

Trailer Lamps

DTC Chart: BCM

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).

BCM DTC Chart

DTC	Description	Action <i>New: hover over Pinpoint Test links to show title</i>
B130C:12	Load Shed Control: Circuit Short To Battery	GO to Pinpoint Test F
B130C:14	Load Shed Control: Circuit Short To Ground or Open	GO to Pinpoint Test F
B132B:12	Left Stop/Turn Lamp: Circuit Short To Battery	GO to Pinpoint Test B
B132B:14	Left Stop/Turn Lamp: Circuit Short To Ground or Open	GO to Pinpoint Test B
B132C:12	Right Stop/Turn Lamp: Circuit Short To Battery	GO to Pinpoint Test B
B132C:14	Right Stop/Turn Lamp: Circuit Short To Ground or Open	GO to Pinpoint Test B
B1449:12	Trailer Tow Park/Tail Lamp Output: Circuit Short To Battery	GO to Pinpoint Test D
B1449:14	Trailer Tow Park/Tail Lamp Output: Circuit Short To Ground or Open	GO to Pinpoint Test D

DTC Chart: TRM

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).

TRM DTC Chart

DTC	Description	Action <i>New: hover over Pinpoint Test links to show title</i>
B1D08:11	Left Trailer Direction Indicator: Circuit Short To Ground	GO to Pinpoint Test C
B1D08:12	Left Trailer Direction Indicator: Circuit Short To Battery	GO to Pinpoint Test C
B1D09:11	Right Trailer Direction Indicator: Circuit Short To Ground	GO to Pinpoint Test C
B1D09:12	Right Trailer Direction Indicator: Circuit Short To Battery	GO to Pinpoint Test C
U0140:00	Lost Communication With Body Control Module: No Sub Type Information	GO to Pinpoint Test H
U1000:00	Solid State Driver Protection Active -Driver Disabled: No Sub Type Information	GO to Pinpoint Test J
U2100:00	Initial Configuration Not Complete: No Sub Type Information	GO to Pinpoint Test I
U3000:49	Control Module: Internal Electronic Failure	GO to Pinpoint Test J

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

Condition	Possible Sources	Actions
A module does not respond to the diagnostic scan tool	• Fuse • Wiring, terminals or connectors • Module	REFER to: Communications Network (418-00 Module Communications Network, Diagnosis and Testing).
All the trailer lamps are inoperative	Refer to the Pinpoint Test	GO to Pinpoint Test A
One or more trailer stop/turn lamps are inoperative or always on - vehicles not equipped with a TRM	Refer to the Pinpoint Test	GO to Pinpoint Test B
One or more trailer stop/turn lamps are inoperative or always on - vehicles equipped with a TRM	Refer to the Pinpoint Test	GO to Pinpoint Test C
The trailer parking lamps are inoperative or always on	Refer to the Pinpoint Test	GO to Pinpoint Test D
The trailer reversing lamps are inoperative or always on	Refer to the Pinpoint Test	GO to Pinpoint Test E
The trailer battery charging is inoperative/does not operate correctly - vehicles not equipped with a TRM	Refer to the Pinpoint Test	GO to Pinpoint Test F
The trailer battery charging is inoperative/does not operate correctly - vehicles equipped with a TRM	Refer to the Pinpoint Test	GO to Pinpoint Test G

Pinpoint Tests

PINPOINT TEST A : ALL THE TRAILER LAMPS ARE INOPERATIVE

Refer to Wiring Diagrams Cell [95](#) for schematic and connector information.

Normal Operation and Fault Conditions

REFER to: Exterior Lighting - Overview (417-01 Exterior Lighting, Description and Operation).

REFER to: Exterior Lighting - System Operation and Component Description (417-01 Exterior Lighting, Description and Operation).

Possible Sources

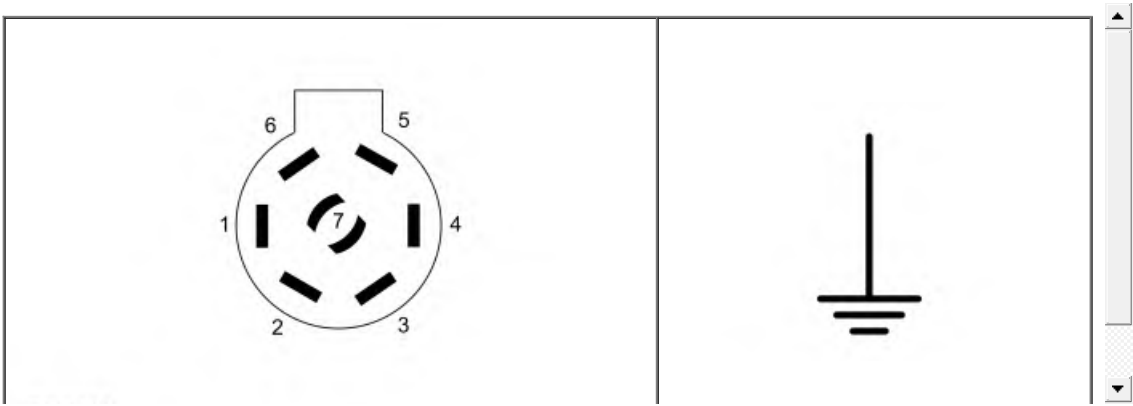
- Wiring, terminals or connectors
- Trailer tow connector
- Trailer concern

Visual Inspection and Pre-checks

- Inspect the trailer tow connector for signs of corrosion or damage. Repair or install a new trailer tow connector as required.

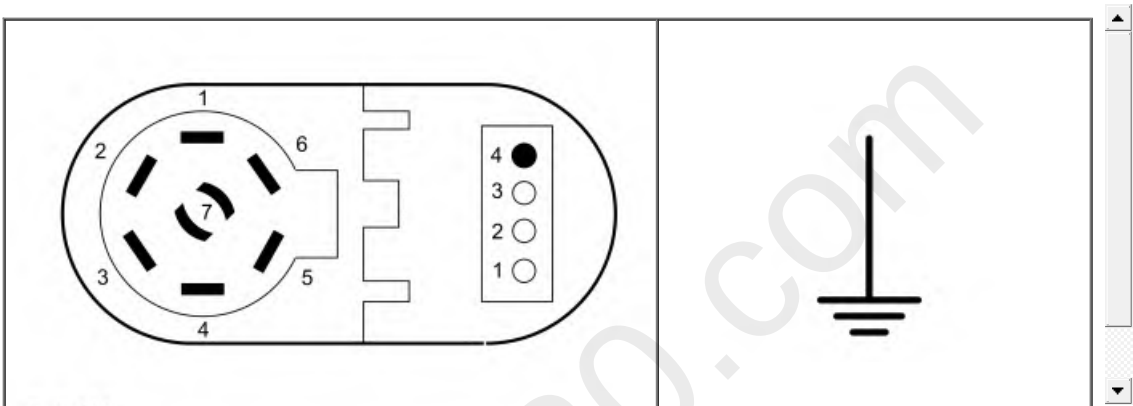
A1 CHECK THE TRAILER TOW GROUND CIRCUIT FOR CONTINUITY TO GROUND

- Ignition OFF.
- Disconnect Trailer.
- Disconnect Negative Battery Cable.
- For 7-pin 5th wheel connector, measure:



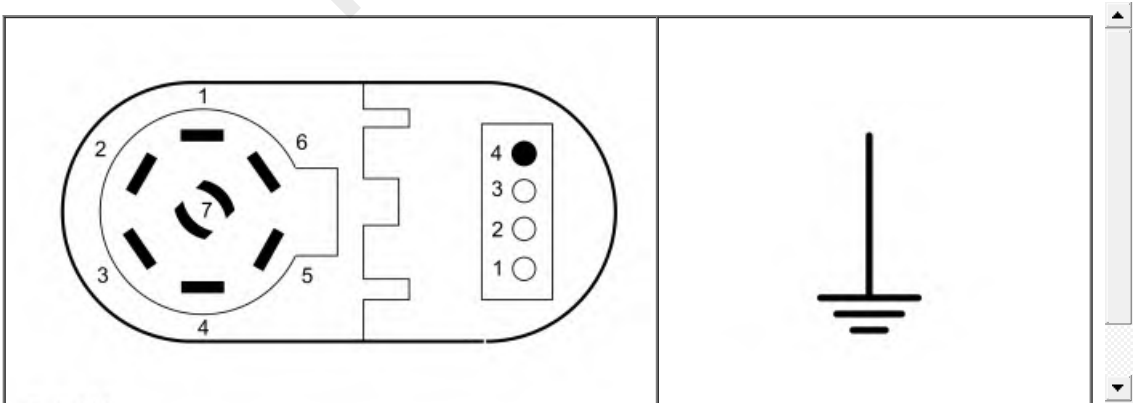
Positive Lead	Measurement / Action	Negative Lead
Pin 2	Ω	Ground

- For 4-pin and 7-pin trailer connector, measure:



For 4-Pin Connector

Positive Lead	Measurement / Action	Negative Lead
4-Pin Connector, Pin 4	Ω	Ground



For 7-Pin Connector

Positive Lead	Measurement / Action	Negative Lead
7-Pin Connector, Pin 2	Ω	Ground

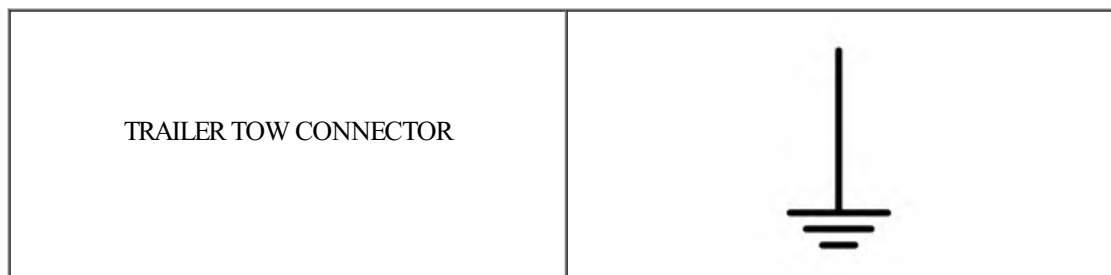
Is the resistance less than 3 ohms?

Yes	The vehicle is operating correctly. SEND the trailer to an authorized camper/trailer repair facility.
No	GO to A2

A2 CHECK THE TRAILER TOW GROUND CIRCUIT FOR AN OPEN

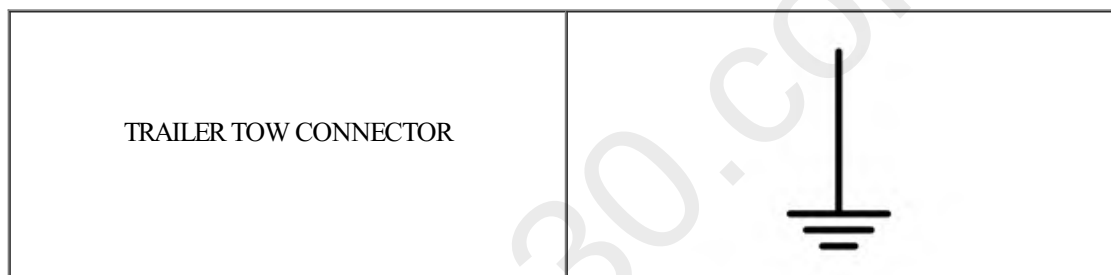
mcx30.com

- Disconnect Trailer Tow [C4099](#) (trailer connector).
- Disconnect Trailer Tow [C439](#) (5th wheel connector).
- For 7-pin 5th wheel connector, measure:



Positive Lead	Measurement / Action	Negative Lead
C439-2	Ω	Ground

- For 4-pin and 7-pin trailer connector, measure:



Positive Lead	Measurement / Action	Negative Lead
C4099-2	Ω	Ground

Is the resistance less than 3 ohms?

Yes	INSTALL a new trailer tow or 5th wheel connector. TEST the system for normal operation.
No	REPAIR the circuit.

PINPOINT TEST B : ONE OR MORE TRAILER STOP/TURN LAMPS ARE INOPERATIVE OR ALWAYS ON - VEHICLES NOT EQUIPPED WITH A TRM (TRAILER MODULE)

Refer to Wiring Diagrams Cell [95](#) for schematic and connector information.

Normal Operation and Fault Conditions

REFER to: Exterior Lighting - Overview (417-01 Exterior Lighting, Description and Operation).
REFER to: Exterior Lighting - System Operation and Component Description (417-01 Exterior Lighting, Description and Operation).

DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Condition
BCM B132B:12	Left Stop/Turn Lamp: Circuit Short To Battery	A continuous memory and on-demand DTC that sets when the BCM detects a short to voltage from the LH trailer stoplamp/turn signal output circuit.
BCM B132B:14	Left Stop/Turn Lamp: Circuit Short To Ground Or Open	A continuous memory and on-demand DTC that sets when the BCM detects an open or short to ground from the LH trailer stoplamp/turn signal output circuit.
BCM B132C:12	Right Stop/Turn Lamp: Circuit Short To Battery	A continuous memory and on-demand DTC that sets when the BCM detects a short to voltage from the RH trailer stoplamp/turn signal output circuit.
BCM B132C:14	Right Stop/Turn Lamp: Circuit Short To Ground Or Open	A continuous memory and on-demand DTC that sets when the BCM detects an open or short to ground from the RH trailer stoplamp/turn signal output circuit.

Possible Sources

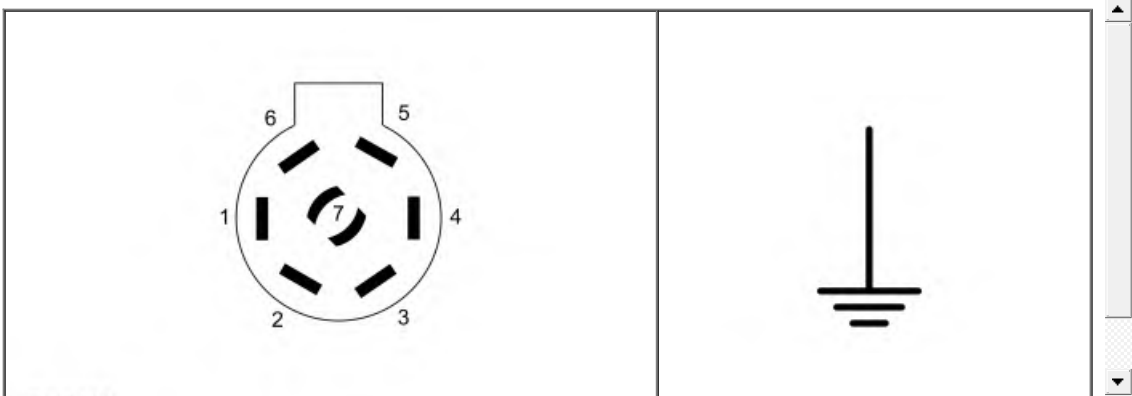
- Fuse
- Wiring, terminals or connectors
- Trailer concern
- Trailer tow connector
- BJB

Visual Inspection and Pre-checks

- Verify the BJB fuse 25 (30A) is OK.
- Inspect the trailer tow connector for signs of corrosion or damage. Repair or install a new trailer tow connector as required.

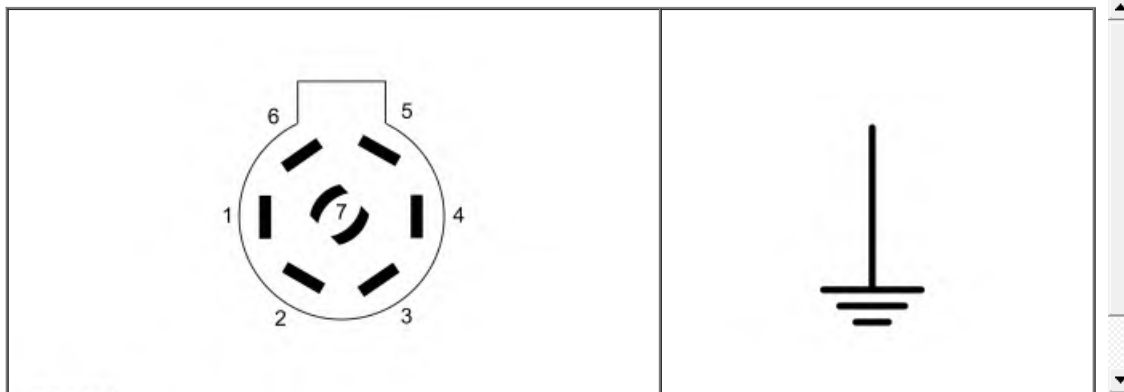
B1 CHECK FOR VOLTAGE THROUGH THE TRAILER TOW CONNECTOR

- Ignition OFF.
- Disconnect Trailer.
- Ignition ON.
- For 7-pin 5th wheel connector, while applying and releasing the brake pedal, measure:



LH Stop/Turn Lamp

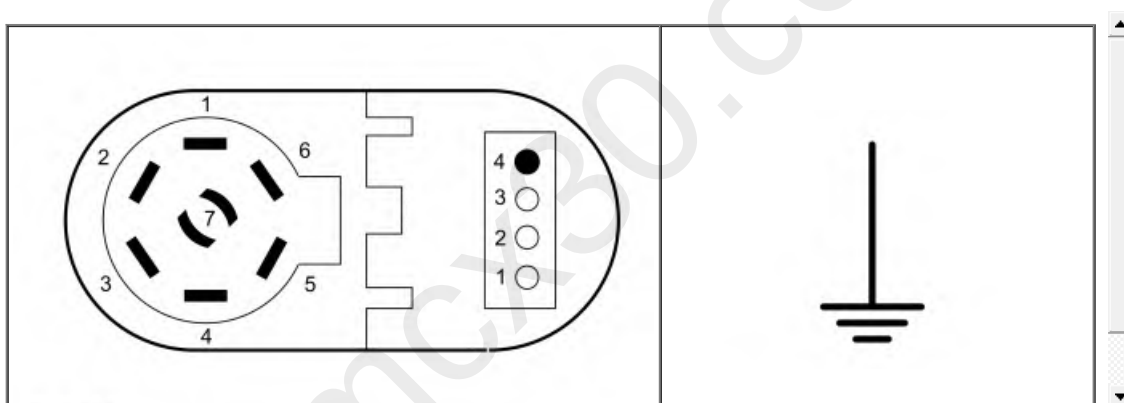
Positive Lead	Measurement / Action	Negative Lead
Pin 1		Ground



RH Stop/Turn Lamp

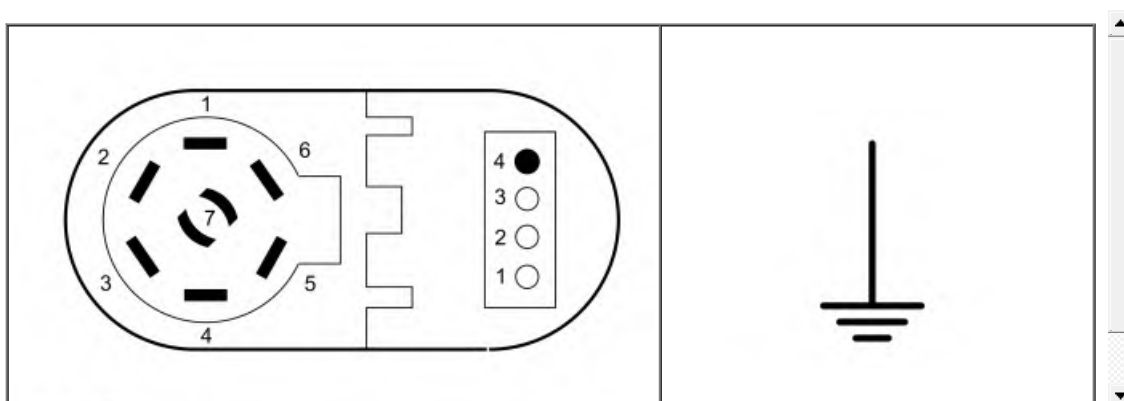
Positive Lead	Measurement / Action	Negative Lead
Pin 4		Ground

- If equipped with a 4-pin and 7-pin trailer connector, for 4-pin trailer connector, while applying and releasing the brake pedal, measure:



LH Stop/Turn Lamp

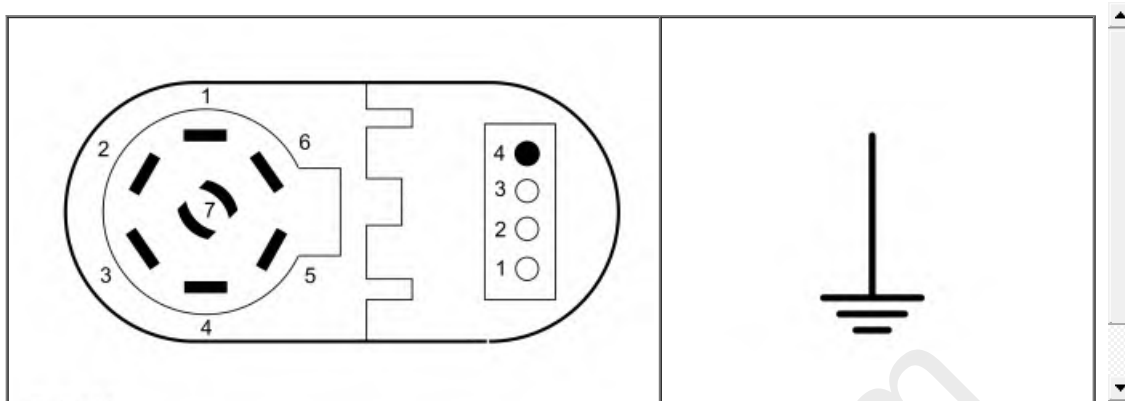
Positive Lead	Measurement / Action	Negative Lead
4-Pin Connector, Pin 2		Ground



RH Stop/Turn Lamp

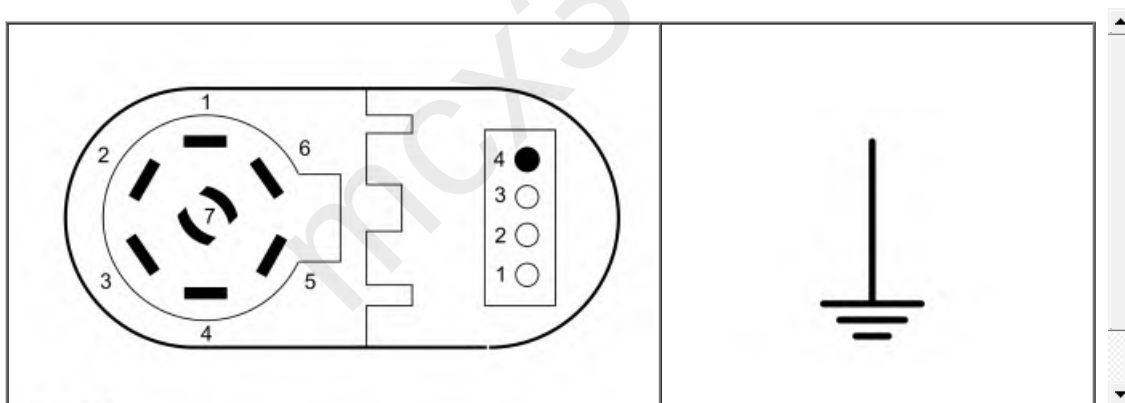
Positive Lead	Measurement / Action	Negative Lead
4-Pin Connector, Pin 1		Ground

- If equipped with a 4-pin and 7-pin trailer connector, for 7-pin trailer connector, while applying and releasing the brake pedal, measure:



LH Stop/Turn Lamp

Positive Lead	Measurement / Action	Negative Lead
7-Pin Connector, Pin 1		Ground



RH Stop/Turn Lamp

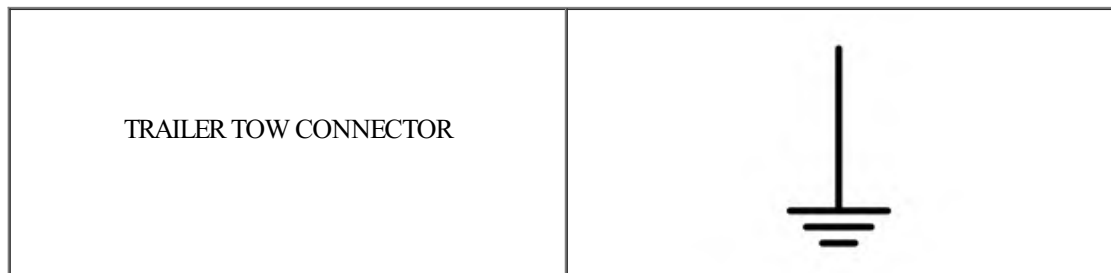
Positive Lead	Measurement / Action	Negative Lead
7-Pin Connector, Pin 4		Ground

Is the voltage greater than 11 volts when the brake pedal is pressed and 0 volts when the brake pedal is released?

Yes	The vehicle is operating correctly. SEND the trailer to an authorized camper/trailer repair facility.
No	GO to B2

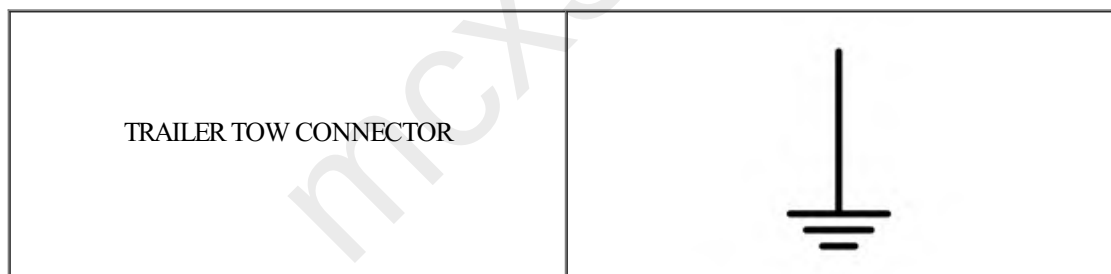
B2 CHECK FOR VOLTAGE TO THE TRAILER TOW CONNECTOR (VEHICLE HARNESS)

- Ignition OFF.
- Disconnect Trailer Tow [C4099](#) (trailer connector).
- Disconnect Trailer Tow [C439](#) (5th wheel connector).
- Ignition ON.
- For 7-pin 5th wheel connector, while applying and releasing the brake pedal, measure:



LH Stop/Turn Lamp

Positive Lead	Measurement / Action	Negative Lead
C439-1		Ground



RH Stop/Turn Lamp

Positive Lead	Measurement / Action	Negative Lead
C439-4		Ground

- If equipped with a 4-pin and 7-pin trailer connector, while applying and releasing the brake pedal, measure:

TRAILER TOW CONNECTOR	
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LH Stop/Turn Lamp

Positive Lead	Measurement / Action	Negative Lead
C4099-1		Ground

TRAILER TOW CONNECTOR	
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RH Stop/Turn Lamp

Positive Lead	Measurement / Action	Negative Lead
C4099-4		Ground

Is the voltage greater than 11 volts when the brake pedal is pressed and 0 volts when the brake pedal is released?

Yes	INSTALL a new trailer tow connector. TEST the system for normal operation.
No	If both stop/turn lamps are inoperative, VERIFY the BJB fuse 25 (30A) is OK. If not OK, REFER to the Wiring Diagrams manual to identify the possible causes of the circuit short.
B3 CHECK THE TRAILER TOW STOP/TURN LAMP RELAY ENERGIZE CIRCUIT FOR GROUND WITH BRAKE PEDAL APPLIED	If only one stop/turn lamp is inoperative, GO to B3
	If both stop/turn lamps are always on, INSTALL a new BJB.
	If only one stop/turn lamp is always on, GO to B7

- Ignition OFF.
- Disconnect BJB [C1035A](#) .
- Ignition ON.
- While applying the brake pedal, measure:

	BATTERY JUNCTION BOX (BJB)
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LH Stop/Turn Lamp

Positive Lead	Measurement / Action	Negative Lead
Battery Positive		C1035A-23

	BATTERY JUNCTION BOX (BJB)
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RH Stop/Turn Lamp

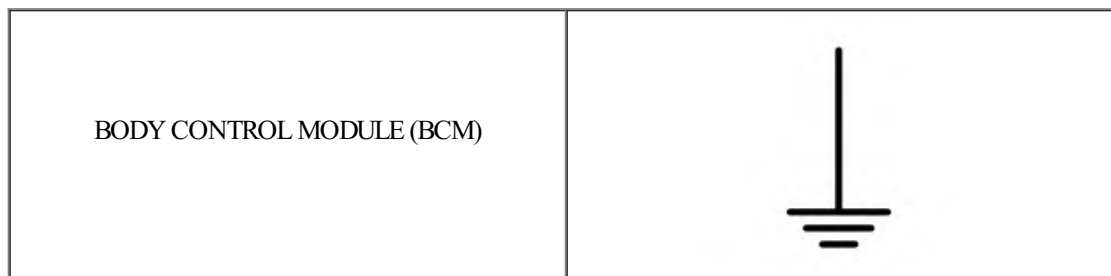
Positive Lead	Measurement / Action	Negative Lead
Battery Positive		C1035A-24

Is the voltage greater than 11 volts?

Yes	GO to B6
No	GO to B4

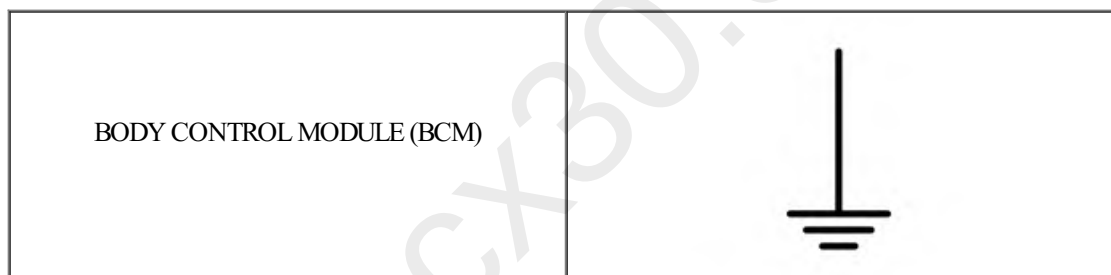
B4 CHECK THE TRAILER TOW STOP/TURN LAMPS RELAY ENERGIZE CIRCUIT FOR A SHORT TO VOLTAGE

- Ignition OFF.
- Disconnect BCM [C2280F](#) .
- Ignition ON.
- Measure:



LH Stop/Turn Lamp

Positive Lead	Measurement / Action	Negative Lead
C2280F-2		Ground



RH Stop/Turn Lamp

Positive Lead	Measurement / Action	Negative Lead
C2280F-13		Ground

Is any voltage present?

Yes	REPAIR the circuit.
No	GO to B5

B5 CHECK THE TRAILER TOW STOP/TURN LAMPS RELAY ENERGIZE CIRCUIT FOR AN OPEN

- Ignition OFF.
- Measure:

BODY CONTROL MODULE (BCM)	BATTERY JUNCTION BOX (BJB)
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LH Stop/Turn Lamp

Positive Lead	Measurement / Action	Negative Lead
C2280F-2	Ω	C1035A-23

BODY CONTROL MODULE (BCM)	BATTERY JUNCTION BOX (BJB)
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RH Stop/Turn Lamp

Positive Lead	Measurement / Action	Negative Lead
C2280F-13	Ω	C1035A-24

Is the resistance less than 3 ohms?

Yes	GO to B10
No	REPAIR the circuit.

B6 CHECK THE TRAILER TOW STOP/TURN LAMPS RELAY OUTPUT CIRCUIT FOR AN OPEN

- Disconnect BJB [C1035A](#) .
- For 7-pin 5th wheel connector, measure:

TRAILER TOW CONNECTOR	BATTERY JUNCTION BOX (BJB)
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LH Stop/Turn Lamp

Positive Lead	Measurement / Action	Negative Lead
C439-1	Ω	C1035A-18

TRAILER TOW CONNECTOR	BATTERY JUNCTION BOX (BJB)
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RH Stop/Turn Lamp

Positive Lead	Measurement / Action	Negative Lead
C439-4	Ω	C1035A-11

- If equipped with a 4-pin and 7-pin trailer connector, measure:

TRAILER TOW CONNECTOR	BATTERY JUNCTION BOX (BJB)
-----------------------	----------------------------

LH Stop/Turn Lamp

Positive Lead	Measurement / Action	Negative Lead

Positive Lead	Measurement / Action	Negative Lead
C4099-1	Ω	C1035A-18

TRAILER TOW CONNECTOR	BATTERY JUNCTION BOX (BJB)
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RH Stop/Turn Lamp

Positive Lead	Measurement / Action	Negative Lead
C4099-4	Ω	C1035A-11

Is the resistance less than 3 ohms?

Yes	INSTALL a new BJB.
No	CHECK THE TRAILER TOW STOP/TURN LAMP RELAY ENERGIZE CIRCUIT FOR GROUND WITH BRAKE PEDAL RELEASED the circuit.

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

	BATTERY JUNCTION BOX (BJB)
--	----------------------------

LH Stop/Turn Lamp

Positive Lead	Measurement / Action	Negative Lead
Battery Positive		C1035A-23

	BATTERY JUNCTION BOX (BJB)
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RH Stop/Turn Lamp

Positive Lead	Measurement / Action	Negative Lead
Battery Positive		C1035A-24

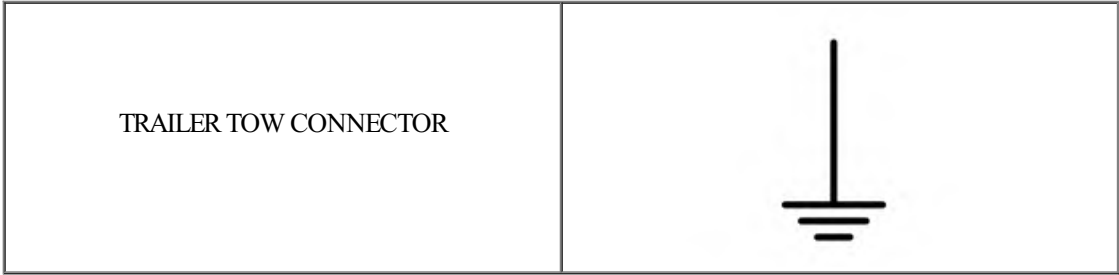
Is any voltage present?

Yes	GO to B8
No	GO to B9

B8 CHECK THE TRAILER TOW STOP/TURN LAMPS RELAY OUTPUT CIRCUIT FOR A SHORT TO GROUND

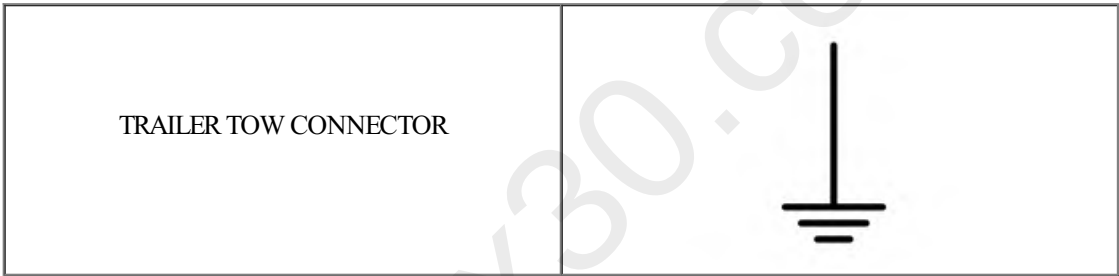
- Place the headlamp switch in the OFF position.
- Ignition OFF.

- Disconnect BCM [C2280F](#) .
- For 7-pin 5th wheel connector, measure:



LH Stop/Turn Lamp

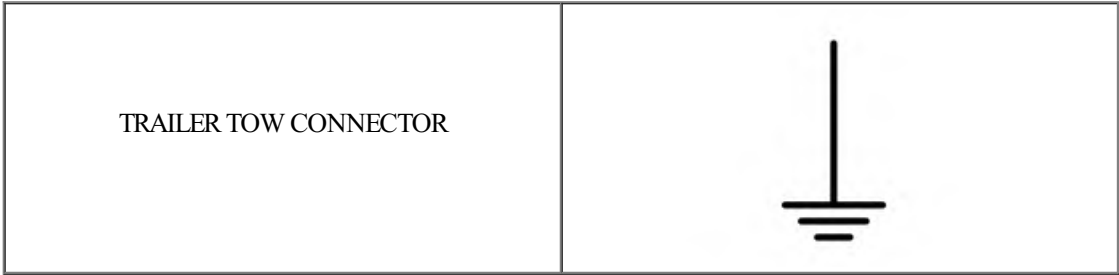
Positive Lead	Measurement / Action	Negative Lead
C439-1	Ω	Ground



RH Stop/Turn Lamp

Positive Lead	Measurement / Action	Negative Lead
C439-4	Ω	Ground

- If equipped with a 4-pin and 7-pin trailer connector, measure:



LH Stop/Turn Lamp

Positive Lead	Measurement / Action	Negative Lead
C4099-1	Ω	Ground

TRAILER TOW CONNECTOR	
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RH Stop/Turn Lamp

Positive Lead	Measurement / Action	Negative Lead
C4099-4	Ω	Ground

Is the resistance greater than 10,000 ohms?

Yes	GO to B10
No	REPAIR the circuit.

B9 CHECK THE TRAILER TOW STOP/TURN LAMPS RELAY OUTPUT CIRCUIT FOR A SHORT TO VOLTAGE

- For 7-pin 5th wheel connector, measure:

TRAILER TOW CONNECTOR	
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LH Stop/Turn Lamp

Positive Lead	Measurement / Action	Negative Lead
C439-1		Ground

TRAILER TOW CONNECTOR	
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RH Stop/Turn Lamp

Positive Lead	Measurement / Action	Negative Lead
C439-4		Ground

- If equipped with a 4-pin and 7-pin trailer connector, measure:

TRAILER TOW CONNECTOR	
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LH Stop/Turn Lamp

Positive Lead	Measurement / Action	Negative Lead
C4099-1		Ground

TRAILER TOW CONNECTOR	
-----------------------	--

RH Stop/Turn Lamp

Positive Lead	Measurement / Action	Negative Lead
C4099-4		Ground

Is any voltage present?

Yes	REPAIR the circuit.
No	INSTALL a new BJB.

B10 CHECK FOR CORRECT BCM (BODY CONTROL MODULE) OPERATION

- Disconnect and inspect all BCM connectors.
- Repair:
 - corrosion (install new connector or terminals â€ clean module pins)
 - damaged or bent pins â€ install new terminals/pins
 - pushed-out pins â€ install new pins as necessary
- Reconnect the BCM connectors. Make sure they seat and latch correctly.
- Operate the system and determine if the concern is still present.

Is the concern still present?

Yes	CHECK OASIS for any applicable service articles: TSB, GSB, SSM or FSA. If a service article exists for this concern, DISCONTINUE this test and FOLLOW the service article instructions. If no service articles address this concern, INSTALL a new BCM. REFER to: Body Control Module (BCM) (419-10 Multifunction Electronic Modules, Removal and Installation).
No	The system is operating correctly at this time. The concern may have been caused by module connections. ADDRESS the root cause of any connector or pin issues.

☐ [PINPOINT TEST C : ONE OR MORE TRAILER STOP/TURN LAMPS ARE INOPERATIVE OR ALWAYS ON - VEHICLES EQUIPPED WITH A TRM \(TRAILER MODULE\)](#)

Refer to Wiring Diagrams Cell [95](#) for schematic and connector information.

Normal Operation and Fault Conditions

REFER to: Exterior Lighting - Overview (417-01 Exterior Lighting, Description and Operation).

REFER to: Exterior Lighting - System Operation and Component Description (417-01 Exterior Lighting, Description and Operation).

DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Condition
TRM B1D08:11	Left Trailer Direction Indicator: Circuit Short To Ground	A continuous memory and on-demand DTC that sets when the TRM detects a short to ground from the LH trailer stoplamp/turn signal output circuit.
TRM B1D08:12	Left Trailer Direction Indicator: Circuit Short To Battery	A continuous memory and on-demand DTC that sets when the TRM detects a short to voltage from the LH trailer stoplamp/turn signal output circuit.
TRM B1D09:11	Right Trailer Direction Indicator: Circuit Short To Ground	A continuous memory and on-demand DTC that sets when the TRM detects a short to ground from the RH trailer stoplamp/turn signal output circuit.
TRM B1D09:12	Right Trailer Direction Indicator: Circuit Short To Battery	A continuous memory and on-demand DTC that sets when the TRM detects a short to voltage from the RH trailer stoplamp/turn signal output circuit.

Possible Sources

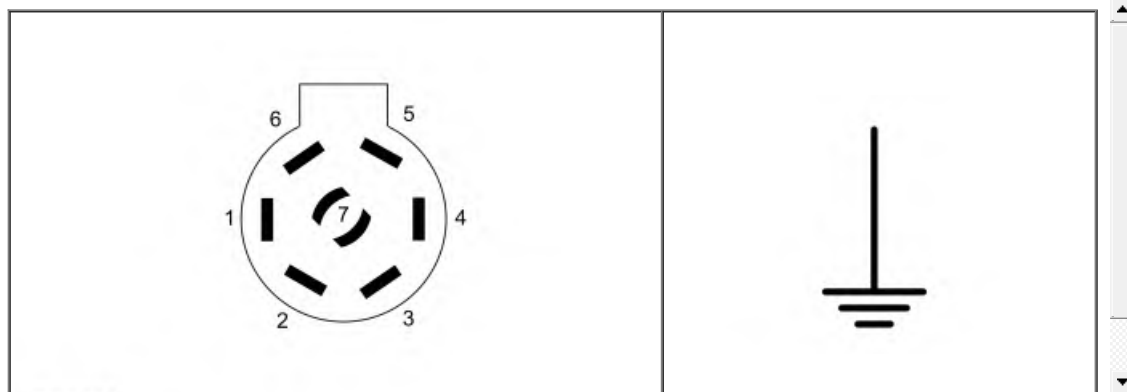
- Fuse
- Wiring, terminals or connectors
- Trailer concern
- Trailer tow connector
- TRM

Visual Inspection and Pre-checks

- Verify the BJB fuse 42 (40A) is OK.
- Inspect the trailer tow connector for signs of corrosion or damage. Repair or install a new trailer tow connector as required.

C1 CHECK FOR VOLTAGE THROUGH THE TRAILER TOW CONNECTOR

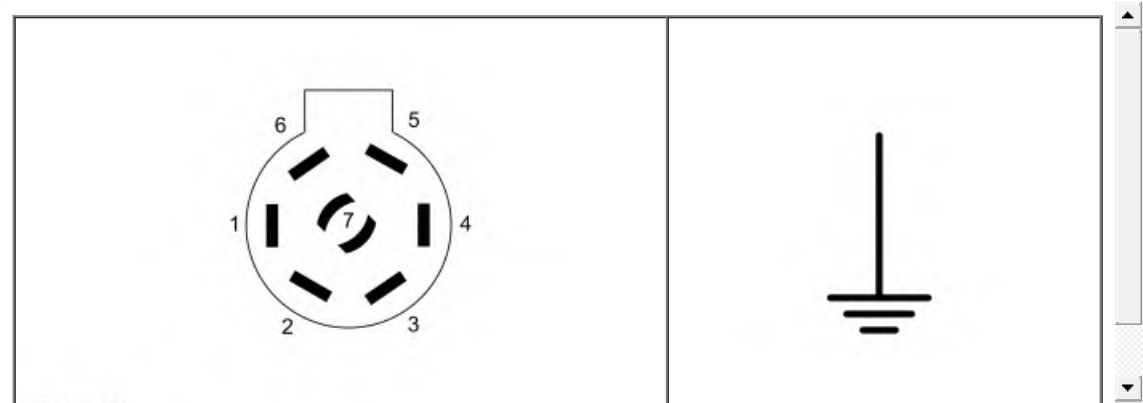
- Ignition OFF.
- Disconnect Trailer.
- Ignition ON.
- Ignition ON.
- For 7-pin 5th wheel connector, while applying and releasing the brake pedal, measure:



LH Stop/Turn Lamp

Positive Lead	Measurement / Action	Negative Lead

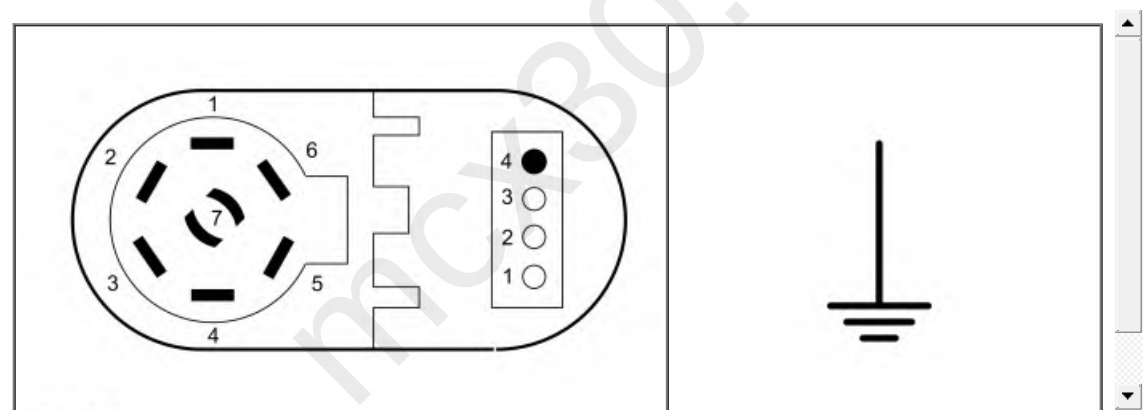
Positive Lead	Measurement / Action	Negative Lead
Pin 1		Ground



RH Stop/Turn Lamp

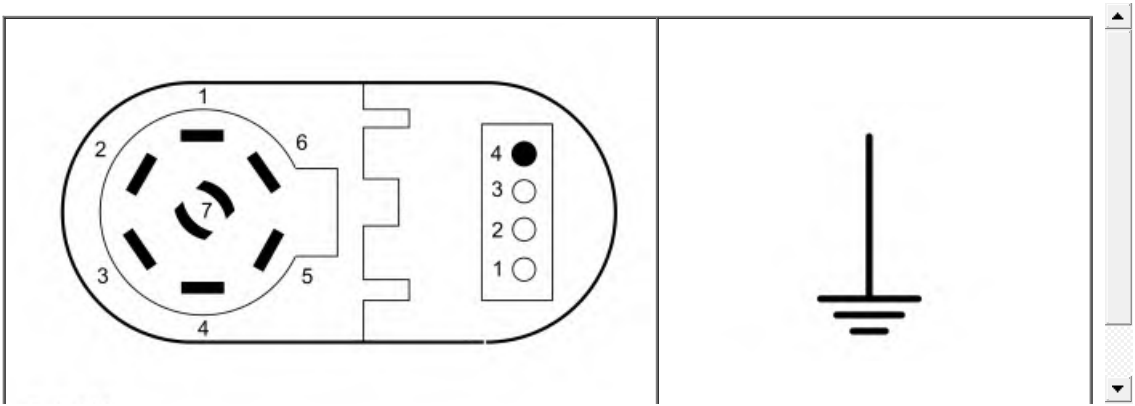
Positive Lead	Measurement / Action	Negative Lead
Pin 4		Ground

- If equipped with a 4-pin and 7-pin trailer connector, for 4-pin trailer connector, while applying and releasing the brake pedal, measure:



LH Stop/Turn Lamp

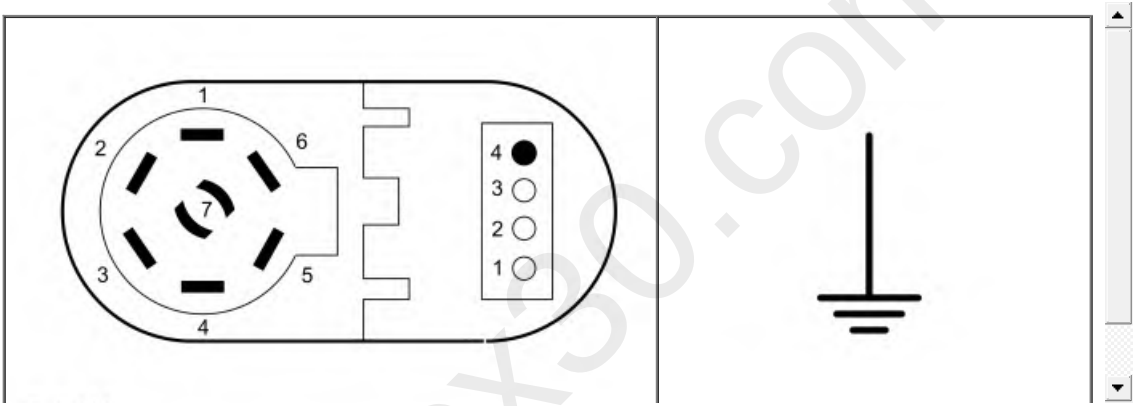
Positive Lead	Measurement / Action	Negative Lead
4-Pin Connector, Pin 2		Ground



RH Stop/Turn Lamp

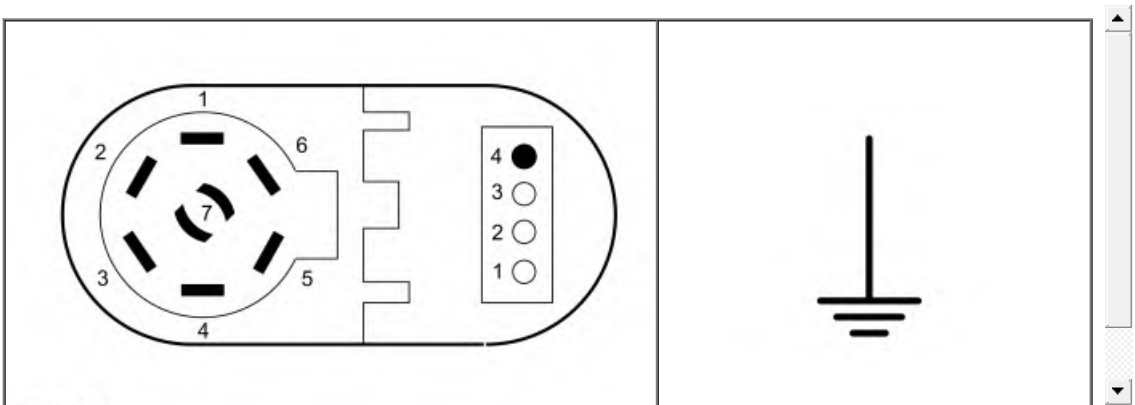
Positive Lead	Measurement / Action	Negative Lead
4-Pin Connector, Pin 1		Ground

- If equipped with a 4-pin and 7-pin trailer connector, for 7-pin trailer connector, while applying and releasing the brake pedal, measure:



LH Stop/Turn Lamp

Positive Lead	Measurement / Action	Negative Lead
7-Pin Connector, Pin 1		Ground



RH Stop/Turn Lamp

Positive Lead	Measurement / Action	Negative Lead
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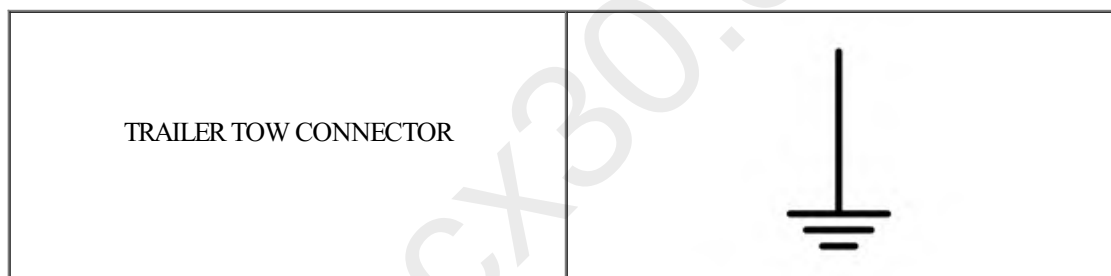
Positive Lead	Measurement / Action	Negative Lead
7-Pin Connector, Pin 4		Ground

Is the voltage greater than 11 volts when the brake pedal is pressed and 0 volts when the brake pedal is released?

Yes	The vehicle is operating correctly. SEND the trailer to an authorized camper/trailer repair facility.
No	GO to C2

C2 CHECK FOR VOLTAGE TO THE TRAILER TOW CONNECTOR (VEHICLE HARNESS)

- Ignition OFF.
- Disconnect Trailer Tow [C4099](#) (trailer connector).
- Disconnect Trailer Tow [C439](#) (5th wheel connector).
- Ignition ON.
- For 7-pin 5th wheel connector, while applying and releasing the brake pedal, measure:



LH Stop/Turn Lamp

Positive Lead	Measurement / Action	Negative Lead
C439-1		Ground

TRAILER TOW CONNECTOR	
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RH Stop/Turn Lamp

Positive Lead	Measurement / Action	Negative Lead
C439-4		Ground

- If equipped with a 4-pin and 7-pin trailer connector, while applying and releasing the brake pedal, measure:

TRAILER TOW CONNECTOR	
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LH Stop/Turn Lamp

Positive Lead	Measurement / Action	Negative Lead
C4099-1		Ground

TRAILER TOW CONNECTOR	
-----------------------	--

RH Stop/Turn Lamp

Positive Lead	Measurement / Action	Negative Lead

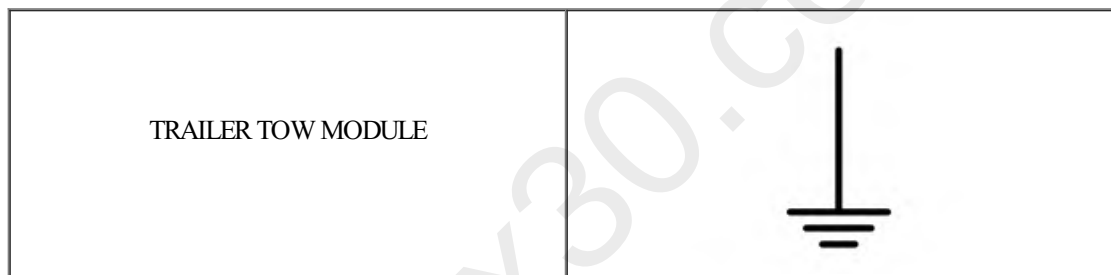
Positive Lead	Measurement / Action	Negative Lead
C4099-4		Ground

Is the voltage greater than 11 volts when the brake pedal is pressed and 0 volts when the brake pedal is released?

Yes	INSTALL a new trailer tow connector. TEST the system for normal operation.
No	If both stop/turn lamps are inoperative, GO to C3 If only one stop/turn lamp is inoperative, GO to C5 If both stop/turn lamps are always on, GO to C8 If only one stop/turn lamp is always on, GO to C7

C3 CHECK FOR VOLTAGE TO THE TRM (TRAILER MODULE)

- Ignition OFF.
- Disconnect TRM [C2496A](#) .
- Ignition ON.
- Ignition ON.
- Measure:



Positive Lead	Measurement / Action	Negative Lead
C2496A-2		Ground

Is the voltage greater than 11 volts?

Yes	GO to C4
No	VERIFY the BJB fuse 42 (40A) is OK. If OK, REPAIR the circuit. If not OK, REFER to the Wiring Diagrams manual to identify the possible causes of the circuit short.

C4 CHECK THE TRM (TRAILER MODULE) GROUND CIRCUIT

- Ignition OFF.
- Disconnect TRM [C2496B](#) .
- Ignition ON.
- Measure:

TRAILER TOW MODULE	TRAILER TOW MODULE
--------------------	--------------------

Positive Lead	Measurement / Action	Negative Lead
C2496A-2		C2496B-1

Is the voltage greater than 11 volts?

Yes	GO to C8
No	REPAIR the circuit.

C5 CHECK TRAILER STOP/TURN LAMP CIRCUITS FOR AN OPEN

- Ignition OFF.
- Disconnect TRM [C2498C](#) .
- Ignition ON.
- For 7-pin 5th wheel connector, measure:

TRAILER TOW CONNECTOR	
-----------------------	--

LH Stop/Turn Lamp

Positive Lead	Measurement / Action	Negative Lead
C439-1	Ω	C2498C-1

TRAILER TOW CONNECTOR	
-----------------------	--

RH Stop/Turn Lamp

Positive Lead	Measurement / Action	Negative Lead
C439-4	Ω	C2498C-8

- If equipped with a 4-pin and 7-pin trailer connector, measure:

TRAILER TOW CONNECTOR	
-----------------------	--

LH Stop/Turn Lamp

Positive Lead	Measurement / Action	Negative Lead
C4099-1	Ω	C2498C-1

TRAILER TOW CONNECTOR	
-----------------------	--

RH Stop/Turn Lamp

Positive Lead	Measurement / Action	Negative Lead
C4099-4	Ω	C2498C-8

Is the resistance less than 3 ohms?

Yes	GO to C6
No	REPAIR the circuit.

C6 CHECK TRAILER STOP/TURN LAMP CIRCUITS FOR A SHORT TO GROUND

- For 7-pin 5th wheel connector, measure:

TRAILER TOW CONNECTOR	
-----------------------	--

LH Stop/Turn Lamp

Positive Lead	Measurement / Action	Negative Lead
C439-1	Ω	Ground

TRAILER TOW CONNECTOR	
-----------------------	--

RH Stop/Turn Lamp

Positive Lead	Measurement / Action	Negative Lead
C439-4	Ω	Ground

- If equipped with a 4-pin and 7-pin trailer connector, measure:

TRAILER TOW CONNECTOR	
-----------------------	--

LH Stop/Turn Lamp

Positive Lead	Measurement / Action	Negative Lead
C4099-1	Ω	Ground

TRAILER TOW CONNECTOR	
-----------------------	---

RH Stop/Turn Lamp

Positive Lead	Measurement / Action	Negative Lead
C4099-4	Ω	Ground

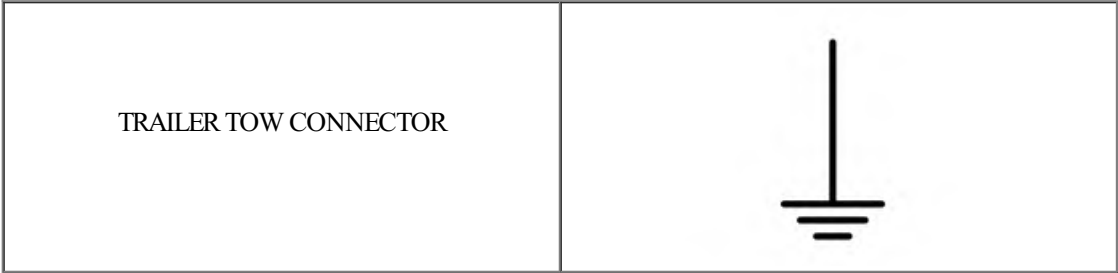
Is the resistance greater than 10,000 ohms?

Yes	GO to C8
No	REPAIR the circuit.

C7 CHECK TRAILER STOP/TURN LAMP CIRCUITS FOR A SHORT TO VOLTAGE

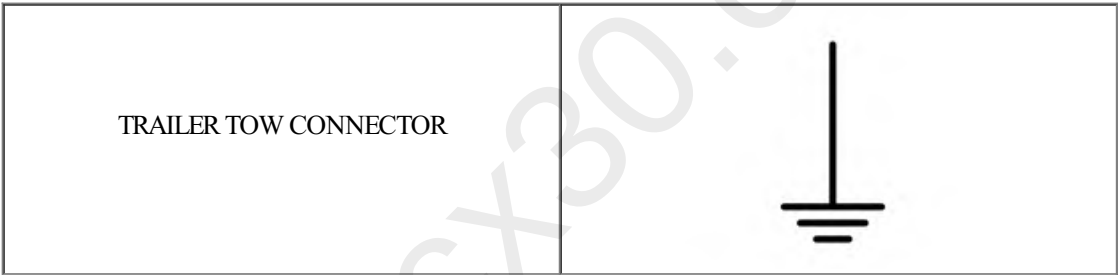
- Ignition OFF.

- Disconnect TRM [C2498C](#) .
- Ignition ON.
- For 7-pin 5th wheel connector, measure:



LH Stop/Turn Lamp

Positive Lead	Measurement / Action	Negative Lead
C439-1		Ground



RH Stop/Turn Lamp

Positive Lead	Measurement / Action	Negative Lead
C439-4		Ground

- If equipped with a 4-pin and 7-pin trailer connector, measure:

TRAILER TOW CONNECTOR	
-----------------------	--

LH Stop/Turn Lamp

Positive Lead	Measurement / Action	Negative Lead
C4099-1		Ground

TRAILER TOW CONNECTOR	
-----------------------	---

RH Stop/Turn Lamp

Positive Lead	Measurement / Action	Negative Lead
C4099-4		Ground

C8 CHECK FOR CORRECT TRM (TRAILER MODULE) OPERATION

Is ant voltage present?

Yes	REPAIR the circuit.
No	GO to C8

- Disconnect and inspect all TRM connectors.
- Repair:
 - corrosion (install new connector or terminals â€ clean module pins)
 - damaged or bent pins â€ install new terminals/pins
 - pushed-out pins â€ install new pins as necessary
- Reconnect the TRM connectors. Make sure they seat and latch correctly.
- Operate the system and determine if the concern is still present.

Is the concern still present?

Yes	CHECK OASIS for any applicable service articles: TSB, GSB, SSM or FSA. If a service article exists for this concern, DISCONTINUE this test and FOLLOW the service article instructions. If no service articles address this concern, INSTALL a new TRM. REFER to: Trailer Module (TRM) (417-01 Exterior Lighting, Removal and Installation).
No	The system is operating correctly at this time. The concern may have been caused by module connections. ADDRESS the root cause of any connector or pin issues.

PINPOINT TEST D : THE TRAILER PARKING LAMPS ARE INOPERATIVE OR ALWAYS ON

Refer to Wiring Diagrams Cell [95](#) for schematic and connector information.

Normal Operation and Fault Conditions

REFER to: Exterior Lighting - Overview (417-01 Exterior Lighting, Description and Operation).

REFER to: Exterior Lighting - System Operation and Component Description (417-01 Exterior Lighting, Description and Operation).

DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Condition
BCM B1449:12	Trailer Tow Park/Tail Lamp Output: Circuit Short To Battery	A continuous memory and on-demand DTC that sets when the BCM detects a short to voltage from the trailer parking lamps relay enable circuit.
BCM B1449:14	Trailer Tow Park/Tail Lamp Output: Circuit Short To Ground Or Open	A continuous memory and on-demand DTC that sets when the BCM detects an open short to ground from the trailer parking lamps relay enable circuit.

Possible Sources

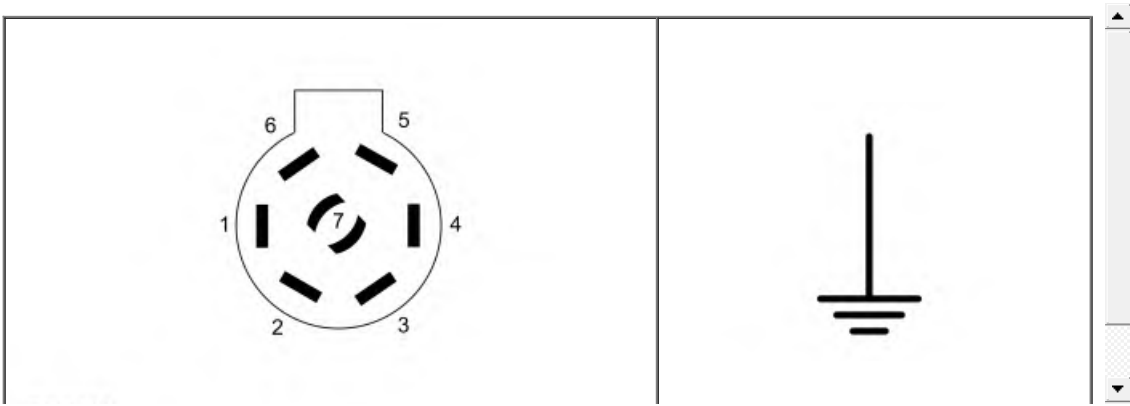
- Fuse
- Wiring, terminals or connectors
- Trailer tow connector
- BJB
- Trailer concern

Visual Inspection and Pre-checks

- Verify the BJB fuse 60 (30A) is OK.
- Inspect the trailer tow connector for signs of corrosion or damage. Repair or install a new trailer tow connector as required.

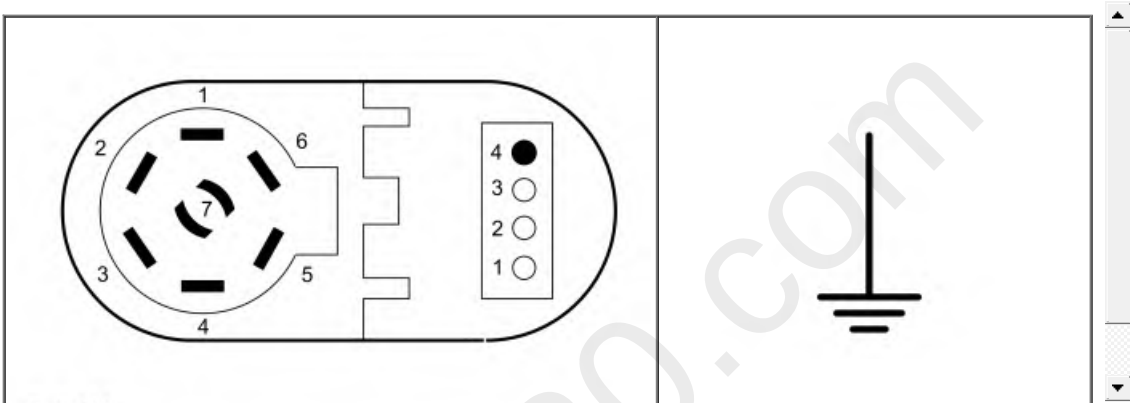
D1 CHECK FOR VOLTAGE THROUGH THE TRAILER TOW CONNECTOR

- Ignition OFF.
- Disconnect Trailer.
- Ignition ON.
- Place the headlamp switch in the PARKING LAMPS position.
- For 7-pin 5th wheel connector, measure:



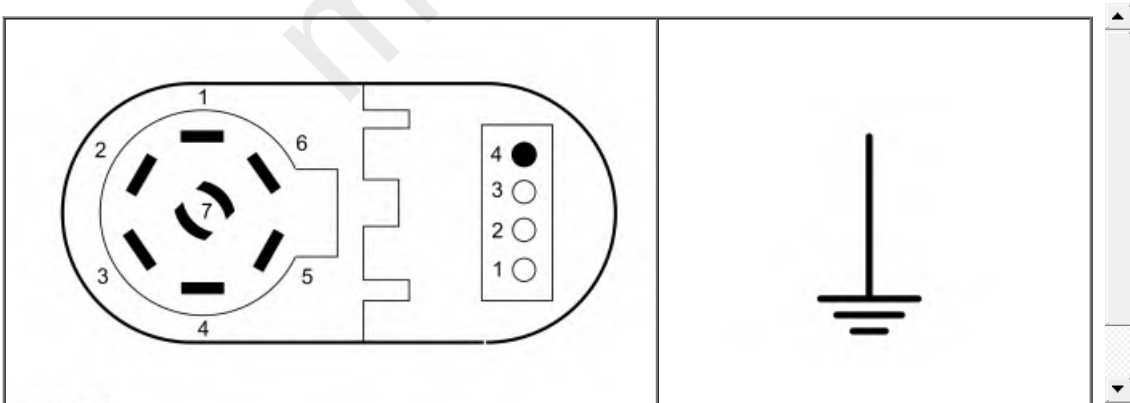
Positive Lead	Measurement / Action	Negative Lead
Pin 6		Ground

- If equipped with a 4-pin and 7-pin trailer connector, for 4-pin trailer connector, measure:



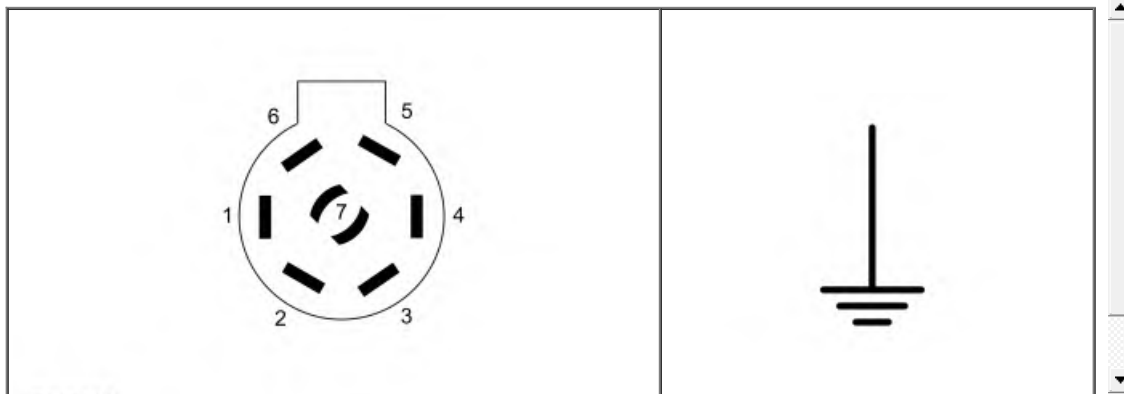
Positive Lead	Measurement / Action	Negative Lead
4-Pin Connector, Pin 3		Ground

- If equipped with a 4-pin and 7-pin trailer connector, for 7-pin trailer connector, measure:



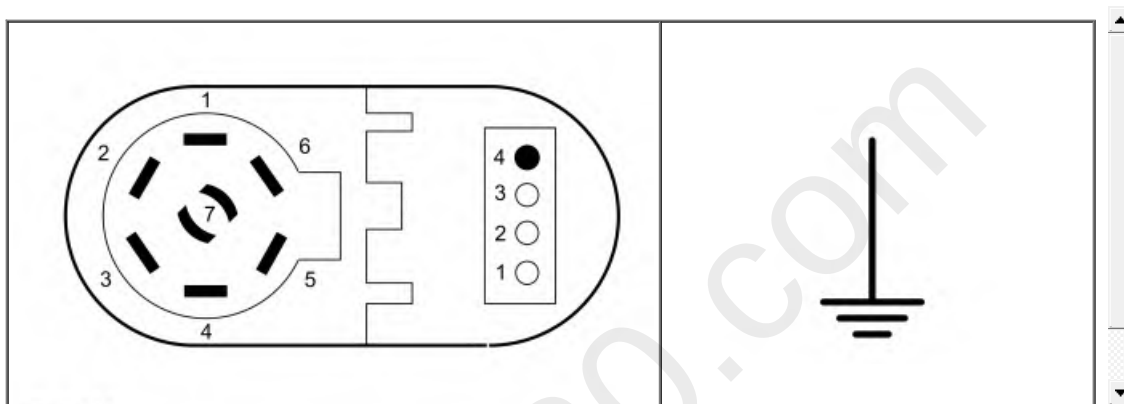
Positive Lead	Measurement / Action	Negative Lead
7-Pin Connector, Pin 6		Ground

- Place the headlamp switch in the OFF position.
- For 7-pin 5th wheel connector, measure:



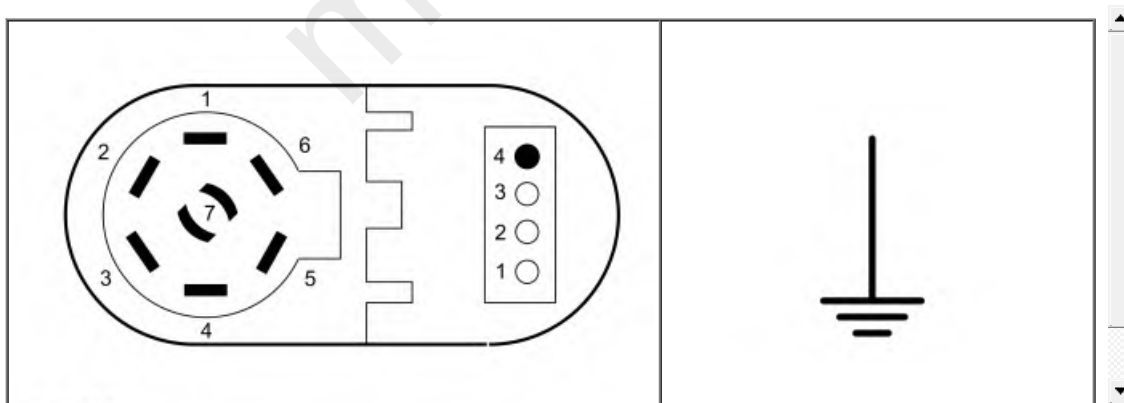
Positive Lead	Measurement / Action	Negative Lead
Pin 6	  	Ground

- If equipped with a 4-pin and 7-pin trailer connector, for 4-pin trailer connector, measure:



Positive Lead	Measurement / Action	Negative Lead
4-Pin Connector, Pin 3	  	Ground

- If equipped with a 4-pin and 7-pin trailer connector, for 7-pin trailer connector, measure:



Positive Lead	Measurement / Action	Negative Lead
7-Pin Connector, Pin 6	  	Ground

Is the voltage greater than 11 volts when the headlamps switch in the PARKING LAMPS position and 0 volts when the headlamps switch in the OFF position?

Yes	The vehicle is operating correctly. SEND the trailer to an authorized camper/trailer repair facility.
-----	---

No	If the trailer parking lamps are inoperative, GO to D2 If the trailer parking lamps are always on, GO to D7
----	--

D2 CHECK FOR VOLTAGE TO THE TRAILER TOW CONNECTOR (VEHICLE HARNESS)

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- Place the headlamp switch in the OFF position.
- Ignition OFF.
- Disconnect Trailer Tow [C4099](#) (trailer connector).
- Disconnect Trailer Tow [C439](#) (5th wheel connector).
- Ignition ON.
- Place the headlamp switch in the PARKING LAMPS position.
- For 7-pin 5th wheel connector, measure:

TRAILER TOW CONNECTOR	
-----------------------	--

Positive Lead	Measurement / Action	Negative Lead
C439-6		Ground

- If equipped with a 4-pin and 7-pin trailer connector, measure:

TRAILER TOW CONNECTOR	
-----------------------	--

Positive Lead	Measurement / Action	Negative Lead
C4099-6		Ground

Is the voltage greater than 11 volts?

Yes	INSTALL a new trailer tow connector. TEST the system for normal operation.
No	VERIFY the BJB fuse 60 (30A) is OK. If OK, GO to D3 If not OK, REFER to the Wiring Diagrams manual to identify the possible causes of the circuit short.

D3 CHECK THE TRAILER TOW PARKING LAMPS RELAY CONTROLLED GROUND CIRCUIT FOR GROUND WITH PARKING LAMPS ON

- Place the headlamp switch in the OFF position.
- Ignition OFF.
- Disconnect BJB [C1035B](#).
- Ignition ON.
- Place the headlamp switch in the PARKING LAMPS position.
- Measure:

	BATTERY JUNCTION BOX (BJB)
--	----------------------------

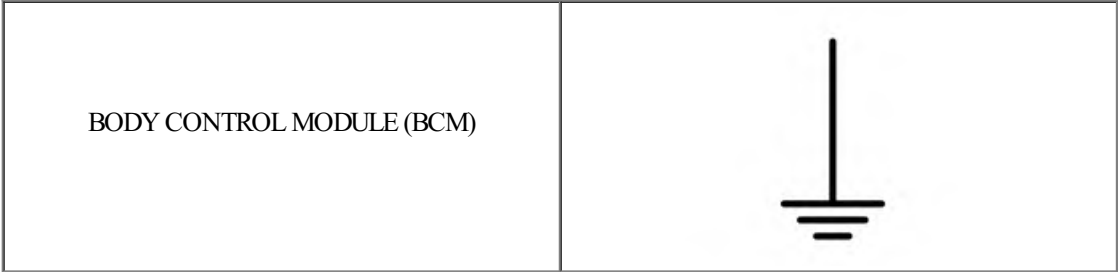
Positive Lead	Measurement / Action	Negative Lead
Battery Positive		C1035B-22

Is the voltage greater than 11 volts?

Yes	GO to D6
No	GO to D4

D4 CHECK THE TRAILER TOW PARKING LAMPS RELAY CONTROLLED GROUND CIRCUIT FOR A SHORT TO VOLTAGE

- Place the headlamp switch in the OFF position.
- Ignition OFF.
- Disconnect BCM [C2280F](#) .
- Ignition ON.
- Measure:



Positive Lead	Measurement / Action	Negative Lead
C2280F-12		Ground

Is any voltage present?

Yes	REPAIR the circuit.
No	GO to D5

D5 CHECK THE TRAILER TOW PARKING LAMPS RELAY CONTROLLED GROUND CIRCUIT FOR AN OPEN

- Ignition OFF.
- Measure:

BODY CONTROL MODULE (BCM)	BATTERY JUNCTION BOX (BJB)
---------------------------	----------------------------

Positive Lead	Measurement / Action	Negative Lead
C2280F-12	Ω	C1035B-22

Is the resistance less than 3 ohms?

Yes	GO to D10
No	REPAIR the circuit.

D6 CHECK THE TRAILER TOW PARKING LAMPS RELAY OUTPUT CIRCUIT FOR AN OPEN

- Ignition OFF.
- For 7-pin 5th wheel connector, measure:

TRAILER TOW CONNECTOR	BATTERY JUNCTION BOX (BJB)
-----------------------	----------------------------

Positive Lead	Measurement / Action	Negative Lead
C439-6	Ω	C1035B-13

- If equipped with a 4-pin and 7-pin trailer connector, measure:

TRAILER TOW CONNECTOR	BATTERY JUNCTION BOX (BJB)
-----------------------	----------------------------

Positive Lead	Measurement / Action	Negative Lead
C4099-6	Ω	C1035B-13

Is the resistance less than 3 ohms?

Yes	INSTALL a new BJB.
No	REPAIR the circuit.

D7 CHECK THE TRAILER TOW PARKING LAMPS RELAY CONTROLLED GROUND CIRCUIT FOR GROUND WITH PARKING LAMPS OFF

- Place the headlamp switch in the OFF position.
- Ignition OFF.
- Disconnect BJB [C1035B](#) .
- Ignition ON.
- Measure:

	BATTERY JUNCTION BOX (BJB)
--	----------------------------

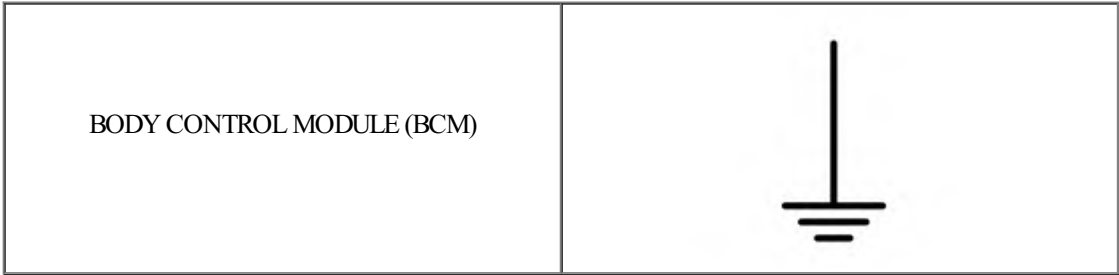
Positive Lead	Measurement / Action	Negative Lead
Battery Positive		C1035B-22

Is any voltage present?

Yes	GO to D8
No	GO to D9

D8 CHECK THE TRAILER TOW PARKING LAMPS RELAY CONTROLLED GROUND CIRCUIT FOR A SHORT TO GROUND

- Ignition OFF.
- Disconnect BCM [C2280F](#) .
- Measure:



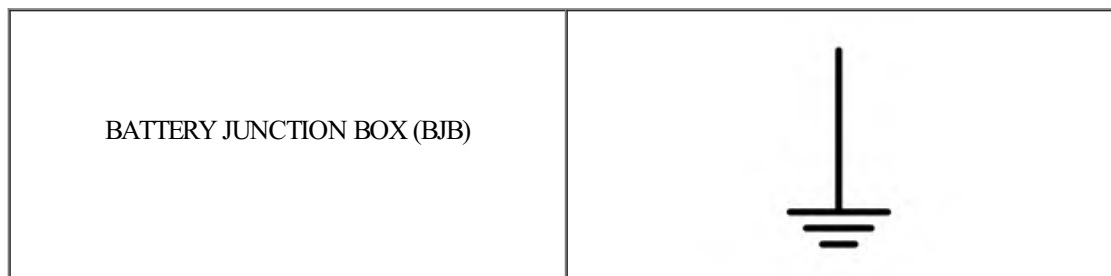
Positive Lead	Measurement / Action	Negative Lead
C2280F-12	Ω	Ground

Is the resistance greater than 10,000 ohms?

Yes	GO to D10
No	REPAIR the circuit.

D9 CHECK THE TRAILER TOW PARKING LAMPS RELAY OUTPUT CIRCUIT FOR A SHORT TO VOLTAGE

- Ignition OFF.
- Disconnect If equipped, TRM [C2498C](#) .
- Ignition ON.
- Measure:



Positive Lead	Measurement / Action	Negative Lead
C1035A-12		Ground

Is any voltage present?

Yes	REPAIR the circuit.
No	INSTALL a new BJB.

D10 CHECK FOR CORRECT BCM (BODY CONTROL MODULE) OPERATION

- Disconnect and inspect all BCM connectors.
- Repair:
 - corrosion (install new connector or terminals “clean module pins)
 - damaged or bent pins “install new terminals/pins
 - pushed-out pins “install new pins as necessary
- Reconnect the BCM connectors. Make sure they seat and latch correctly.
- Operate the system and determine if the concern is still present.

Is the concern still present?

Yes	CHECK OASIS for any applicable service articles: TSB, GSB, SSM or FSA. If a service article exists for this concern, DISCONTINUE this test and FOLLOW the service article instructions. If no service articles address this concern, INSTALL a new BCM. REFER to: Body Control Module (BCM) (419-10 Multifunction Electronic Modules, Removal and Installation).
No	The system is operating correctly at this time. The concern may have been caused by module connections. ADDRESS the root cause of any connector or pin issues.

PINPOINT TEST E : THE TRAILER REVERSING LAMPS ARE INOPERATIVE OR ALWAYS ON

Refer to Wiring Diagrams Cell [95](#) for schematic and connector information.

Normal Operation and Fault Conditions

REFER to: Exterior Lighting - Overview (417-01 Exterior Lighting, Description and Operation).
REFER to: Exterior Lighting - System Operation and Component Description (417-01 Exterior Lighting, Description and Operation).

Possible Sources

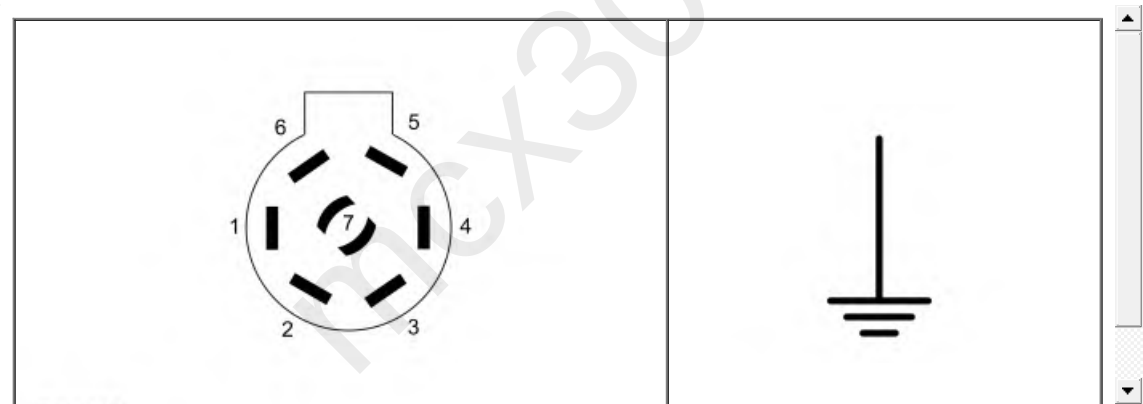
- Fuse(s)
- Wiring, terminals or connectors
- Trailer tow connector
- BJB
- Trailer concern

Visual Inspection and Pre-checks

- Verify the BJB fuse 63 (10A) is OK.
- Inspect the trailer tow connector for signs of corrosion or damage. Repair or install a new trailer tow connector as required.

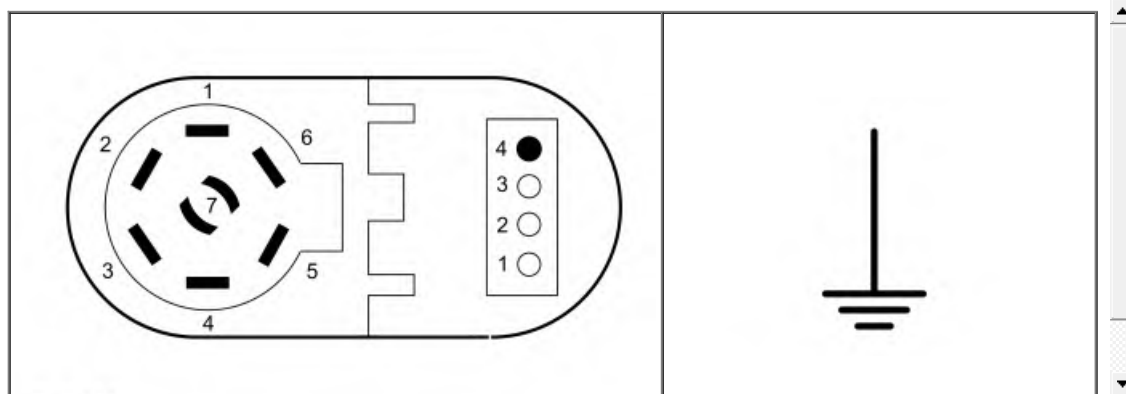
E1 CHECK FOR VOLTAGE THROUGH THE TRAILER TOW CONNECTOR

- Ignition OFF.
- Disconnect Trailer.
- Ignition ON.
- Apply the parking brake.
- Place the gear selector lever in REVERSE.
- For 7-pin 5th wheel connector, measure:



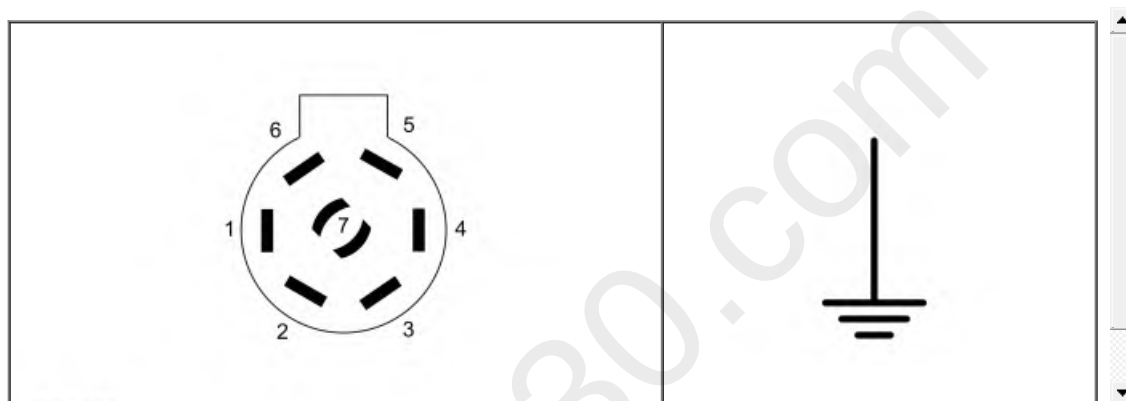
Positive Lead	Measurement / Action	Negative Lead
Pin 7		Ground

- If equipped with a 4-pin and 7-pin trailer connector, for 7-pin trailer connector, measure:



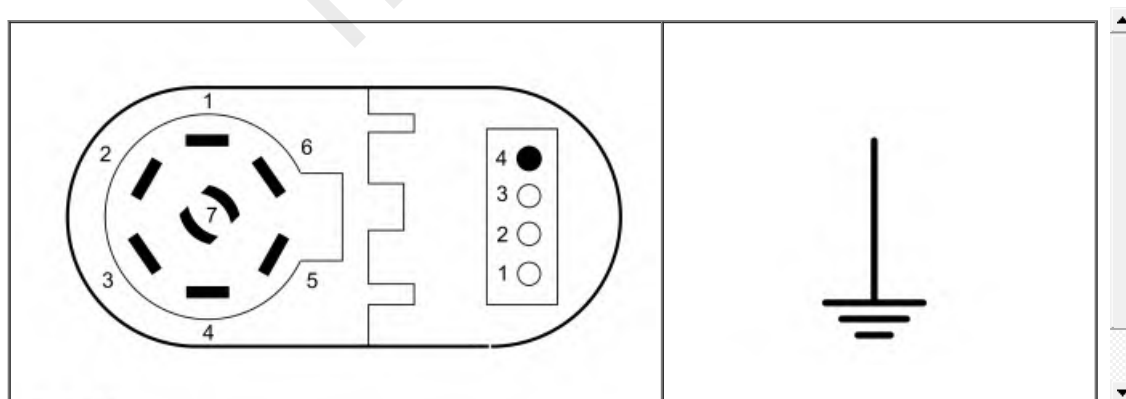
Positive Lead	Measurement / Action	Negative Lead
7-Pin Connector, Pin 7		Ground

- Place the gear selector lever in PARK.
- For 7-pin 5th wheel connector, measure:



Positive Lead	Measurement / Action	Negative Lead
Pin 7		Ground

- If equipped with a 4-pin and 7-pin trailer connector, for 7-pin trailer connector, measure:



Positive Lead	Measurement / Action	Negative Lead
7-Pin Connector, Pin 7		Ground

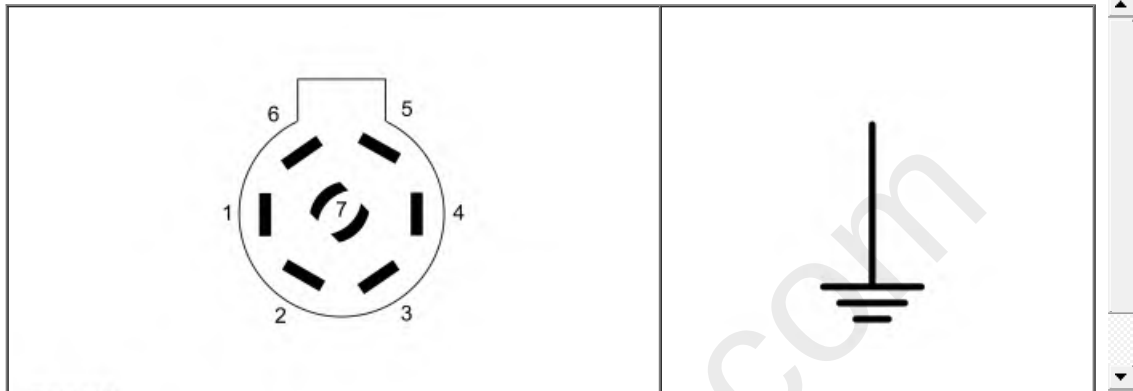
Is the voltage greater than 11 volts when the gear selector lever is in REVERSE and 0 volts when the gear selector lever is in PARK?

Yes	The vehicle is operating correctly. SEND the trailer to an authorized camper/trailer repair facility.
-----	---

No	If the trailer reversing lamps are inoperative, GO to E2
----	--

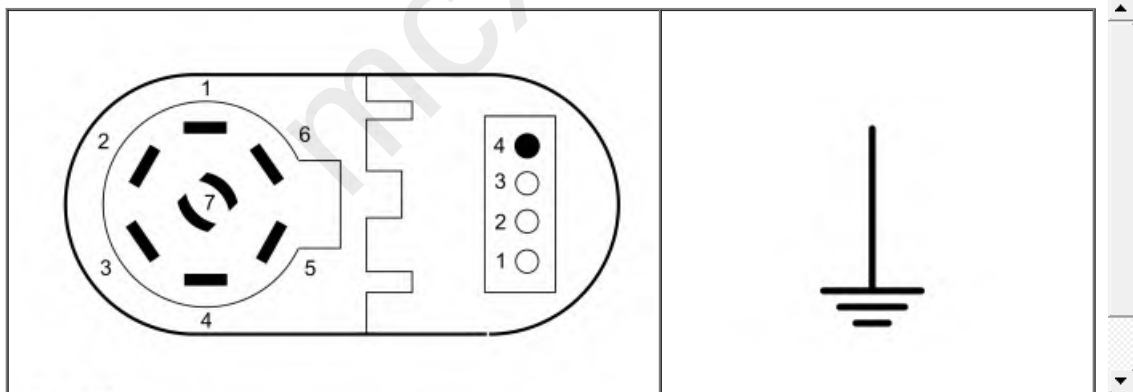
E2 REPEAT THE ON-DEMAND SELF-TEST AND CHECK FOR VOLTAGE THROUGH THE TRAILER TOW CONNECTOR

- Using a diagnostic scan tool, perform the BCM self-test.
- Clear the Diagnostic Trouble Codes (DTCs) and repeat the self-test (required to enable the lamp output driver if DTC U1000:00 is present).
- Ignition OFF.
- Ignition ON.
- Place the gear selector lever in REVERSE.
- For 7-pin 5th wheel connector, measure:



Positive Lead	Measurement / Action	Negative Lead
Pin 7		Ground

- If equipped with a 4-pin and 7-pin trailer connector, for 7-pin trailer connector, measure:



Positive Lead	Measurement / Action	Negative Lead
7-Pin Connector, Pin 7		Ground

Is the voltage greater than 11 volts?

Yes	The vehicle is operating correctly. SEND the trailer to an authorized camper/trailer repair facility.
-----	---

No	GO to E3
----	--------------------------

E3 CHECK FOR VOLTAGE TO THE TRAILER TOW CONNECTOR (VEHICLE HARNESS)

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- Place the gear selector lever in PARK.
- Ignition OFF.
- Disconnect Trailer Tow [C4099](#) (trailer connector).
- Disconnect Trailer Tow [C439](#) (5th wheel connector).
- Ignition ON.
- Apply the parking brake.
- Place the gear selector lever in REVERSE.
- For 7-pin 5th wheel connector, measure:

TRAILER TOW CONNECTOR	
-----------------------	--

Positive Lead	Measurement / Action	Negative Lead
C439-7		Ground

- If equipped with a 4-pin and 7-pin trailer connector, measure:

TRAILER TOW CONNECTOR	
-----------------------	--

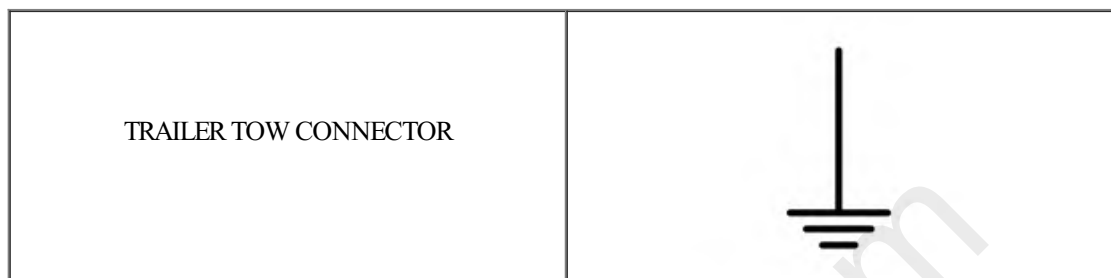
Positive Lead	Measurement / Action	Negative Lead
C4099-7		Ground

Is the voltage greater than 11 volts?

Yes	INSTALL a new trailer tow connector. TEST the system for normal operation.
No	VERIFY the BJB fuse 63 (10A) is OK. If OK, GO to E4 If not OK, REFER to the Wiring Diagrams manual to identify the possible causes of the circuit short.

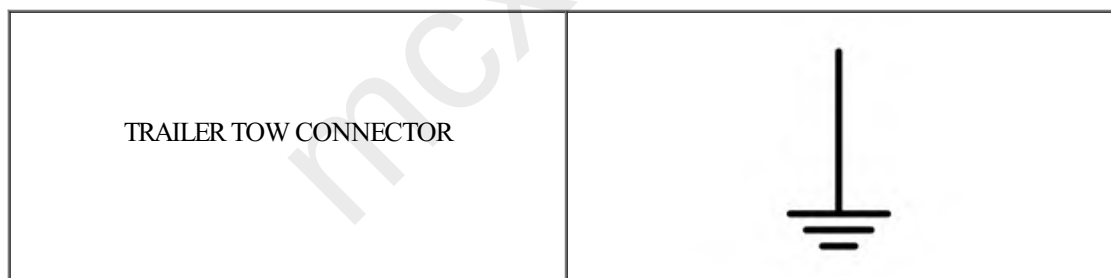
E4 REPEAT THE ON-DEMAND SELF-TEST AND CHECK FOR VOLTAGE TO THE TRAILER TOW CONNECTOR (VEHICLE HARNESS)

- Place the gear selector lever in PARK.
- Using a diagnostic scan tool, perform the BCM self-test.
- Clear the Diagnostic Trouble Codes (DTCs) and repeat the self-test (required to enable the lamp output driver if DTC U1000:00 is present).
- Ignition OFF.
- Ignition ON.
- Place the gear selector lever in REVERSE.
- For 7-pin 5th wheel connector, measure:



Positive Lead	Measurement / Action	Negative Lead
C439-7		Ground

- If equipped with a 4-pin and 7-pin trailer connector, measure:



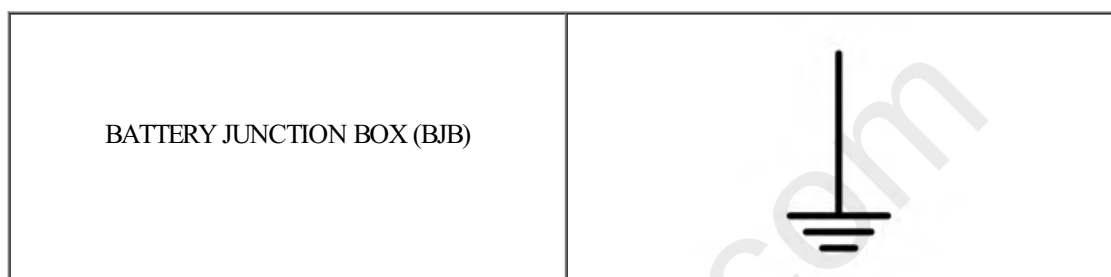
Positive Lead	Measurement / Action	Negative Lead
C4099-7		Ground

Is the voltage greater than 11 volts?

Yes	INSTALL a new trailer tow connector. TEST the system for normal operation.
No	GO to E5

E5 CHECK THE TRAILER TOW REVERSING LAMPS RELAY ENERGIZE CIRCUIT FOR VOLTAGE

- Place the gear selector lever in PARK.
- Ignition OFF.
- Disconnect BJB [C1035A](#) .
- Ignition ON.
- Apply the parking brake.
- Place the gear selector lever in the REVERSE.
- Measure:



Positive Lead	Measurement / Action	Negative Lead
C1035A-14		Ground

Is the voltage greater than 11 volts?

Yes	GO to E6
No	GO to E7

E6 CHECK THE TRAILER TOW REVERSING LAMPS RELAY GROUND CIRCUIT

- Measure:

BATTERY JUNCTION BOX (BJB)

Positive Lead	Measurement / Action	Negative Lead
C1035A-14		C1035A-22

Is the voltage greater than 11 volts?

Yes	GO to E9
No	REPAIR the circuit.

E7 CHECK THE TRAILER TOW REVERSING LAMPS RELAY ENERGIZE CIRCUIT FOR A SHORT TO GROUND

- Place the gear selector lever in PARK.
- Ignition OFF.
- Disconnect BCM [C2280G](#) .
- Measure:

BODY CONTROL MODULE (BCM)



Positive Lead	Measurement / Action	Negative Lead
C2280G-19	Ω	Ground

Is the resistance greater than 10,000 ohms?

Yes	GO to E8
No	REPAIR the circuit.

E8 CHECK THE TRAILER TOW REVERSING LAMPS RELAY ENERGIZE CIRCUIT FOR AN OPEN

- Measure:

BODY CONTROL MODULE (BCM)	BATTERY JUNCTION BOX (BJB)
---------------------------	----------------------------

Positive Lead	Measurement / Action	Negative Lead
C2280G-19	Ω	C1035A-14

Is the resistance less than 3 ohms?

Yes	GO to E13
No	REPAIR the circuit.

E9 CHECK THE TRAILER TOW REVERSING LAMPS RELAY OUTPUT CIRCUIT FOR AN OPEN

- For 7-pin 5th wheel connector, measure:

TRAILER TOW CONNECTOR	BATTERY JUNCTION BOX (BJB)
-----------------------	----------------------------

Positive Lead	Measurement / Action	Negative Lead
C439-7	Ω	C1035A-13

- If equipped with a 4-pin and 7-pin trailer connector, measure:

TRAILER TOW CONNECTOR	BATTERY JUNCTION BOX (BJB)
-----------------------	----------------------------

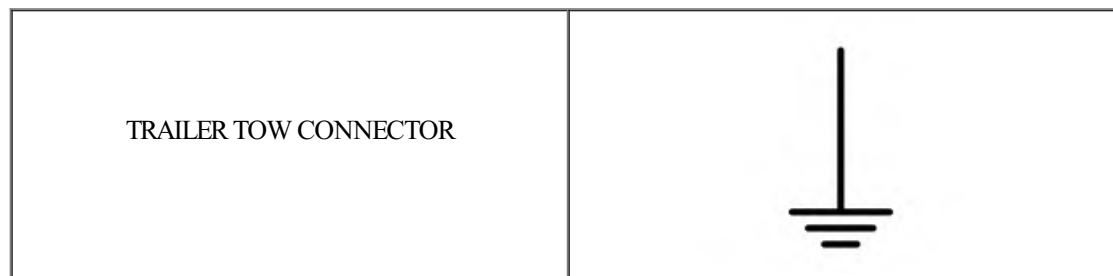
Positive Lead	Measurement / Action	Negative Lead
C4099-7	Ω	C1035A-13

Is the resistance less than 3 ohms?

Yes	REPAIR the circuit.
No	INSTALL a new BJB.

E10 CHECK THE TRAILER TOW REVERSING LAMPS RELAY OUTPUT CIRCUIT FOR A SHORT TO VOLTAGE

- Place the gear selector lever in PARK.
- Disconnect BJB [C1035A](#) .
- Ignition ON.
- Measure:



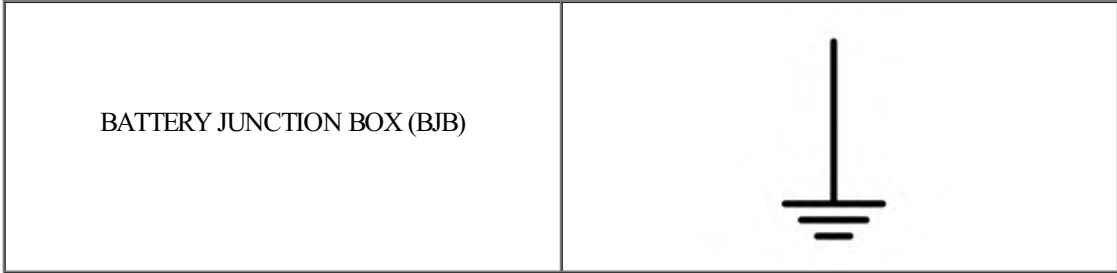
Positive Lead	Measurement / Action	Negative Lead
C4099-7		Ground

Is any voltage present?

Yes	REPAIR the circuit.
No	GO to E11

E11 CHECK THE TRAILER TOW REVERSING LAMPS RELAY ENERGIZE CIRCUIT FOR VOLTAGE IN PARK

- Place the gear selector lever in PARK.
- Measure:



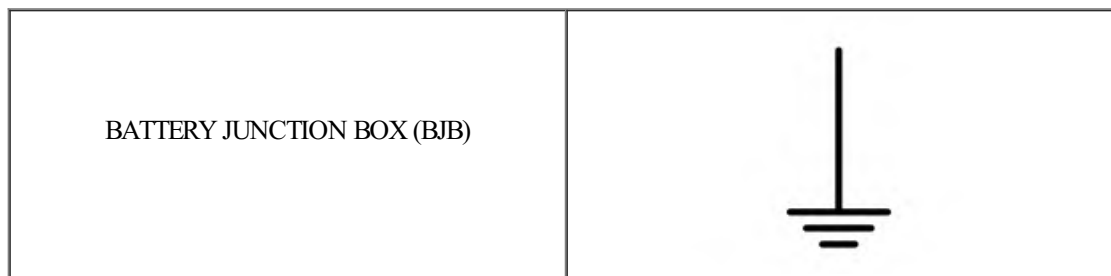
Positive Lead	Measurement / Action	Negative Lead
C1035A-14		Ground

Is any voltage present?

Yes	GO to E12
No	INSTALL a new BJB.

E12 CHECK THE TRAILER TOW REVERSING LAMPS RELAY ENERGIZE CIRCUIT FOR A SHORT TO VOLTAGE

- Ignition OFF.
- Disconnect BCM [C2280G](#) .
- Ignition ON.
- Measure:



Positive Lead	Measurement / Action	Negative Lead
C1035A-14		Ground

Is any voltage present?

Yes	REPAIR the circuit.
No	GO to E13

E13 CHECK FOR CORRECT BCM (BODY CONTROL MODULE) OPERATION

- Disconnect and inspect all BCM connectors.
- Repair:
 - corrosion (install new connector or terminals “clean module pins)
 - damaged or bent pins “install new terminals/pins
 - pushed-out pins “install new pins as necessary
- Reconnect the BCM connectors. Make sure they seat and latch correctly.
- Operate the system and determine if the concern is still present.

Is the concern still present?

Yes	CHECK OASIS for any applicable service articles: TSB, GSB, SSM or FSA. If a service article exists for this concern, DISCONTINUE this test and FOLLOW the service article instructions. If no service articles address this concern, INSTALL a new BCM. REFER to: Body Control Module (BCM) (419-10 Multifunction Electronic Modules, Removal and Installation).
No	The system is operating correctly at this time. The concern may have been caused by module connections. ADDRESS the root cause of any connector or pin issues.

☐ **PINPOINT TEST F : THE TRAILER BATTERY CHARGING IS INOPERATIVE/DOES NOT OPERATE CORRECTLY - VEHICLES NOT EQUIPPED WITH A TRM (TRAILER MODULE)**

Refer to Wiring Diagrams Cell [95](#) for schematic and connector information.

Normal Operation and Fault Conditions

REFER to: Exterior Lighting - Overview (417-01 Exterior Lighting, Description and Operation).

REFER to: Exterior Lighting - System Operation and Component Description (417-01 Exterior Lighting, Description and Operation).

DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Condition
BCM B130C:12	Load Shed Control: Circuit Short To Battery	A continuous memory and on-demand DTC that sets when the BCM detects a short to voltage from the trailer battery charge relay enable circuit.
BCM B130C:14	Load Shed Control: Circuit Short To Ground Or Open	A continuous memory and on-demand DTC that sets when the BCM detects an open short to ground from the trailer battery charge relay enable circuit.

Possible Sources

- Fuse
- Wiring, terminals or connectors
- Trailer tow connector
- Trailer battery charge relay
- Trailer concern
- BCM

Visual Inspection and Pre-checks

- Verify the BJB fuse 56 (30A) is OK.
- Inspect the trailer tow connector for signs of corrosion or damage. Repair or install a new trailer tow connector as required.

F1 CHECK FOR VOLTAGE THROUGH THE TRAILER TOW CONNECTOR

- Ignition OFF.
- Disconnect Trailer.
- Ignition ON.
- Access the BCM and control the LOAD_SHED_OC PID
- Command the Load Shed Output Control active command to Inactive.
- For 7-pin 5th wheel connector, measure:

Positive Lead	Measurement / Action	Negative Lead
Pin 5		Ground

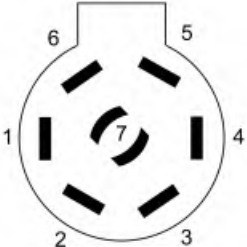
- If equipped with a 4-pin and 7-pin trailer connector, for 7-pin trailer connector, measure:

Positive Lead	Measurement / Action	Negative Lead
7-Pin Connector, Pin 5		Ground

Is any voltage present?

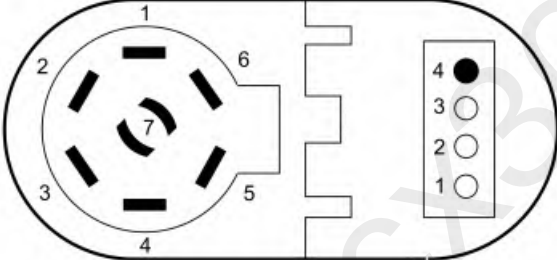
Yes	GO to F2
No	GO to F5

- Ignition OFF.
- Disconnect BJB [C1035B](#) .
- Ignition ON.
- For 7-pin 5th wheel connector, measure:




Positive Lead	Measurement / Action	Negative Lead
Pin 5		Ground

- If equipped with a 4-pin and 7-pin trailer connector, for 7-pin trailer connector, measure:



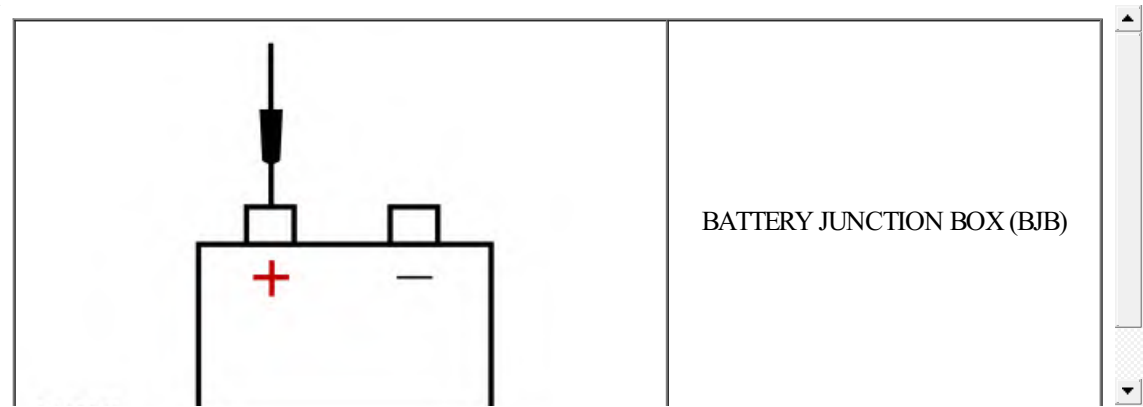

Positive Lead	Measurement / Action	Negative Lead
7-Pin Connector, Pin 5		Ground

Is any voltage present?

Yes	GO to F3
No	REPAIR the circuit.

F3 CHECK THE TRAILER BATTERY CHARGE RELAY CONTROLLED GROUND CIRCUIT FOR GROUND

- Measure:



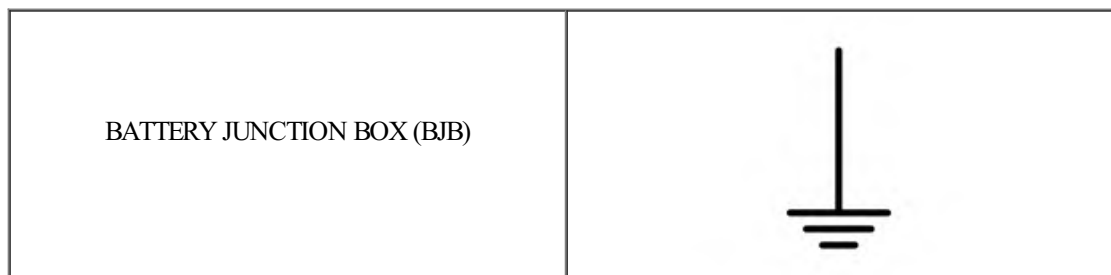
Positive Lead	Measurement / Action	Negative Lead
Battery Positive		C1035B-38

Is any voltage present?

Yes	GO to F4
No	INSTALL a new BJB.

F4 CHECK THE TRAILER BATTERY CHARGE RELAY CONTROLLED GROUND CIRCUIT FOR A SHORT TO GROUND

- Ignition OFF.
- Disconnect BCM [C2280F](#) .
- Measure:



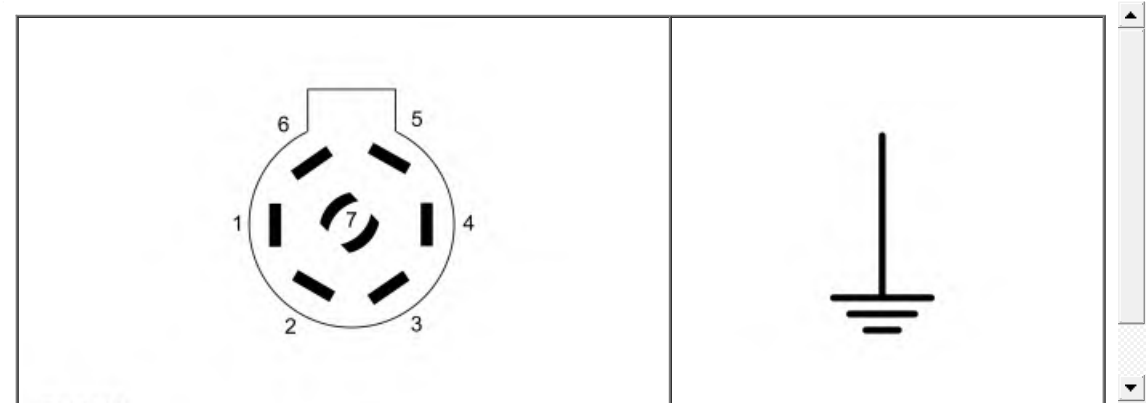
Positive Lead	Measurement / Action	Negative Lead
C1035B-38	Ω	Ground

Is the resistance greater than 10,000 ohms?

Yes	REPAIR the circuit.
No	GO to F13

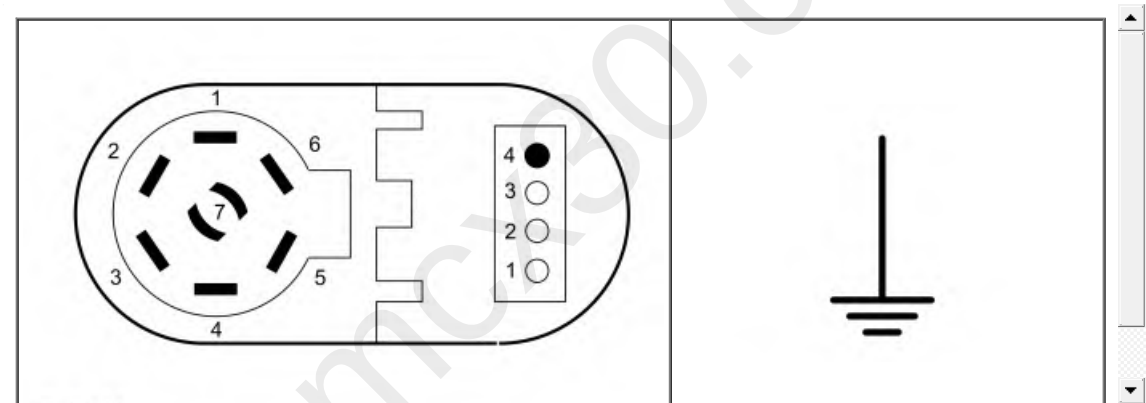
F5 CHECK FOR VOLTAGE THROUGH THE TRAILER TOW CONNECTOR

- Disconnect Trailer.
- Ignition ON.
- Access the BCM and control the LOAD_SHED_OC PID
- Command the Load Shed Output Control active command to Active.
- For 7-pin 5th wheel connector, measure:



Positive Lead	Measurement / Action	Negative Lead
Pin 5		Ground

- If equipped with a 4-pin and 7-pin trailer connector, for 7-pin trailer connector, measure:



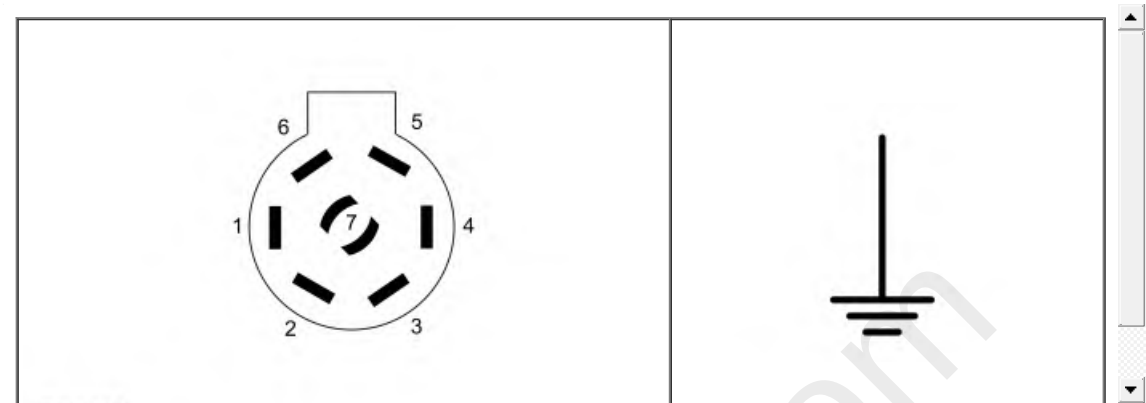
Positive Lead	Measurement / Action	Negative Lead
7-Pin Connector, Pin 5		Ground

Is the voltage greater than 11 volts?

Yes	The vehicle is operating correctly. SEND the trailer to an authorized camper/trailer repair facility.
No	VERIFY the BJB fuse 56 (30A) is OK. If OK, GO to F6 If not OK, REFER to the Wiring Diagrams manual to identify the possible causes of the circuit short.

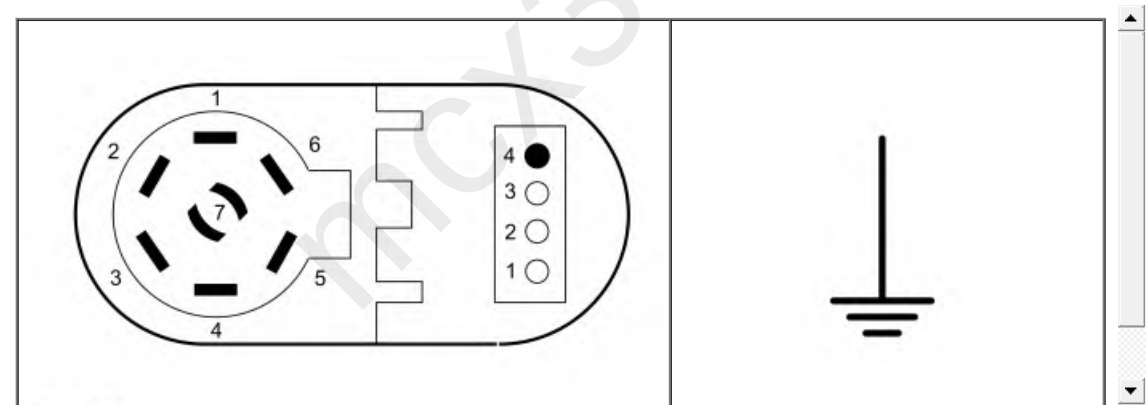
F6 REPEAT THE ON-DEMAND SELF-TEST AND CHECK FOR VOLTAGE THROUGH THE TRAILER TOW CONNECTOR

- Using a diagnostic scan tool, perform the BCM self-test.
- Clear the Diagnostic Trouble Codes (DTCs) and repeat the self-test (required to enable the lamp output driver if DTC U1000:00 is present).
- Ignition OFF.
- Ignition ON.
- Access the BCM and control the LOAD_SHED_OC PID
- Command the Load Shed Output Control active command to Active.
- For 7-pin 5th wheel connector, measure:



Positive Lead	Measurement / Action	Negative Lead
Pin 5		Ground

- If equipped with a 4-pin and 7-pin trailer connector, for 7-pin trailer connector, measure:



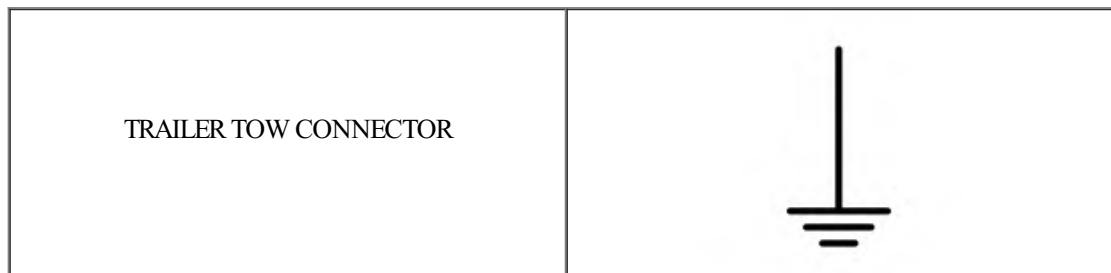
Positive Lead	Measurement / Action	Negative Lead
7-Pin Connector, Pin 5		Ground

Is the voltage greater than 11 volts?

Yes	The vehicle is operating correctly. SEND the trailer to an authorized camper/trailer repair facility.
No	GO to F7

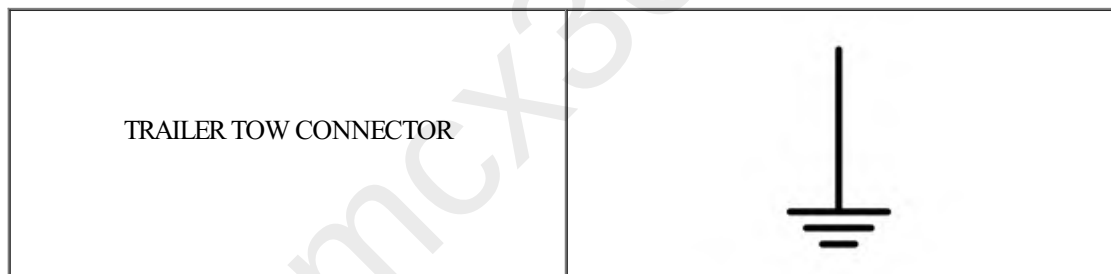
F7 CHECK FOR VOLTAGE TO THE TRAILER TOW CONNECTOR (VEHICLE HARNESS)

- Ignition OFF.
- Disconnect Trailer Tow [C4099](#) (trailer connector).
- Disconnect Trailer Tow [C439](#) (5th wheel connector).
- Ignition ON.
- Access the BCM and control the LOAD_SHED_OC PID
- Command the Load Shed Output Control active command to Active.
- For 7-pin 5th wheel connector, measure:



Positive Lead	Measurement / Action	Negative Lead
C439-5		Ground

- If equipped with a 4-pin and 7-pin trailer connector, measure:



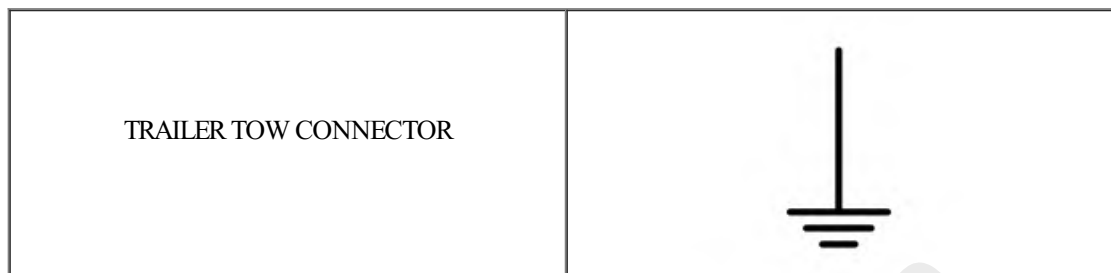
Positive Lead	Measurement / Action	Negative Lead
C4099-5		Ground

Is the voltage greater than 11 volts?

Yes	INSTALL a new trailer tow connector. TEST the system for normal operation.
No	GO to F8

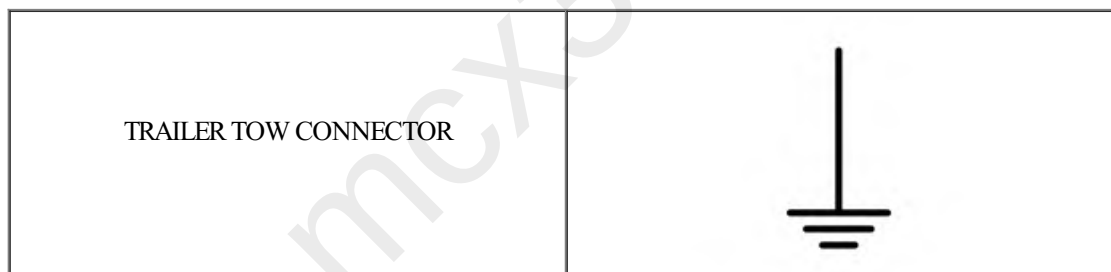
F8 REPEAT THE ON-DEMAND SELF-TEST AND CHECK FOR VOLTAGE TO THE TRAILER TOW CONNECTOR (VEHICLE HARNESS)

- Using a diagnostic scan tool, perform the BCM self-test.
- Clear the Diagnostic Trouble Codes (DTCs) and repeat the self-test (required to enable the lamp output driver if DTC U1000:00 is present).
- Ignition OFF.
- Ignition ON.
- Access the BCM and control the LOAD_SHED_OC PID
- Command the Load Shed Output Control active command to Active.
- For 7-pin 5th wheel connector, measure:



Positive Lead	Measurement / Action	Negative Lead
C439-5		Ground

- If equipped with a 4-pin and 7-pin trailer connector, measure:



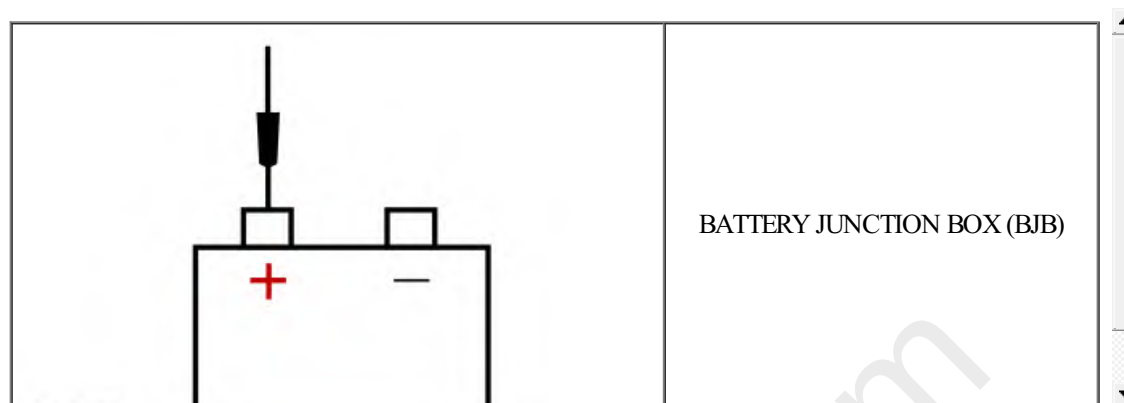
Positive Lead	Measurement / Action	Negative Lead
C4099-5		Ground

Is the voltage greater than 11 volts?

Yes	INSTALL a new trailer tow connector. TEST the system for normal operation.
No	VERIFY the BJB fuse 56 (30A) is OK. If OK, GO to F9 If not OK, REFER to the Wiring Diagrams manual to identify the possible causes of the circuit short.

F9 CHECK THE TRAILER BATTERY CHARGE RELAY CONTROLLED GROUND CIRCUIT FOR GROUND

- Ignition OFF.
- Disconnect BJB [C1035B](#) .
- Ignition ON.
- Access the BCM and control the LOAD_SHED_OC PID
- Command the Load Shed Output Control active command to Active.
- Measure:



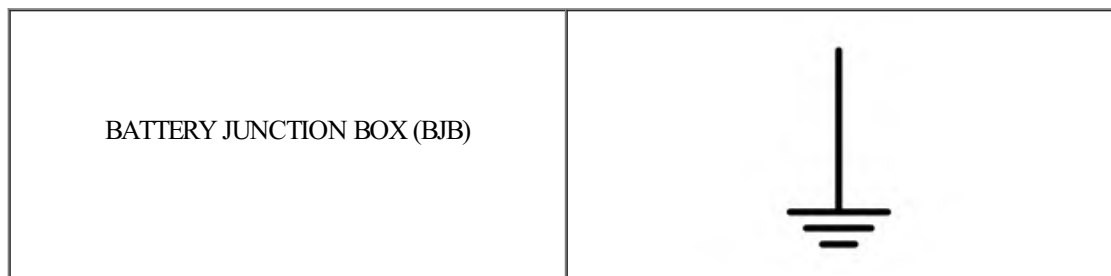
Positive Lead	Measurement / Action	Negative Lead
Battery Positive		C1035B-38

Is the voltage greater than 11 volts?

Yes	GO to F12
No	GO to F10

F10 CHECK THE TRAILER BATTERY CHARGE RELAY CONTROLLED GROUND CIRCUIT FOR A SHORT TO VOLTAGE

- Ignition OFF.
- Disconnect BCM [C2280F](#) .
- Ignition ON.
- Measure:



Positive Lead	Measurement / Action	Negative Lead
C1035B-38		Ground

Is any voltage present?

Yes	REPAIR the circuit.
No	GO to F11

F11 CHECK THE TRAILER BATTERY CHARGE RELAY CONTROLLED GROUND CIRCUIT FOR AN OPEN

- Ignition OFF.
- Measure:

BATTERY JUNCTION BOX (BJB)	BODY CONTROL MODULE (BCM)
----------------------------	---------------------------

Positive Lead	Measurement / Action	Negative Lead
C1035B-38	Ω	C2280F-34

Is the resistance less than 3 ohms?

Yes	GO to F13
No	REPAIR the circuit.

F12 CHECK THE TRAILER BATTERY CHARGE RELAY OUTPUT CIRCUIT FOR AN OPEN

- For 7-pin 5th wheel connector, measure:

TRAILER TOW CONNECTOR	BATTERY JUNCTION BOX (BJB)
-----------------------	----------------------------

Positive Lead	Measurement / Action	Negative Lead
C439-5	Ω	C1035B-60

- If equipped with a 4-pin and 7-pin trailer connector, measure:

TRAILER TOW CONNECTOR	BATTERY JUNCTION BOX (BJB)
-----------------------	----------------------------

Positive Lead	Measurement / Action	Negative Lead
C4099-5	Ω	C1035B-60

Is the resistance less than 3 ohms?

Yes	INSTALL a new BJB.
No	REPAIR the circuit.

F13 CHECK FOR CORRECT BCM (BODY CONTROL MODULE) OPERATION

- Disconnect and inspect all BCM connectors.
- Repair:
 - corrosion (install new connector or terminals â€“ clean module pins)
 - damaged or bent pins â€“ install new terminals/pins
 - pushed-out pins â€“ install new pins as necessary
- Reconnect the BCM connectors. Make sure they seat and latch correctly.
- Operate the system and determine if the concern is still present.

Is the concern still present?

Yes	CHECK OASIS for any applicable service articles: TSB, GSB, SSM or FSA. If a service article exists for this concern, DISCONTINUE this test and FOLLOW the service article instructions. If no service articles address this concern, INSTALL a new BCM. REFER to: Body Control Module (BCM) (419-10 Multifunction Electronic Modules, Removal and Installation).
No	The system is operating correctly at this time. The concern may have been caused by module connections. ADDRESS the root cause of any connector or pin issues.

REFER to: Exterior Lighting - Overview (417-01 Exterior Lighting, Description and Operation).

REFER to: Exterior Lighting - System Operation and Component Description (417-01 Exterior Lighting, Description and Operation).

PINPOINT TEST G : THE TRAILER BATTERY CHARGING IS INOPERATIVE/DOES NOT OPERATE CORRECTLY - VEHICLES EQUIPPED WITH A TRM (TRAILER MODULE)

Refer to Wiring Diagrams Cell [95](#) for schematic and connector information.

Possible Sources

- Fuse
- Wiring, terminals or connectors
- Trailer tow connector
- TRM
- Trailer concern

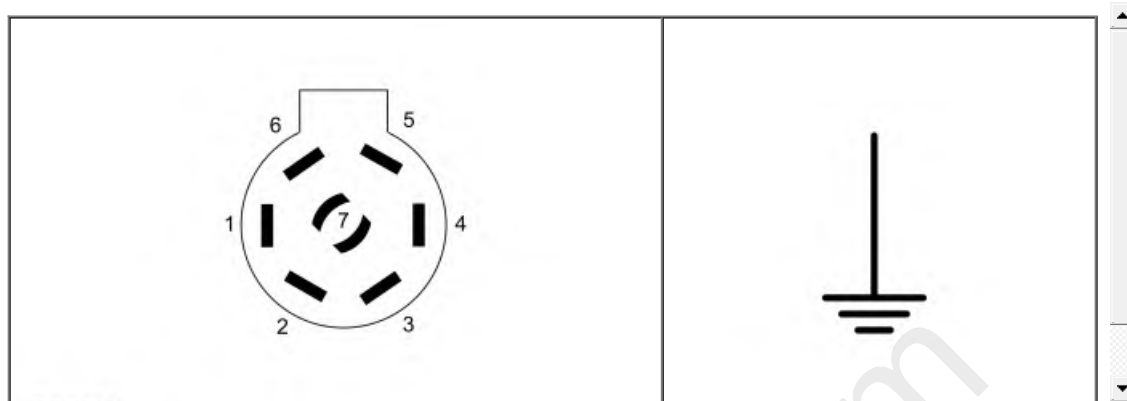
Visual Inspection and Pre-checks

- Verify the BJB fuse 10 (30A) is OK.
- Inspect the trailer tow connector for signs of corrosion or damage. Repair or install a new trailer tow connector as required.

G1 CHECK FOR VOLTAGE THROUGH THE TRAILER TOW CONNECTOR

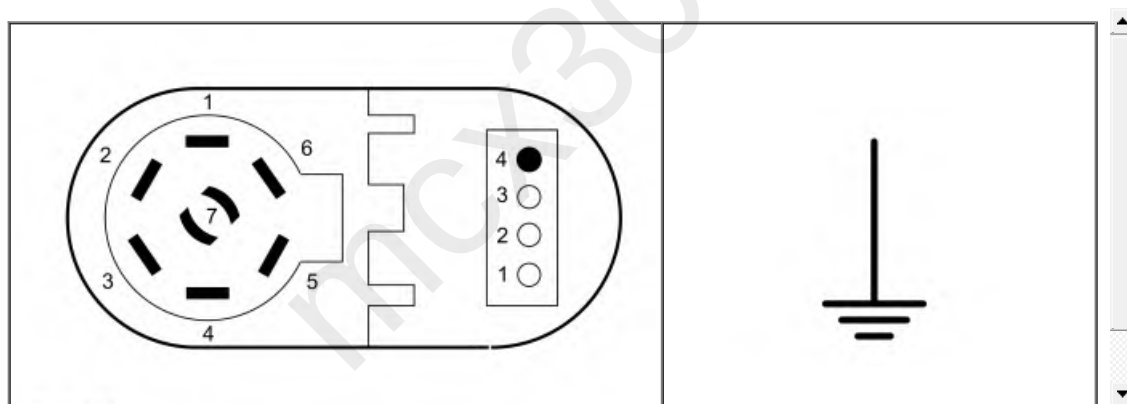
NOTE: The Point Output Relay (PWR_PT_RLY) (TRM) must be commanded on to illuminate the trailer charging indicator on trailer simulators which only connect to the trailer lighting circuits

- Disconnect Trailer.
- Ignition ON.
- Access the TRM and control the PWR_PT_RLY PID
- Command the Power Point Output Relay active command ON.
- For 7-pin 5th wheel connector, measure:



Positive Lead	Measurement / Action	Negative Lead
Pin 5		Ground

- If equipped with a 4-pin and 7-pin trailer connector, for 7-pin trailer connector, measure:



Positive Lead	Measurement / Action	Negative Lead
7-Pin Connector, Pin 5		Ground

Is the voltage greater than 11 volts?

Yes	The vehicle is operating correctly. SEND the trailer to an authorized camper/trailer repair facility.
No	GO to G2

G2 CHECK FOR VOLTAGE TO THE TRAILER TOW CONNECTOR (VEHICLE HARNESS)

- Ignition OFF.
- Disconnect Trailer Tow [C4099](#) (trailer connector).
- Disconnect Trailer Tow [C439](#) (5th wheel connector).
- Ignition ON.
- Access the TRM and control the PWR_PT_RLY PID
- Command the Power Point Output Relay active command ON.
- For 7-pin 5th wheel connector, measure:

TRAILER TOW CONNECTOR	
-----------------------	--

Positive Lead	Measurement / Action	Negative Lead
C439-5		Ground

- If equipped with a 4-pin and 7-pin trailer connector, measure:

TRAILER TOW CONNECTOR	
-----------------------	--

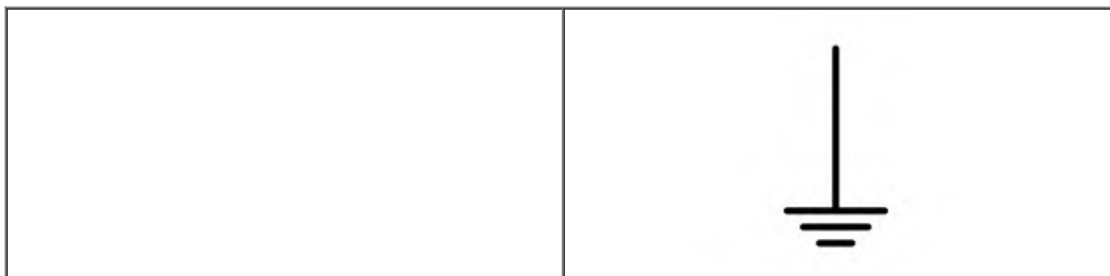
Positive Lead	Measurement / Action	Negative Lead
C4099-5		Ground

Is the voltage greater than 11 volts?

Yes	INSTALL a new trailer tow connector. TEST the system for normal operation.
No	GO to G3

G3 CHECK FOR CHARGING VOLTAGE TO THE TRM (TRAILER MODULE)

- Ignition OFF.
- Disconnect TRM [C2498A](#) .
- Measure:



Positive Lead	Measurement / Action	Negative Lead
C2498A-1		Ground

Is the voltage greater than 11 volts?

Yes	GO to G4
No	VERIFY the BJB fuse 10 (30A) is OK. If OK, REPAIR the circuit. If not OK, REFER to the Wiring Diagrams manual to identify the possible causes of the circuit short.

G4 CHECK THE TRAILER TOW BATTERY CHARGE CIRCUIT FOR AN OPEN

- Disconnect TRM [C2498C](#) .
- For 7-pin 5th wheel connector, measure:

TRAILER TOW CONNECTOR	
-----------------------	--

Positive Lead	Measurement / Action	Negative Lead
C439-5	Ω	C2498C-3

- If equipped with a 4-pin and 7-pin trailer connector, measure:

TRAILER TOW CONNECTOR	
-----------------------	--

Positive Lead	Measurement / Action	Negative Lead
C4099-5	Ω	C2498C-3

Is the resistance less than 3 ohms?

Yes	GO to G5
No	REPAIR the circuit.

G5 CHECK FOR CORRECT TRM (TRAILER MODULE) OPERATION

- Disconnect and inspect all TRM connectors.
- Repair:
 - corrosion (install new connector or terminals â€“ clean module pins)
 - damaged or bent pins â€“ install new terminals/pins
 - pushed-out pins â€“ install new pins as necessary
- Reconnect the TRM connectors. Make sure they seat and latch correctly.
- Operate the system and determine if the concern is still present.

Is the concern still present?

Yes	CHECK OASIS for any applicable service articles: TSB, GSB, SSM or FSA. If a service article exists for this concern, DISCONTINUE this test and FOLLOW the service article instructions. If no service articles address this concern, INSTALL a new TRM. REFER to: Trailer Module (TRM) (417-01 Exterior Lighting, Removal and Installation).
No	The system is operating correctly at this time. The concern may have been caused by module connections. ADDRESS the root cause of any connector or pin issues.

PINPOINT TEST H : U0140:00

Refer to Wiring Diagrams Cell [95](#) for schematic and connector information.

Normal Operation and Fault Conditions

REFER to: Exterior Lighting - Overview (417-01 Exterior Lighting, Description and Operation).

REFER to: Exterior Lighting - System Operation and Component Description (417-01 Exterior Lighting, Description and Operation).

DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Condition
TRM U0140:00	Lost Communication With Body Control Module: No Sub Type Information	A continuous memory DTC that sets when the TRM if messages received from the BCM are missing.

Possible Sources

- Communication concern
- BCM
- TRM
- BCM concern

H1 VERIFY THE CUSTOMER CONCERN

- Ignition ON.
- Verify that there is an observable symptom present.

Is an observable symptom present?

Yes	GO to H2
No	The system is operating normally at this time. The DTC may have been set due to high network traffic or an intermittent fault condition. CLEAR the DTC.

H2 CHECK THE COMMUNICATION NETWORK

- Using a diagnostic scan tool, perform a network test.

Does the TRM and BCM pass the network test?

Yes	GO to H3
No	DIAGNOSE the TRM or BCM not communicating with the diagnostic scan tool. REFER to: Communications Network (418-00 Module Communications Network, Diagnosis and Testing).

H3 RETRIEVE THE BCM (BODY CONTROL MODULE) DIAGNOSTIC TROUBLE CODES (DTCs)

- Using a diagnostic scan tool, perform the BCM self-test.

Are any BCM Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to: Body Control Module (BCM) (419-10 Multifunction Electronic Modules, Diagnosis and Testing).
No	GO to H4

H4 RECHECK THE TRM (TRAILER MODULE) DIAGNOSTIC TROUBLE CODES (DTCs)

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

Is DTC U0140:00 still present?

Yes	GO to H5
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.

H5 CHECK FOR DTC (DIAGNOSTIC TROUBLE CODE) U0140:00 SET IN OTHER MODULES

- Using a diagnostic scan tool, clear all Diagnostic Trouble Codes (DTCs).
- Ignition OFF.
- Ignition ON.
- Using a diagnostic scan tool, perform the self-test.
- Retrieve the Diagnostic Trouble Codes (DTCs) from all modules.

Is DTC U0140:00 set in any other module?

Yes	GO to H6
No	GO to H7

H6 CHECK FOR CORRECT BCM (BODY CONTROL MODULE) OPERATION

- Disconnect and inspect all BCM and all related in-line connectors.
- Repair:
 - corrosion (install new connector or terminals â€“ clean module pins)
 - damaged or bent pins â€“ install new terminals/pins
 - pushed-out pins â€“ install new pins as necessary
- Reconnect the BCM and all related in-line connectors. Make sure they seat and latch correctly.
- Operate the system and determine if the concern is still present.

Is the concern still present?

Yes	CHECK OASIS for any applicable service articles: TSB, GSB, SSM or FSA. If a service article exists for this concern, DISCONTINUE this test and FOLLOW the service article instructions. If no service articles address this concern, INSTALL a new BCM. REFER to: Body Control Module (BCM) (419-10 Multifunction Electronic Modules, Removal and Installation).
No	The system is operating correctly at this time. The concern may have been caused by module connections. ADDRESS the root cause of any connector or pin issues.

H7 CHECK FOR CORRECT TRM (TRAILER MODULE) OPERATION

- Disconnect and inspect all TRM connectors.
- Repair:
 - corrosion (install new connector or terminals â€“ clean module pins)
 - damaged or bent pins â€“ install new terminals/pins
 - pushed-out pins â€“ install new pins as necessary
- Reconnect the TRM connectors. Make sure they seat and latch correctly.
- Operate the system and determine if the concern is still present.

Is the concern still present?

Yes	CHECK OASIS for any applicable service articles: TSB, GSB, SSM or FSA. If a service article exists for this concern, DISCONTINUE this test and FOLLOW the service article instructions. If no service articles address this concern, INSTALL a new TRM. REFER to: Trailer Module (TRM) (417-01 Exterior Lighting, Removal and Installation).
No	The system is operating correctly at this time. The concern may have been caused by module connections. ADDRESS the root cause of any connector or pin issues.

PINPOINT TEST I : U2100:00

Refer to Wiring Diagrams Cell [92](#) for schematic and connector information.

Normal Operation and Fault Conditions

REFER to: Exterior Lighting - Overview (417-01 Exterior Lighting, Description and Operation).

REFER to: Exterior Lighting - System Operation and Component Description (417-01 Exterior Lighting, Description and Operation).

DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Condition
TRM U2100:00	Initial Configuration Not Complete: No Sub Type Information	A continuous memory and on-demand DTC that sets due to incomplete or incorrect TRM configuration.

Possible Sources

- TRM

I1 CHECK VEHICLE HISTORY

- Check vehicle history for recent service actions with the TRM.

Where there any recent TRM service actions?

Yes	PERFORM the PMI procedure as directed by the scan tool. REFER to: Module Programming (418-01 Module Configuration, General Procedures).
No	GO to I2

I2 CHECK FOR CORRECT TRM (TRAILER MODULE) OPERATION

- Disconnect and inspect the TRM and related in-line connectors.
- Repair:
 - corrosion (install new connector or terminals â€œ clean module pins)
 - damaged or bent pins â€œ install new terminals/pins
 - pushed-out pins â€œ install new pins as necessary
- Reconnect the TRM and related in-line connectors. Make sure it seats and latches correctly.
- Operate the system and determine if the concern is still present.

Is the concern still present?

Yes	CHECK OASIS for any applicable service articles: TSB, GSB, SSM or FSA. If a service article exists for this concern, DISCONTINUE this test and FOLLOW the service article instructions. If no service articles address this concern, INSTALL a new TRM. REFER to: Trailer Module (TRM) (417-01 Exterior Lighting, Removal and Installation).
No	The system is operating correctly at this time. The concern may have been caused by module connections. ADDRESS the root cause of any connector or pin issues.

☐ [PINPOINT TEST J : U1000:00, U3000:49](#)

Refer to Wiring Diagrams Cell [92](#) for schematic and connector information.

Normal Operation and Fault Conditions

REFER to: Exterior Lighting - Overview (417-01 Exterior Lighting, Description and Operation).

REFER to: Exterior Lighting - System Operation and Component Description (417-01 Exterior Lighting, Description and Operation).

DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Condition
TRM U1000:00	Solid State Driver Protection Active -Driver Disabled: No Sub Type Information	A continuous memory and on-demand DTC that sets when the module has temporarily disabled an output because an excessive current draw exists (such as a short to ground). The TRM cannot enable the output until the cause of the short is corrected. ADDRESS all other Diagnostic Trouble Codes (DTCs) first. After the cause of the concern is corrected, CLEAR the Diagnostic Trouble Codes (DTCs). REPEAT the self-test.
TRM U3000:49	Control Module: Internal Electronic Failure	A continuous memory and on-demand DTC that sets when the module has permanently disabled an output because an excessive current draw fault (such as a short to ground) has exceeded the limits that the TRM can withstand. The cause of the excessive current draw MUST be corrected before a new TRM is installed. ADDRESS all other Diagnostic Trouble Codes (DTCs) first. After the cause of the concern is corrected, INSTALL a new TRM.

Possible Sources

- TRM

J1 REPEAT THE ON-DEMAND SELF-TEST AND CHECK FOR TRM (TRAILER MODULE) DIAGNOSTIC TROUBLE CODES (DTCS)

- Using a diagnostic scan tool, clear the Diagnostic Trouble Codes (DTCs) and repeat the TRM self-test.

Does TRM DTC U1000:00 or U3000:49 return?

Yes	CHECK OASIS for any applicable service articles: TSB, GSB, SSM or FSA. If a service article exists for this concern, DISCONTINUE this test and FOLLOW the service article instructions. If no service articles address this concern, INSTALL a new TRM. REFER to: Trailer Module (TRM) (417-01 Exterior Lighting, Removal and Installation).
No	The system is operating correctly at this time.