

Ford Transit Battery Wiring Instructions

Routing the Power Cables

Note: 2020+ Ford Transit

Connect the liftgate positive cable directly to the battery, not the Customer Connection Points (CCP) for these model years of Transit. Electrical loads controlled by the van's load-shed signal, such as the CCP, may temporarily be turned off by the load-shed switch while the liftgate is operated.

Note: 2015-2019 Ford Transit

Ford recommends using the vehicle Customer Connection Points (CCP) to power the liftgate. Vehicle option 67C-User Defined Upfitter Switches, provides three (3) 60 amp CCP, which can be combined into one 180 amp connection. If three (3) CCP are not available, Ford part number BK2Z-14S411-A adds the additional CCP. If neither of these options are available, large loads can be connected to an empty M6 stud on the positive battery terminal using the supplied M6 lock nut (Ford Bulletin Q-226R2).

1. **Install** the circuit breaker on the floor behind the driver seat, near the battery, leaving enough room for the power cables to be installed and so that the circuit breaker can easily be reset.

Note: 2000-3000lb capacity liftgates use a 200 amp circuit breaker at 12 volts D.C.

Do not connect these applications to the Customer Connection Points (CCP).

2. **Check** for obstructions before drilling.

Note: Any time a hole is drilled in the vehicle, apply rust preventative to the bare metal.

3. **Drill** and **Deburr** a 1-1/4" hole in the floor next to the driver seat in the location shown (Figure 1).

An alternate location will be needed if there is a trailer brake controller in the way.

Note: Follow the *Tommy Gate Recommended Electrical Wiring Guidelines* and wiring diagram (Figure 2) in the following steps.

4. **Route** the power cables under the vehicle from the liftgate, along the frame, to a location under the driver door (Figure 1).
Cantilever and 650 Series: provide at least 12" extra of cable near the pump to allow for gate movement and for later service.
5. **Pull** the power cables through the drilled 1-1/4" hole in the floor, using the supplied grommet.
6. **Separate** the positive(+) and negative(-) leads.
7. **Cut** the positive(+) lead to the length required to reach the auxiliary (AUX) terminal of the circuit breaker.
8. **Cut** the remaining positive(+) lead long enough to reach from the circuit breaker battery (BAT) terminal to the positive 12 volt connection point for your application (see notes at beginning of this section).
9. **Cut** the negative(-) lead to the length required to reach a vehicle ground point on the floor between the front seats (Figure 1).

IMPORTANT: The pump and motor unit for this lift can require significant electrical power at 12 volts D.C.
Be sure that the negative (-) ground lead is securely connected to a sufficient vehicle ground point.

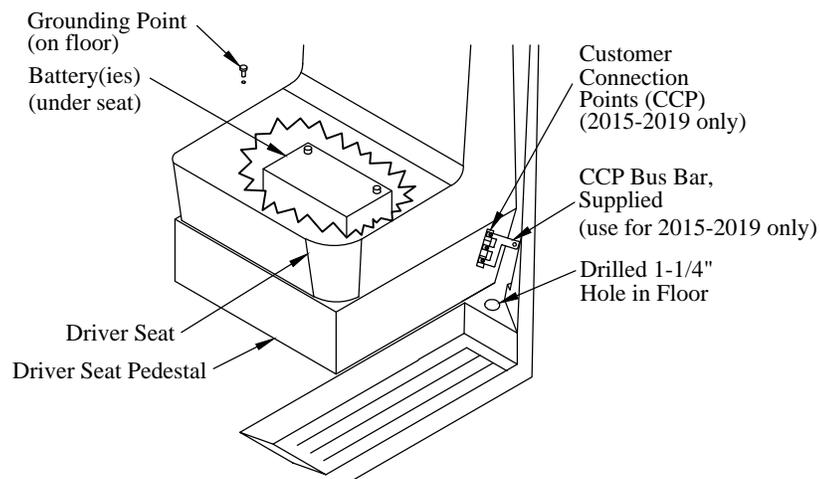


Figure 1: Power connection locations.

Ford Transit Battery Wiring Instructions

Routing the Power Cables (continued)

10. **Install** the copper lugs on all required ends. Make sure the copper lugs will fit flush with the connection surfaces.
11. **Connect** the negative(-) lead to a vehicle ground point on the floor between the front seats. (Figure 1).
12. **Connect** the circuit breaker (Figure 2). Use the supplied heat shrink tubing.
13. **Check** for obstructions before drilling.
14. **Attach** the circuit breaker cover using the supplied self-drilling screws (Figure 3).



