2013 Dodge or Ram Truck RAM 2500 Truck 4WD L6-6.7L DSL Turbo
Vehicle > Brakes and Traction Control > Trailer Brakes > Testing and Inspection > Symptom Related Diagnostic Procedures

# ELECTRONIC TRAILER BRAKE FAILURE

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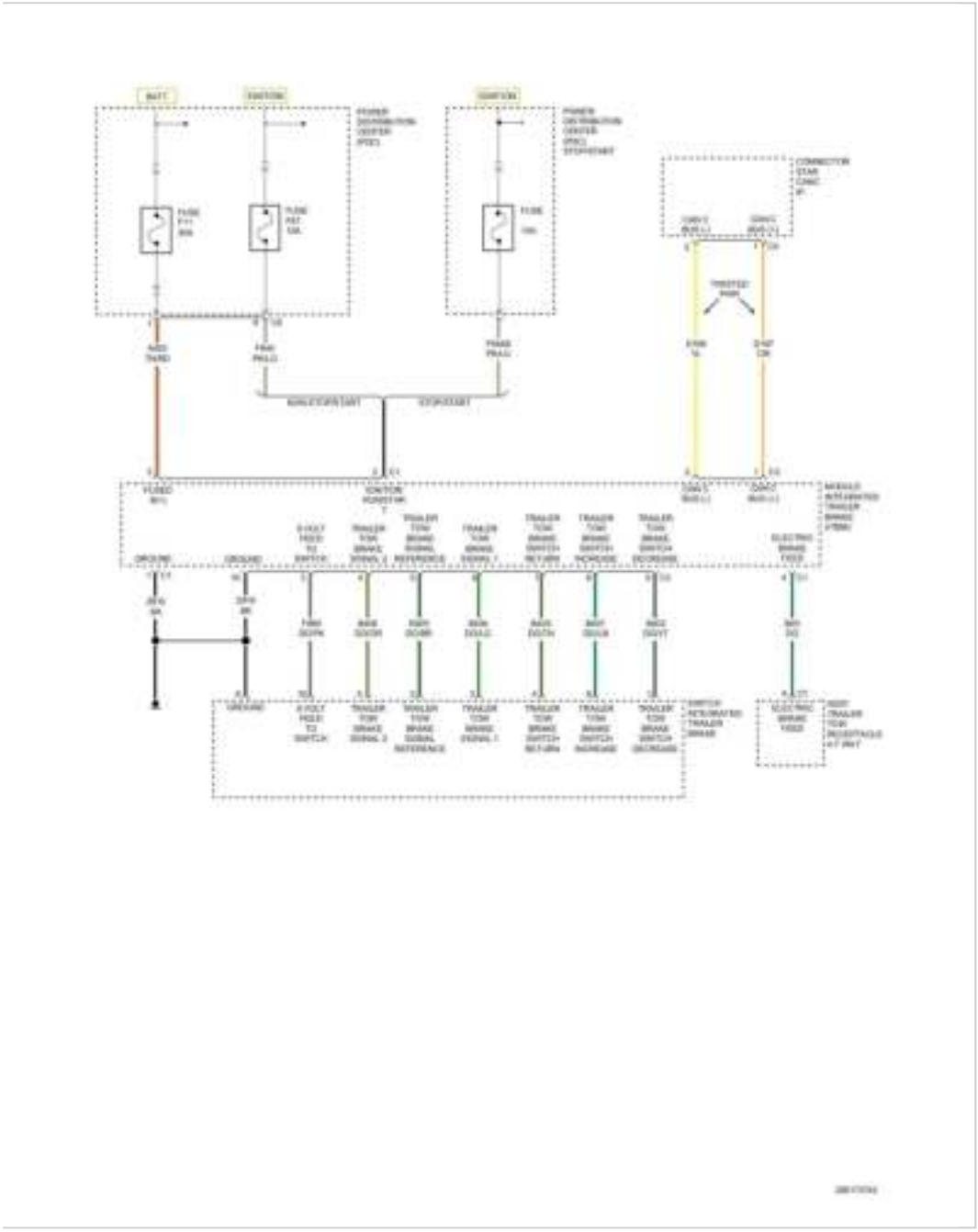
For a complete wiring diagram, **refer to the Wiring Information**.



**Theory of Operation**

The Integrated Trailer Brake Module (ITBM) communicates with the vehicle through the high speed CAN C bus. The ITBM monitors the Brake Pedal Status, Vehicle Speed and ESP status via CAN message. It also outputs the Trailer Status, Gain Setting, and Trailer Brake Output Power to the vehicle. The ITBM connects to the electric trailer brakes through the 7-Way connector and controls the brake force through a Pulse Width Modulating (PWM) duty cycle.

**NOTE: If there is no trailer connected there will be NO Pulse Width Modulating (PWM) signal.**

The PWM is proportional to the rate of deceleration measured by the accelerometer inside the ITBM. The ITBM controls the PWM output to the trailer brakes in four ways. The first occurs while the brake pedal becomes active and vehicle speed is greater than 0 km/h (0 mph). The second is the manual lever on the ITBM that can be controlled by the driver. If both the manual lever and the brake pedal are active simultaneously, the greater of the two, in terms of PWM output, will prevail. The third is after the vehicle has stopped moving, after approximately three seconds of the brake pedal applied the trailer brakes will be applied too. This is to minimize hitch to trailer noise and vehicle roll back when taking off from a stop and on an incline. The fourth is that it will become active during an ESP trailer sway event.

| Possible Causes |
| --- |
| INTEGRATED TRAILER BRAKE MODULE (ITBM) WIRING |
| TRAILER WIRING/BRAKES |
| INTEGRATED TRAILER BRAKE MODULE (ITBM) |

**Diagnostic Test**

**1. VERIFY THERE ARE NO DTCs ACTIVE**

**NOTE: The appropriate trailer must be present for the results of this test to be valid.**

1. Connect the trailer to the vehicle.
2. Ignition on, engine not running.
3. With the scan tool, record and erase DTCs.
4. Cycle the ignition switch from off to on.
5. With the scan tool, read DTCs.

**Is there any active ITBM DTCs?**

**Yes**

- Perform the appropriate diagnostic procedure. See: A L L Diagnostic Trouble Codes ( DTC ) > Testing and Inspection.

**No**

- Go To **2**

**2. TRAILER WIRING/BRAKES**

1. Turn ignition off to the lock position.
2. Disconnect the trailer from the vehicle.

3. Ignition on, engine not running.
4. Cycle the ignition switch from off to on.

**Does the ITBM display any of the following "CF,SB, or SC"?**

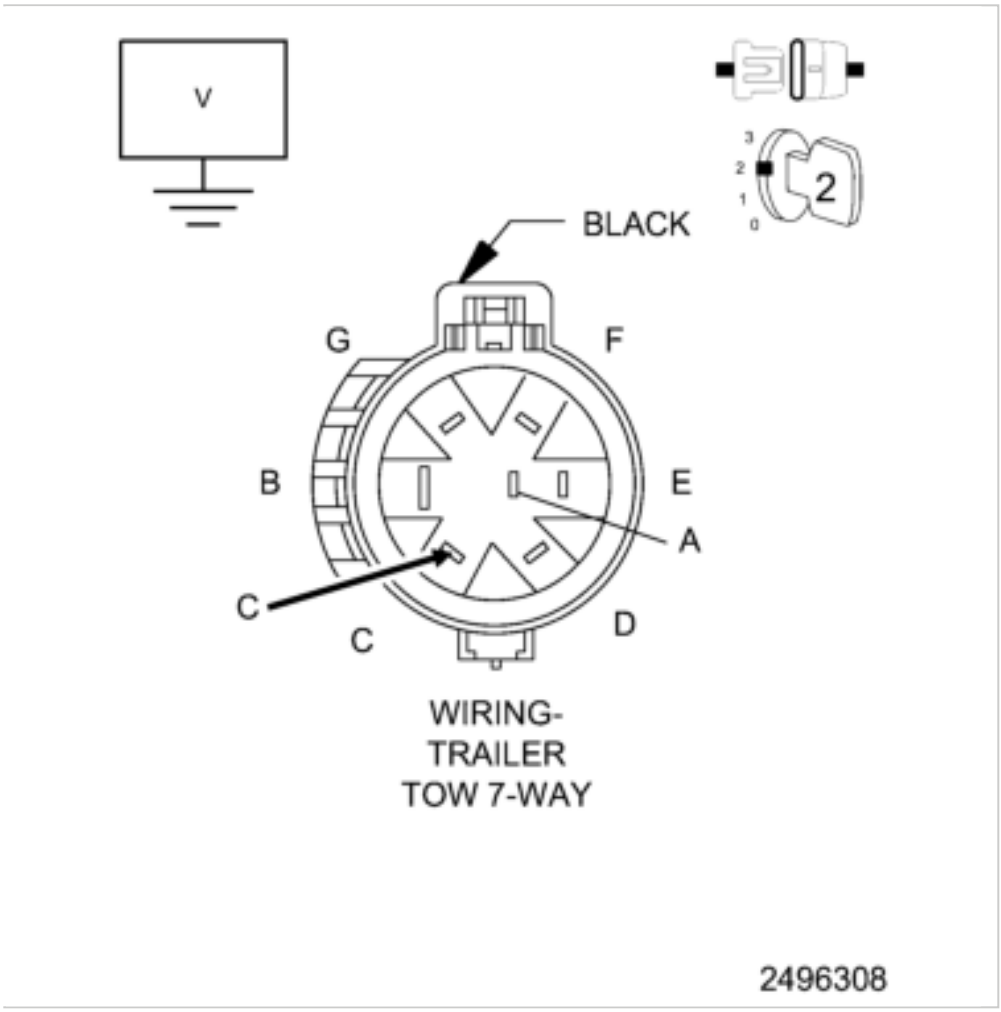
**Yes**

- Go To **3**

**No**

- Trailer wiring/brakes are shorted to ground, refer the customer to an authorized trailer dealer.

**3. (B40) TRAILER TOW BRAKE (B+) CIRCUIT SHORTED TO VOLTAGE**




1. Turn ignition off to the lock position.
2. Disconnect the ITBM C1 harness connector.
3. Check connectors - Clean/repair as necessary.
4. Ignition on, engine not running.
5. Measure the voltage between the (B40) Trailer Tow Brake (B+) circuit and ground.

**Is there any voltage present?**

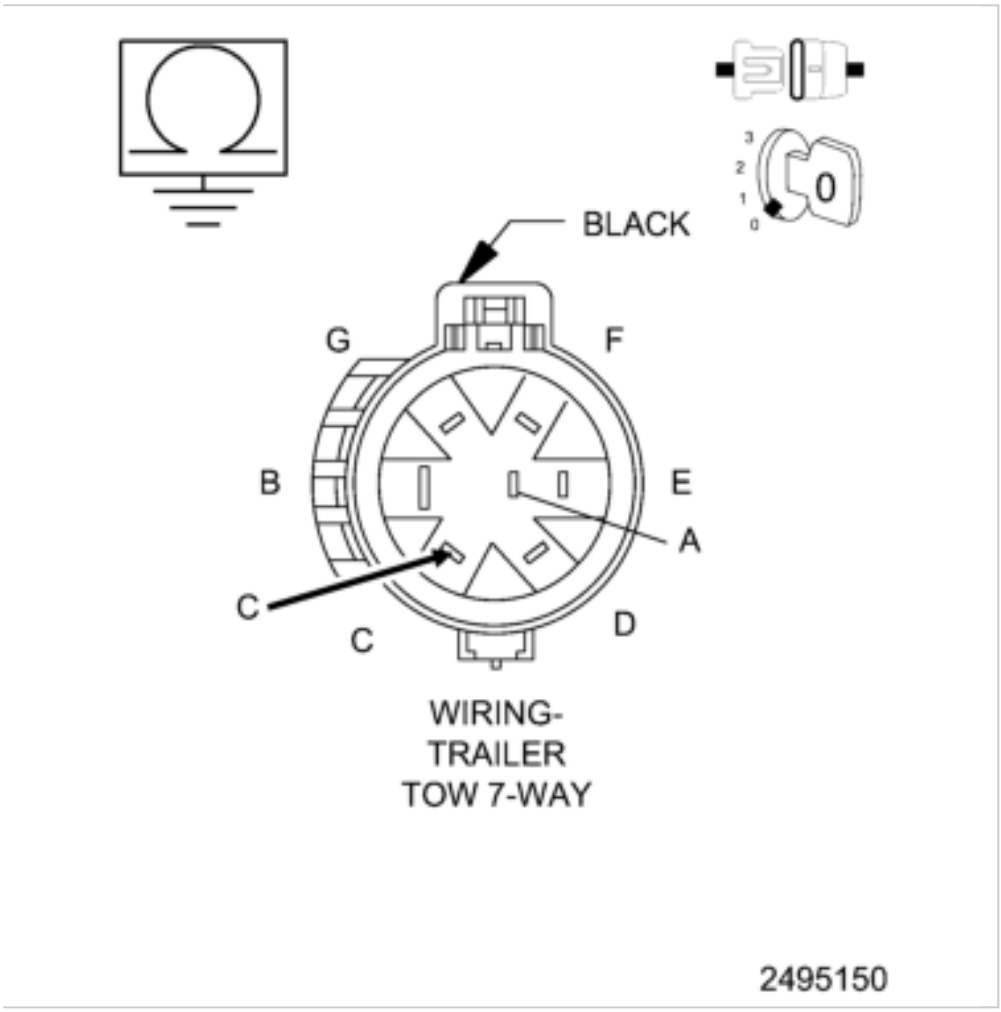
**Yes**

- Repair the (B40) Trailer Tow Brake (B+) circuit for a short to voltage.
- Perform the ITBM VERIFICATION TEST. See: A L L Diagnostic Trouble Codes ( DTC ) > Verification Tests > ITBM Verification Test.

**No**

- Go To **4**

**4. (B40) TRAILER TOW BRAKE (B+) CIRCUIT SHORTED TO GROUND**




1. Turn ignition off to the lock position.
2. Check connectors - Clean/repair as necessary.
3. Measure the resistance between ground and the (B40) Trailer Tow Brake (B+) circuit.

**Is the resistance below 10k Ohms?**

**Yes**

- Repair the (B40) Trailer Tow Brake (B+) circuit for a short to ground.
- Perform the ITBM VERIFICATION TEST. See: A L L Diagnostic Trouble Codes ( DTC ) > Verification Tests > ITBM Verification Test.

**No**

- Go To **5**

**5. INTEGRATED TRAILER BRAKE MODULE (ITBM)**
1. Turn ignition off to the lock position.
2. Disconnect the trailer.
3. Using the wiring diagrams as a guide, check all related splices and connectors for signs of water intrusion, corrosion, pushed out or bent terminals, and correct pin tension. Pay particular attention to all Power and Ground circuits.

**Were there any problems found?**

**Yes**

- Repair as necessary.
- Perform the ITBM VERIFICATION TEST. See: A L L Diagnostic Trouble Codes ( DTC ) > Verification Tests > ITBM Verification Test.

**No**

- Replace the Integrated Trailer Brake Module (ITBM). See: Trailer Brake Control Module > Removal and Replacement > Integrated Trailer Brake Module - Removal.