Ignition ON.
- Repeat the RBM self-test.

Is DTC U3003:16 still present?

Yes	GO to H2
No	The system is operating normally at this time. The DTC may have been set due to a previous low battery voltage condition.

H2 CHECK FOR LOW VOLTAGE DIAGNOSTIC TROUBLE CODES (DTCs) SET IN OTHER MODULES

- Using a diagnostic scan tool, retrieve and record all Diagnostic Trouble Codes (DTCs) for all modules.

Are any low voltage or charging system Diagnostic Trouble Codes (DTCs) set in any other modules?

Yes	DIAGNOSE the under charging condition. REFER to: Charging System - 6.2L V8 (414-00 Charging System - General Information, Diagnosis and Testing). or REFER to: Charging System - 6.7L Power Stroke Diesel (414-00 Charging System - General Information, Diagnosis and Testing).
No	GO to H3

H3 CHECK THE BATTERY CONDITION AND STATE OF CHARGE

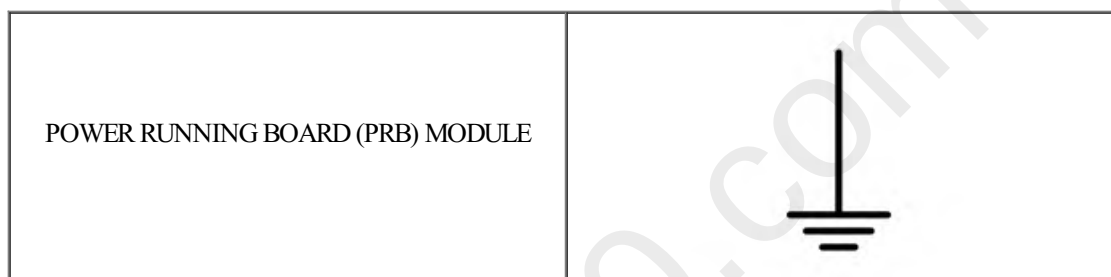
- Check the battery condition and verify that the battery is fully charged.
REFER to: Battery (414-01 Battery, Mounting and Cables, Diagnosis and Testing).

Is the battery OK and fully charged?

Yes	GO to H4
No	REFER to: Charging System - 6.2L V8 (414-00 Charging System - General Information, Diagnosis and Testing). or REFER to: Charging System - 6.7L Power Stroke Diesel (414-00 Charging System - General Information, Diagnosis and Testing).

H4 CHECK THE RBM (RUNNING BOARD CONTROL MODULE) VBATT CIRCUIT

- Ignition OFF.
- Measure and record the voltage at the battery.
- Disconnect RBM [C3313B](#).
- Measure:



Positive Lead	Measurement / Action	Negative Lead
C3313B-1		Ground

Is the voltage within 0.2 volts of the recorded battery voltage?

Yes	GO to H5
No	REPAIR the circuit.

H5 CHECK THE RBM (RUNNING BOARD CONTROL MODULE) GROUND CIRCUIT

- Measure:

POWER RUNNING BOARD (PRB) MODULE	
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Positive Lead	Measurement / Action	Negative Lead
C3313B-4	Ω	Ground

Is the resistance less than 3 ohms?

Yes	GO to H6
No	REPAIR the circuit.

H6 CHECK FOR CORRECT RBM (RUNNING BOARD CONTROL MODULE) OPERATION

- Ignition OFF.
- Disconnect All PRB system and related in-line connectors.
- Check for:
 - corrosion â€œ install new connector or terminals and clean module pins
 - damaged or bent pins â€œ install new terminals or pins
 - pushed-out pins â€œ install new pins as necessary
- Connect all PRB system and related in-line connectors and make sure they seat correctly.
- Operate the system and verify the concern is still present.

Is the concern still present?

Yes	CHECK OASIS for any applicable Technical Service Bulletins (TSBs). If a TSB exists for this concern, DISCONTINUE this test and FOLLOW TSB instructions. If no Technical Service Bulletins (TSBs) address this concern, INSTALL a new RBM. REFER to: Running Board Control Module (RBM) (501-08 Exterior Trim and Ornamentation, Removal and Installation).
No	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector.

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Refer to Wiring Diagrams Cell [109](#) for schematic and connector information.

Normal operation and Fault Conditions

The RBM receives battery voltage from BJB fuse F50 (30A) at all times and ground at G303.

DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Conditions
U3003:17	Battery Voltage: Circuit Voltage Above Threshold	This DTC sets in continuous memory and on-demand if the voltage rises above 16.5 volts after PRB movement is requested.

Possible Sources

- Wiring, terminals or connectors
- Charging system condition
- RBM

PINPOINT TEST I : U3003:17

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

I1 RECHECK FOR DTC (DIAGNOSTIC TROUBLE CODE) U3003:17

- Turn the engine off.
- Ignition ON.
- Using a diagnostic scan tool, carry out the RBM self-test.
- Clear the RBM Diagnostic Trouble Codes (DTCs).
- Ignition OFF.
- Ignition ON.
- Repeat the RBM self-test.

Is DTC U3003:17 still present?

Yes	GO to I2
No	The system is operating normally at this time. The DTC may have been set previously during battery charging or while jump starting the vehicle.

I2 CHECK FOR HIGH VOLTAGE DIAGNOSTIC TROUBLE CODES (DTCs) SET IN OTHER MODULES

- Using a diagnostic scan tool, retrieve and record all Diagnostic Trouble Codes (DTCs) for all modules.

Are any high voltage or charging system Diagnostic Trouble Codes (DTCs) set in any other modules?

Yes	DIAGNOSE the overcharging condition. REFER to: Charging System - 6.2L V8 (414-00 Charging System - General Information, Diagnosis and Testing). or REFER to: Charging System - 6.7L Power Stroke Diesel (414-00 Charging System - General Information, Diagnosis and Testing).
No	GO to I3

I3 CHECK THE BATTERY VOLTAGE

- Turn off all interior lights, exterior lights and accessories.
- Start and run the engine at approximately 1,500 RPM for 3 minutes while monitoring the battery voltage.

Does the battery voltage rise to greater than 15.5 volts?

Yes	DIAGNOSE the over charging condition. REFER to: Charging System - 6.2L V8 (414-00 Charging System - General Information, Diagnosis and Testing). or REFER to: Charging System - 6.7L Power Stroke Diesel (414-00 Charging System - General Information, Diagnosis and Testing).
No	GO to I4

I4 CHECK FOR CORRECT RBM (RUNNING BOARD CONTROL MODULE) OPERATION

- Ignition OFF.
- Disconnect All PRB system and related in-line connectors.
- Check for:
 - corrosion “install new connector or terminals and clean module pins
 - damaged or bent pins “install new terminals or pins
 - pushed-out pins “install new pins as necessary
- Connect all PRB system and related in-line connectors and make sure they seat correctly.
- Operate the system and verify the concern is still present.

Is the concern still present?

Yes	CHECK OASIS for any applicable Technical Service Bulletins (TSBs). If a TSB exists for this concern, DISCONTINUE this test and FOLLOW TSB instructions. If no Technical Service Bulletins (TSBs) address this concern, INSTALL a new RBM. REFER to: Running Board Control Module (RBM) (501-08 Exterior Trim and Ornamentation, Removal and Installation).
No	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector.