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2014 FORD Fusion North American OEM Service and Repair Workshop Manual

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. REFER to: [Auxiliary Brake System - System Operation and Component Description](#)
(206-10 Auxiliary Brake System, Description and Operation).

Possible Sources

- Wiring, terminals or connectors
- TRM (trailer module)

Visual Inspection and Pre-checks

- Trailer without trailer brakes will not be detected in message center.
- Electric over hydraulic type trailer brakes disables the inductance test from TRM (trailer module) , make sure the Trailer Brake Type in the message center matches the customers trailer.

E1 CHECK TRM (TRAILER MODULE) DTC (DIAGNOSTIC TROUBLE CODE)

NOTE

The TRM (trailer module) is a combined TBM (trailer brake control module) and Trailer Lighting Module.

- Ignition ON.
- Using a diagnostic scan tool, carry out the TRM (trailer module) self-test.

Are any Diagnostic Trouble Codes (DTCs) present in the TRM (trailer module) ?

Yes	DIAGNOSE all TRM (trailer module) Diagnostic Trouble Codes (DTCs).
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No	GO to E2
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E2 CHECK MESSAGE CENTER TOWING STATUS

NOTE

Before performing any testing check customers message center setting's in **TOWING** . Set **TRAILER BRAKE TYPE** to **Electric** or misdiagnosis could occur.

NOTE

Unless instructed otherwise, carry out all pinpoint tests **without** a trailer or emulator connected to the vehicle.

- Ignition ON.

E4 CHECK TRM (TRAILER MODULE) TRAILER ON PID STATUS

- Using a diagnostic scan tool, access the TRM (trailer module) PID's (parameter identifications).
- Using a diagnostic scan tool,
Access the TRM (trailer module) and monitor the TRAILER_CON (Trailer Connected) PID (parameter identification)
- Apply the vehicle brakes for at least 2 seconds.

Does the TRAILER_CON PID display False?

Yes	The condition causing the concern is not present at this time. The concern is intermittent and may have been caused by improper wiring on the trailer, a loose or corroded 7-pin connector or improper messages on the HS-CAN3 (high-speed controller area network 3) .
No	REFER to: Trailer Lamps (417-01 Exterior Lighting, Diagnosis and Testing).

E5 CHECK THE 7 PIN TRAILER TOW CONNECTOR TRAILER BRAKES CIRCUIT FOR AN OPEN

- Ignition OFF.
- Disconnect TRM (trailer module) C2498C.

NOTE

C4099 connects to the back of the 7 way trailer tow connector.

Disconnect C4099.

- Measure:

Rear Bumper

Positive Lead	Measurement / Action	Negative Lead
C2498C-14	Ω	C4099-3

Is the resistance less than 3 ohms?

Yes	GO to E6
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No	GO to E8
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E8 VERIFY ALL WIRING CONNECTIONS

- Disconnect TRM (trailer module) and related in-line connectors.
- Using a good light source, inspect all disconnected electrical connectors for the following:
 - corrosion - install new connector or terminal and clean the module pins
 - damaged or bent pins - install new terminals or pins
 - pushed-out pins - install new pins as necessary
 - spread terminals - install new terminals as necessary

Are the connectors free of corrosion, damaged pins, bent pins, pushed-out pins and spread terminals?

Yes	GO to E9
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No	REPAIR the affected connectors or terminals. Refer to Wiring Diagrams Cell 5 for schematic and connector information.
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E9 CHECK FOR CORRECT TRM (TRAILER MODULE) OPERATION

- Connect all in-line electrical connectors. Make sure they seat and latch correctly.
- Connect TRM (trailer module) C2498C. Make sure it seats and latches correctly.
- Operate the system and verify the concern is still present.

Is the concern still present?

Yes	<p>CHECK OASIS (Online Automotive Service Information System) for any applicable service articles: TSB (Technical Service Bulletin) , GSB (General Service Bulletin) , SSM (special service message) or FSA (Field Service Action) . If a service article exists for this concern, DISCONTINUE this test and FOLLOW the service article instructions.</p> <p>If no service articles address this concern, INSTALL a new TRM (trailer module) module.</p> <p>REFER to: Trailer Module (TRM) (417-01 Exterior Lighting, Removal and Installation).</p>
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PINPOINT TEST H : B148B:2A, B148B:49, B148C:2A OR U064D:08

Refer to Wiring Diagrams Cell 95 for schematic and connector information.

