

TRAILER BRAKE CONTROLLER



INTEGRATED TRAILER BRAKE MODULE

The Integrated Trailer Brake Controller allows you to automatically or manually activate the Electric Trailer Brakes and Electric-Over-Hydraulic (EOH) trailer brakes for a better braking performance when towing.

This module will have four different options depending on the type of trailer you want to tow. Based on the vehicle model and trim level, you can select the settings through the instrument cluster's Driver Information Display (DID) or through the touchscreen radio. You can set the trailer brake controller to match the trailer's Electric or Electric-Over-Hydraulic (EOH) braking system:

- ▶ Light Electric
- ▶ Heavy Electric
- ▶ Light EOH
- ▶ Heavy EOH

TOWING REQUIREMENTS — DIFFERENCES AMONG TRAILER BRAKES

If a loaded trailer weighs more than 1,000 lb/454 kg (trailer brake weight requirements vary by state), it should have its own brakes to prevent accelerated brake-lining wear, higher brake-pedal effort and longer stopping distances. For trailers that weigh in excess of 1,653 lb/750 kg, trailer brakes are required. The three most common trailer braking systems for this class of trailers are: Hydraulic Surge, Electric and Electric-Over-Hydraulic (EOH) trailer brake systems.

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HYDRAULIC SURGE BRAKES

The hydraulic surge brake system features a sliding connection between the tow vehicle and the trailer that houses a hydraulic master cylinder. This assembly is connected to hydraulic lines that run to the disc or drum brakes. When a driver applies the brakes to the tow vehicle, the forward momentum of the trailer causes force to be exerted on the master cylinder. Hydraulic fluid is then pumped to the brakes in proportion to the rate of deceleration and the mass of the trailer.

When towing a trailer equipped with surge brakes, an electronic brake controller is not required. Typical applications for surge brake systems are small boat trailers and retail rental trailers, like those from U-Haul, precisely because they do not require a brake controller and the related electrical connections to the tow vehicle. Consumers can hook up and haul with very little preparation.

NOTE: Never connect the hydraulic brake system or vacuum system of the tow vehicle to that of the trailer. This could cause inadequate braking and possible personal injury.

ELECTRIC TRAILER BRAKES

Electric trailer brakes do require an electronically actuated trailer brake controller. Electric trailer brakes employ a magnet mounted inside the trailer's wheel-hub assembly. When the driver steps on the tow vehicle's brake pedal or when the driver uses a manual lever or buttons on the electronic trailer brake controller, an electric signal is sent to the trailer's brakes activating the brake shoes or calipers to engage and slow down the trailer.

ELECTRIC-OVER-HYDRAULIC (EOH) TRAILER BRAKE SYSTEM

Electric-Over-Hydraulic (EOH) trailer brake systems employ an electric/hydraulic power unit, battery, hydraulic lines and hydraulic disc or drum brakes. In this case, when the driver steps on the tow vehicle's brake pedal or uses the brake controller, the electric signal powers a hydraulic compressor to produce hydraulic pressure which is distributed throughout the trailer brake system.

Typical applications for Electric and Electric-Over-Hydraulic (EOH) brake systems range from small single-axle utility trailers to large multi-axle recreational vehicles, as well as stock, equipment, flat, fifth-wheel and gooseneck trailers.

	Light Electric	Heavy Electric	Light EOH	Heavy EOH
Type of Trailer Brakes	Electric Trailer Brakes	Electric Trailer Brakes	Electric-Over-Hydraulic Trailer Brakes	Electric-Over-Hydraulic Trailer Brakes
Load	*Under 10,000 lb	*Above 10,000 lb	*Under 10,000 lb	*Above 10,000 lb