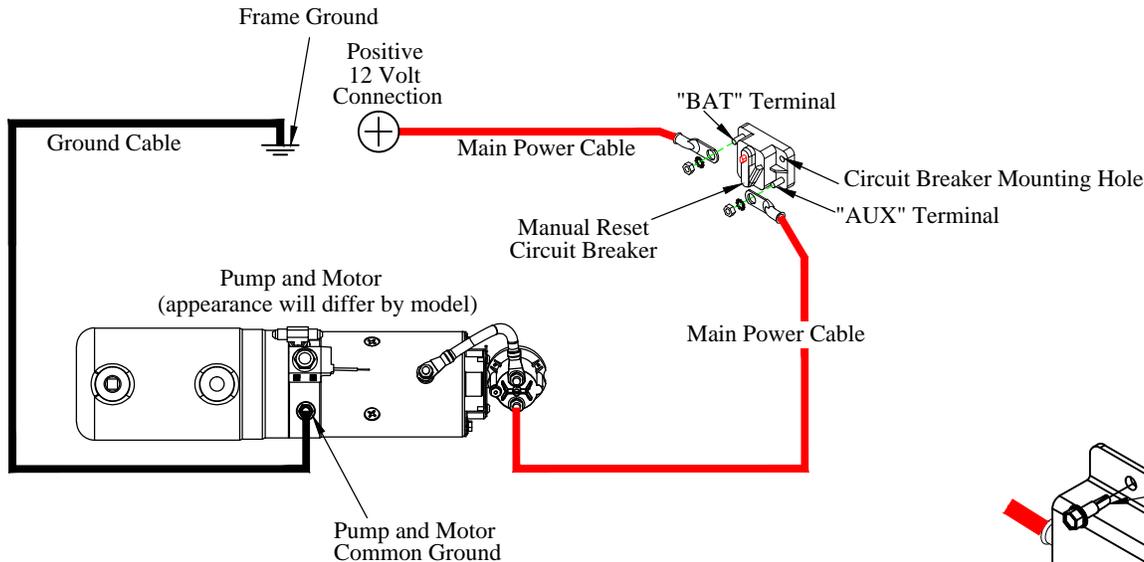
!!! PLEASE READ AND FOLLOW ALL DIRECTIONS BEFORE PROCEEDING !!!



NOTE !!! IF GATES ARE NOT WIRED IN ACCORDANCE WITH THIS DIAGRAM YOUR WARRANTY WILL BE VOID.



WELDING NOTE !!! DISCONNECT ALL BATTERY CABLES. ALWAYS DISCONNECT THE GROUND CABLE FIRST. ATTACH THE WELDING GROUND TO THE TRUCK RATHER THAN THE LIFTGATE.



Note: Control wiring not shown for clarity.

Figure 2: Generic battery wiring diagram.

Refer to vehicle specific mounting instructions for detailed diagram.

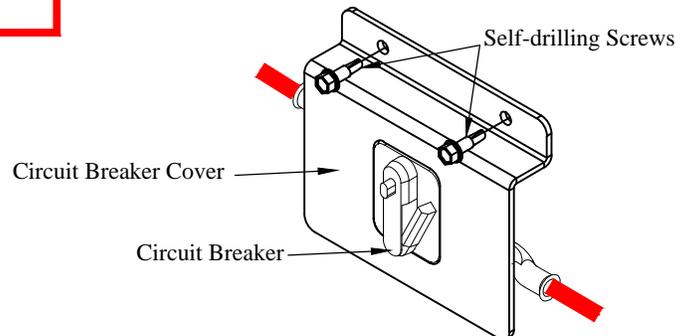


Figure 3: Circuit breaker cover.