DTC Fault Trigger Conditions

DTC (diagnostic trouble code)	Description	Fault Trigger Condition
TRM (trailer module) B148B:49	Trailer Brake Manual Slider: Internal Electronic Failure	This DTC (diagnostic trouble code) sets when the manual slider is shorted to TRM (trailer module) circuit ground for 1 second.
TRM (trailer module) B148B:2A	Trailer Brake Manual Slider: Stuck in Range	This DTC (diagnostic trouble code) sets when the manual slider switch is applied in a fixed, active position for more than 5 minutes.
TRM (trailer module) B148C:2A	Trailer Brake Gain Button: Stuck in Range	This DTC (diagnostic trouble code) sets when either gain button is pressed for more than 2 minutes.
TRM (trailer module) U064D:08	Lost Communication with Trailer Brake Control Switch: Bus Signal/Message Failures	This DTC (diagnostic trouble code) sets when there is a lost LIN (local interconnect network) communication with the trailer brake switch.

Possible Sources

- Wiring, terminals or connectors
- TRM (trailer module)
- Trailer Tow Switch
- Obstructions or foreign material

H1 VERIFY TRM (TRAILER MODULE) DIAGNOSTIC TROUBLE CODES (DTCS)

NOTE

The TRM (trailer module) is a combined TBM (trailer brake control module) and Trailer Lighting Module.

- Ignition ON.
- Using a diagnostic scan tool, carry out the TRM (trailer module) self-test.
- Clear the Diagnostic Trouble Codes (DTCs).
- Operate the manual slider switch twice.

Positive Lead	Measurement / Action	Negative Lead
C2498C-10	Ω	C2830-2

Is the resistance less than 3 ohms?

Yes	GO to H4
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No	REPAIR the circuit.
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H4 CHECK THE TRAILER BRAKE CONTROL SWITCH LIN CIRCUIT FOR A SHORT TO GROUND

- Measure:

Positive Lead	Measurement / Action	Negative Lead
C2498C-10	Ω	Ground

Is the resistance greater than 10,000 ohms?

Yes	GO to H5
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No	REPAIR the circuit.
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H5 CHECK FOR CORRECT TRM (TRAILER MODULE) OPERATION

- Disconnect TRM (trailer module) C2498C (if not previously disconnected).
- Using a good light source, inspect the connector for the following:
 - corrosion - install new connector or terminal and clean the module pins
 - damaged or bent pins - install new terminals or pins
 - pushed-out pins - install new pins as necessary
 - spread terminals - install new terminals as necessary

Possible Sources

- Fuses
- Wiring, terminals or connectors
- Charging system concern
- Battery
- TRM (trailer module)

Visual Inspection and 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.
- Make sure BCMC (body control module C) fuse 42 (30A) is OK.

NOTICE

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

11 RECHECK THE TRM (TRAILER MODULE) DIAGNOSTIC TROUBLE CODES (DTCS)

NOTE

The TRM (trailer module) is a combined TRM (trailer module) and Trailer Lighting Module.

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

Is DTC (diagnostic trouble code) U3003:16 still present?

Yes	GO to I2
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No	The system is operating correctly at this time. The DTC (diagnostic trouble code) may have set due to a previous low battery voltage condition.
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12 CHECK FOR CHARGING SYSTEM DIAGNOSTIC TROUBLE CODES (DTCS) IN THE PCM (POWERTRAIN CONTROL MODULE)

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

No

VERIFY BCMC (body control module C) fuse 42 (30A) is OK.

If OK, REPAIR the circuit.

If not OK, REFER to the Wiring Diagrams manual to identify the cause of the circuit short.

15 CHECK THE TRM (TRAILER MODULE) GROUND CIRCUIT FOR AN OPEN

- Ignition OFF.
- Disconnect the battery negative cable.
REFER to: [Battery Disconnect and Connect](#)(414-01 Battery, Mounting and Cables, General Procedures).
- Measure:

Positive Lead	Measurement / Action	Negative Lead
C2498F-12	Ω	Ground

Is the resistance less than 3 ohms?

Yes

GO to [16](#)

No

REPAIR the circuit.

16 CHECK FOR CORRECT TRM (TRAILER MODULE) OPERATION

- Disconnect TRM (trailer module) C2498C (if not previously disconnected).
- Using a good light source, inspect the connector for the following:
 - corrosion - install new connector or terminal and clean the module pins
 - damaged or bent pins - install new terminals or pins
 - pushed-out pins - install new pins as necessary
 - spread terminals - install new terminals as necessary
- Connect TRM (trailer module) C2498C, make sure it seats and latches correctly.
- Connect the battery negative cable (if previously disconnected).
REFER to: [Battery Disconnect and Connect](#)(414-01 Battery, Mounting and Cables, General Procedures).
- Install BCMC (body control module C) fuse 42 (30A).
- Operate the system and verify the concern is still present.

Possible Sources

- Charging system concern
- TRM (trailer module)

J1 CHECK FOR HIGH VOLTAGE DIAGNOSTIC TROUBLE CODES (DTCS) SET IN OTHER MODULES

NOTE

The TRM (trailer module) is a combined TBM (trailer brake control module) and Trailer Lighting Module.

- Ignition ON.
- Using a diagnostic scan tool, retrieve and record all Continuous Memory Diagnostic Trouble Codes (CMDTCs).

Is DTC (diagnostic trouble code) B1317, B1318, B1676, U3003:16 or U3003:17 present in one or more modules AND are any charging system Diagnostic Trouble Codes (DTCs) present in the PCM (powertrain control module) ?

Yes	DIAGNOSE the charging system concern.
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No	GO to J2
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J2 CHECK THE BATTERY VOLTAGE

- Turn off all interior lights, exterior lights and accessories.

NOTE

Do not allow the engine speed to increase above 2,000 RPM (revolutions per minute) while performing this step or the generator may self-excite and result in default charging system output voltage. If engine speed goes above 2,000 RPM (revolutions per minute) , turn the vehicle off and restart the engine before performing this step.

Start and run the engine at approximately 1,500 RPM (revolutions per minute) for 3 minutes while monitoring the battery voltage.

Is the battery voltage between 13 and 15.2 volts?

Yes	GO to J3
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FSA (Field Service Action) . 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 (trailer module) module.

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 a loose or corroded connector. ADDRESS the root cause of any connector or pin issues.

PINPOINT TEST K : U3008:13

Refer to Wiring Diagrams Cell 95 for schematic and connector information.

Normal Operation and Fault Conditions The TRM (trailer module) receives battery voltage from BCMC (body control module C) fuse 42 (30A). The TRM (trailer module) has a single ground circuit. An open circuit in the wiring or a condition resulting in an open in the ground circuit, such as an internal failure of the TRM (trailer module) or a connector concern, results in the TRM (trailer module) setting this DTC (diagnostic trouble code) . When this DTC (diagnostic trouble code) sets, the TRM (trailer module) disables trailer braking and sends a TBC FAULT message to the message center. If a trailer is not connected to the vehicle when this DTC (diagnostic trouble code) sets, the TRM (trailer module) sends a TRAILER BRAKE MODULE FAULT message to the message center. REFER to: [Auxiliary Brake System - System Operation and Component Description](#) (206-10 Auxiliary Brake System, Description and Operation).

DTC Fault Trigger Conditions

DTC (diagnostic trouble code)	Description	Fault Trigger Condition
TRM (trailer module) U3008:13	Control Module Ground 'A': Circuit Open	This DTC (diagnostic trouble code) sets in continuous memory and on-demand when the TRM (trailer module) detects a rise in battery voltage greater than 19 volts during a braking event and while not braking, the battery voltage rises greater than 0.75 volt after sending the PWM (pulse width modulation) trailer connectivity test pulse.

Possible Sources

- Wiring, terminals or connectors