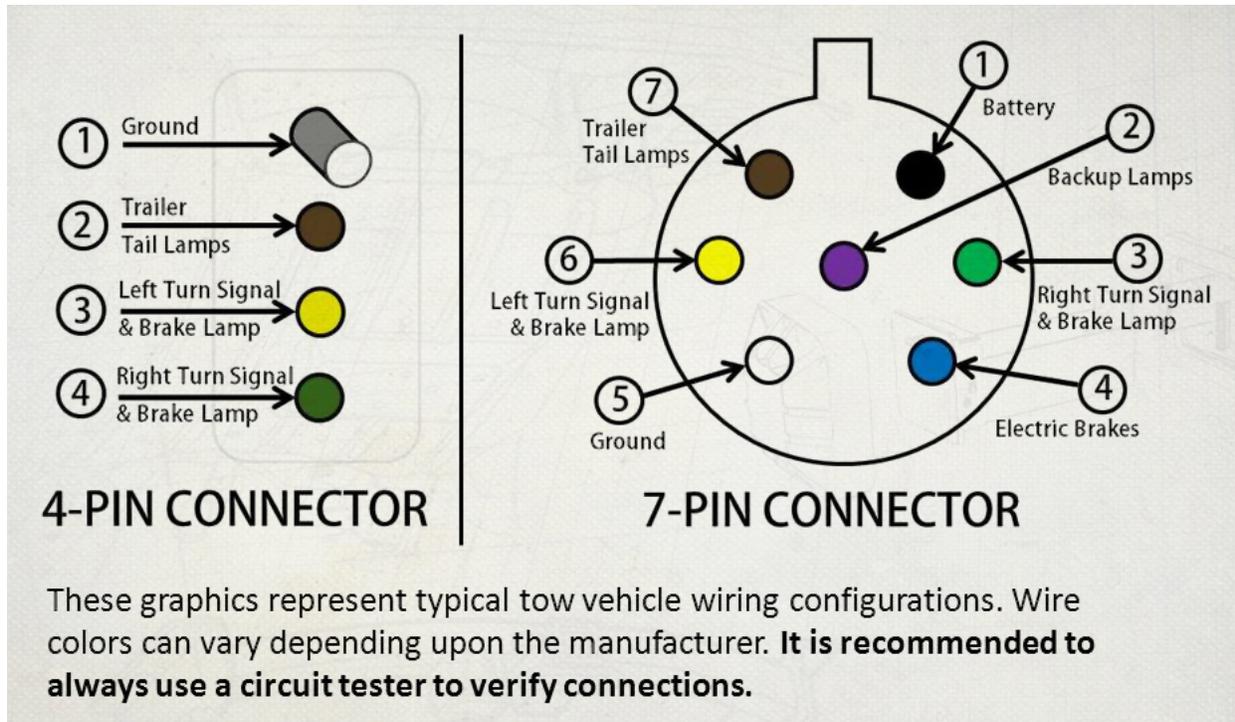
*The suggested selection depends and may change depending on the customer preferences for braking performance. Condition of the trailer brakes, driving and road state may also affect the selection.

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TRAILER WIRING: 4-PIN AND 7-PIN CONNECTORS

Trailer wiring connectors can range from 4 to 7 pins for the trailer's lighting features, as well as auxiliary functions, such as an electric trailer brake controller, back-up lights, and a 12-volt power supply for a winch or interior trailer lighting.



4-PIN CONNECTORS support the basic connection of three lighting functions: taillamps, turn signals and brake lamps (female pins). One pin is provided for a ground wire (male pin).

7-PIN CONNECTORS feature additional pins for electric brakes, a 12-volt "hot" lead from the battery and running lamps. There are two types of 7-way connectors. One has flat pins, which are often referred to as blades. The other has round pins. The 7-pin connector with flat pins is the more common of the two and is found on newer trucks and SUVs that come equipped from the factory with a trailer hitch.

All Ram Pickups offer a convenient 4- and 7-pin trailer plug-in connection integrated into the rear bumper. The built-in trailer harness connector eliminates dangling wires and is engineered to make it easier to connect the trailer.

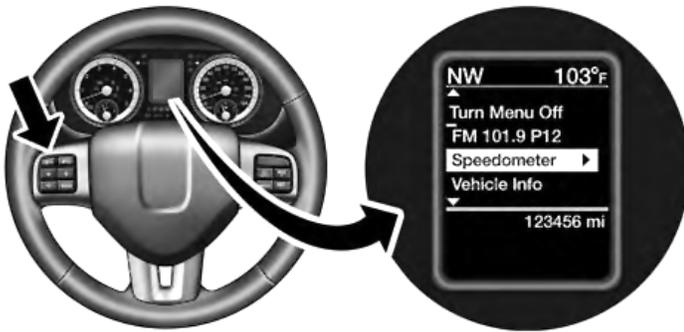
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GETTING THE MESSAGE WITH DID

Once the trailer is connected, the Integrated Trailer Brake Control Module interacts with the Driver Information Display (DID). Display messages, along with a single chime, will be displayed when a malfunction is determined in the trailer connection, trailer brake control or on the trailer.

DID DISPLAY MESSAGES — DID features a driver-interactive display located in the instrument cluster.



3.5" Driver Information Display (DID)

[2016 Ram Owner's Manual page 334/0409076653]

7" Driver Information Display (DID)

[2016 Ram Owner's Manual page 355/0409076652]

The DID Menu items consist of the following:

3.5" DID	7" DID
Speedometer	Digital Speedometer
Vehicle Info	Vehicle Info
Fuel Economy Info	Fuel Economy Info
Trip A	Trip A
Trip B	Trip B
Stop/Start Info (If Equipped)	Stop/Start Info (If Equipped)
Air Suspension (If Equipped)	
Trailer Tow	Trailer Tow
	Audio
Messages	Stored Messages
Screen Setup	Screen Setup
Vehicle Settings (Not Equipped with a Uconnect 5.0 & 8.4 radio)	Vehicle Settings (Not Equipped with a Uconnect 5.0 & 8.4 radio)

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DID Control Buttons

[2016 Ram Owner's Manual page 335/040971549]

THE SYSTEM ALLOWS THE DRIVER TO SELECT INFORMATION BY PUSHING THE FOLLOWING DID CONTROL BUTTONS LOCATED ON THE STEERING WHEEL:

- △ Push and release the Up arrow button to scroll upward through the main menu (and DID submenus).
- ▽ Push and release the Down arrow button to scroll downward through the main menu (and DID submenus).
- ▷ Push and release the Right arrow button to access/select the information screens or submenu screens of a main menu item. Push and hold the Right arrow button for 2 seconds to reset displayed/selected features.
- ◁ Push and release the Left arrow button to return to the main menu.

SETTING TRAILER TOW: DID

1. Press the Right arrow on the steering wheel to enter "Vehicle Settings."
2. Press the Up or Down button until Trailer Brake Type appears on the screen.
3. Press the Right arrow and then press the Up or Down button until the proper Trailer Brake Type appears on the screen:
 - ▶ Light Electric
 - ▶ Heavy Electric
 - ▶ Light Electric-Over-Hydraulic (EOH)
 - ▶ Heavy EOH
4. Select the proper Trailer Brake Type.

SETTING WITH THE UCONNECT TOUCHSCREEN RADIO

To make the proper selection in the Uconnect touchscreen radio, press the "More" hard-key (Uconnect 5.0) or the "Apps" soft-key (Uconnect 8.4), then press the "Settings" soft-key to display the menu setting screen. Press "Trailer Brake."

After pressing the "Trailer Brake" button on the touchscreen, the following settings will be available:

- "Trailer Select"
- "Trailer Brake Type"

Press "Trailer Brake Type." When this feature is chosen, the proper Trailer Brake Type can be selected: "Light Electric," "Heavy Electric," "Light EOH" and "Heavy EOH."

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CHOOSING BETWEEN “LIGHT” AND “HEAVY” SETTINGS

Pickup owners are going to wonder about the difference between the Light and Heavy settings. The wide variety of trailers and towing capacities of different pickup models makes this decision dependent upon the specific towing situation and a customer’s overall braking preferences.

The key rule of thumb in towing is to practice turning, stopping and backing the trailer up in an area away from heavy traffic before setting out on a trip. Owners should test the operation at low speeds first to determine if more or less braking force is required for the trailer.

The “Light” and “Heavy” calibrations are designed to help alleviate the potential buildup of hydraulic brake pressure that can occasionally occur in Electric-Over-Hydraulic systems. With all the different axle ratios, tire sizes and brake efficiencies, the low-speed practice run will give the owner a good sense on the best setting for the trailer.

OPERATING THE INTEGRATED TRAILER BRAKE CONTROLLER

The Integrated Trailer Brake Controller is located in the center stack below the climate controls.

GAIN ADJUSTMENT BUTTONS (+/-)

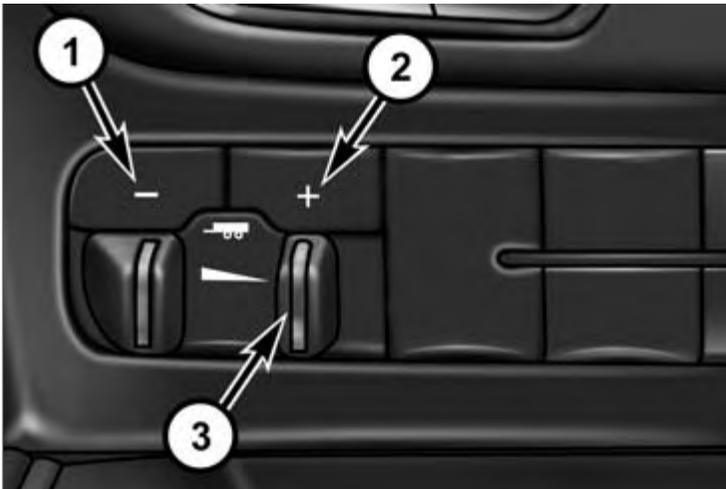
The Gain adjustment buttons (+/-) fine-tune the power output to the trailer brakes. Pressing the +/- buttons, located on the left side of the module, will increase/decrease the brake control power output to the trailer brakes in 0.5 increments. The Gain setting can be increased to a maximum of 10 or decreased to a minimum of 0 (no trailer braking). A Gain setting of 5 is a good starting point.

The Gain setting is used to set the trailer brake controller for the specific towing condition and should be changed as towing conditions change due to the trailer’s load, the tow vehicle’s load, the road conditions and the weather.



1 — Decrease (-) 2 — Increase (+) [2016 Ram User Guide page 176]

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1 — GAIN Decrease (-)

2 — GAIN Increase (+)

3 — Manual Brake Control Lever

MANUAL BRAKE CONTROL LEVER

Slide the manual brake control lever to the left to activate power to the trailer's electric brakes independent of the tow vehicle's brakes. If the manual brake control lever is activated while the brake is also applied, the greater of the two inputs determines the power sent to the trailer brakes.

The trailer and the vehicle's brake lamps will come on when either vehicle braking or manual trailer brakes are applied.

TRAILER BRAKE STATUS INDICATOR LIGHT



If a fault is detected in the trailer wiring or the Integrated Trailer Brake Module (ITBM), the "Trailer Brake Status Indicator Light" will flash in the DID display.

This light indicates the trailer electrical connection status. If no electrical connection is detected after the ignition is turned on, pressing the Gain adjustment button or sliding the manual brake control lever will display the Gain setting for 10 seconds and the "Trailer Brake Status Indicator Light" will not be displayed.

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ADJUSTING GAIN

NOTE: Gain adjustments should only be performed in a traffic-free environment at speeds of approximately 20-25 mph (30-40 km/h). Customers need to ensure the trailer brakes are in good working condition, functioning normally and properly adjusted. See the trailer dealer if necessary.

1. Make sure the trailer brakes are in good working condition, functioning normally and properly adjusted.
2. Hook up the trailer and make the electrical connections according to the trailer manufacturer's instructions.
3. When a trailer with electric/EOH brakes is plugged in, the trailer connected message should appear in the EVIC (if the connection is not recognized by the ITBM, braking functions will not be available); the Gain setting will illuminate; and the correct type of trailer must be selected from the EVIC options.
4. Press the Up or Down button on the steering wheel until "Trailer Tow" appears on the screen.
5. Press the Right arrow on the steering wheel to enter "Trailer Tow."
6. Press the Up or Down button until Trailer Brake Type appears on the screen.
7. Press the Right arrow and then press the Up or Down button until the proper Trailer Brake Type appears on the screen.
8. In a traffic-free environment, tow the trailer on a dry, level surface at a speed of 20–25 mph (30–40 km/h) and engage the manual brake control lever completely.
9. If the trailer wheels lock up (indicated by squealing tires), reduce the Gain setting; if the trailer wheels turn freely, increase the Gain setting.

Repeat steps 8 and 9 until the Gain setting is at a point just below trailer wheel lockup. If towing a heavier trailer, trailer wheel lockup may not be attainable even with the maximum Gain setting of 10.

The trailer brake output should be adjusted so that the trailer's brakes can never quite lock up completely, even with maximum application of the manual brake control. The rate should be set so that the trailer's brakes work in concert with the tow vehicle's brakes. This means that they should neither grab too fast nor let the trailer push the pickup.

Customers may be advised to consult with a Recreational Vehicle specialist if they are in doubt about their trailer-brake performance. This is a matter that is too important to guess about on the road.

ADDITIONAL ACCESSORIES REQUIRED

With some older Electric-Over-Hydraulic (EOH) systems, there will be the need to add an adaptation kit that helps the controller detect the EOH system. The purpose of these kits is to simulate the load of the electric brake magnet so that the Integrated Trailer Brake Module can detect that a trailer is connected. Newer EOH pump modules already have chokes designed in the EOH circuit board to perform the same function as these adaptation kits.

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AUTHENTIC RAM TRUCK ACCESSORIES BY MOPAR®

If a customer purchases an Integrated Trailer Brake Controller that is an Authentic Ram Truck Accessory by Mopar, it is critical to ensure that it is the correct part number and software. For Ram models manufactured prior to September 2011 using earlier model year part numbers and software, the controller will be limited to the Light Electric load setting. For 2012 and later model-year pickups in which the Integrated Trailer Brake Module (ITBM) software is used, the controller will recognize Electric and Electric-Over-Hydraulic (EOH) systems, as well as Light and Heavy load settings.

COMPETITIVE TRAILER BRAKE CONTROLLER SYSTEMS

FORD F-SERIES PICKUPS INTEGRATED TRAILER BRAKE CONTROLLER

Like the Ram Trailer Brake Controller, the Ford TBC is fully integrated and assists in smooth and effective trailer braking by powering the trailer's electric or Electric-Over-Hydraulic brakes with a proportional output based on the towing vehicle's brake pressure. It uses braking input, vehicle speed and ABS logic to balance the performance of the truck brakes and electric trailer brakes.

Controls are located to the right of the steering wheel on the IP. A user-friendly productivity screen in the instrument cluster message center indicates TBC output, gain levels and trailer connection status.

You can adjust the amount of initial trailer brake output by selecting one of three settings through the message center. Use the Gain adjustment buttons to increase or decrease the braking feature's power output to the trailer in 0.5 increments. The Gain setting displays in the message center: TBC GAIN = XX.X.

CHEVY SILVERADO PICKUPS INTEGRATED TRAILER BRAKE CONTROLLER

Like Ram and Ford, Chevy Silverado also offers an available Integrated Trailer Brake Controller (ITBC) system for use with electric trailer brakes or most Electric-Over-Hydraulic trailer brakes.

The power output to the trailer brakes is based on the amount of brake pressure being applied by the vehicle's brake system, and on the type of trailer brakes detected. This available power output to the trailer brakes can be adjusted to a wide range of trailering situations.

The ITBC control is located to the left of the steering wheel and displays the level of brake force or "Gain" in the Driver Information Center (DIC) on the instrument cluster.

RAM TRAILERING ADVANTAGES

Ram Integrated Trailer Brake Controller

Although the TBC systems of Ram, Ford and Chevy operate in similar fashion and provide comparable capabilities, Ram offers a major advantage over Chevy Silverado when it comes to availability. Ram's TBC system is standard on SLT and higher pickup models. Chevy Silverado offers the TBC only as an option.

Of course, the TBC is just one of the many strong trailering advantages Ram offers against Ford and Chevy. Let's see how they match up when it comes to work-ready, heavy-duty trailering.

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RAM HD TRAILERING FEATURES

	Ram 2500/3500 SLT DRW	Ford F-250/350 XLT DRW	Chevy 2500/3500 LT DRW
Max towing capability	Best-In-Class* Towing** 31,210 lb (3500) 17,980 lb (2500)	26,500 lb (350) 16,600 lb (250)	23,200 lb (3500) 17,900 lb (2500)
Trailer brake controller	Standard	Standard	Optional
Class V trailer hitch receiver	Standard	Standard	Optional
4- and 7-pin trailer wire connector	Standard	Standard	7-pin optional
Integral 5th wheel/ gooseneck crossmember	Standard	Optional	Optional
Cargo view camera for 5th wheel/gooseneck hitching	Optional	Not Available	Not Available
Additional 7-pin wiring harness in the bed for 5th wheel/gooseneck hitching	Optional	Optional	Optional

*Based on latest available competitive information. Class based on 250/2500 and 350/3500 pickups.

**Properly equipped.

DISCLAIMERS

Customers should not exceed the GAWR, GVWR or GCWR of the vehicle when towing a trailer. It is the customer's responsibility to comply with and not exceed the GAWR, GVWR and GCWR of the vehicle.

The recommended tongue weight for a conventional hitch is 10 percent of the gross trailer weight.

The maximum tongue weight for Class IV hitch receiver is limited to 1,100 lb.

The maximum tongue weight for Class V (receiver hitch) is limited to 1,800 lb.

A weight-distributing hitch is recommended for trailers over 5,000 lb.

For gooseneck and 5th-wheel trailers, the tongue weight (king pin weight) should never exceed any of the manufacturer recommendations including but not limited to payload and GAWR.

A 5th-wheel or gooseneck hitch is required for trailers over 18,000 lb; a gooseneck hitch is required for trailers over 25,000 lb.