Ford Transit Battery Wiring Instructions

Routing the Power Cables (continued)

15. **Connect** the positive(+) lead to the M6 stud on the positive battery clamp. Reuse the M6 lock nut, when possible (Figure 4).
For 2015-2019, see Ford Bulletin Q-226R2 and do not connect to the stud occupied by the alternator sensing circuit.
16. **Apply** sealant to holes drilled for power cables.
17. **Skip** Steps 18-21 for 2020+ Transit.
Complete Steps 18-21 only if using the CCP bus bar for 2015-2019.
18. **Remove** the plastic cover from the CCP on the driver seat pedestal (Figure 1).
19. **Install** the supplied bus bar on the CCP studs using three (3) supplied M5 nuts and star washers.
The bus bar combines three (3) 60 amp connections into one 180 amp connection point.
20. **Connect** the positive(+) lead to the CCP bus bar. Use the supplied 5/16" bolt, lock nut, and two (2) pieces of heat shrink tubing to cover the cable connection to the bus bar.
21. **Install** the plastic CCP cover on the bus bar cable connection. The cover will need to be trimmed for bus bar clearance.

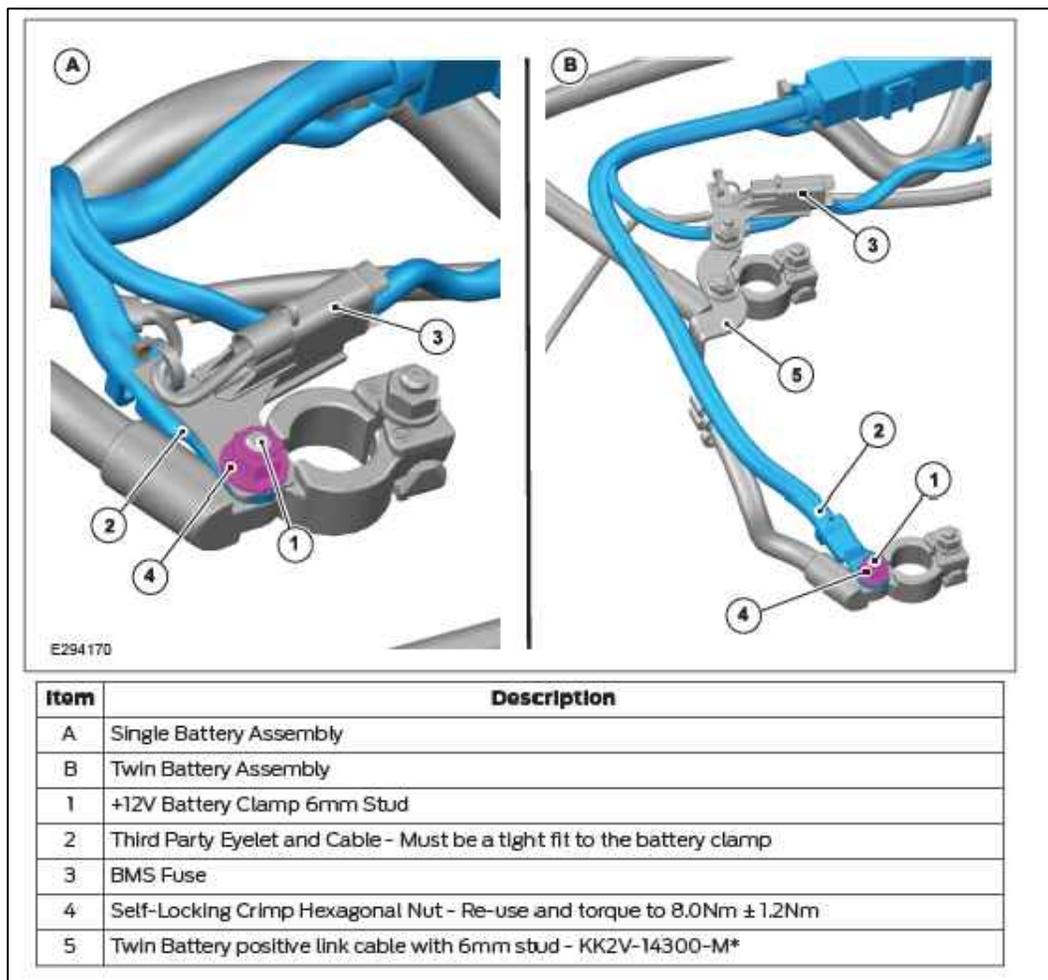


Figure 4: Battery diagram from 2020 Ford Transit Body and Equipment Mounting Manual (BEMM).



WIRE ROUTING

- (1) When routing wires, avoid heat (above 180°F), abrasion, vibration, metal edges, screws, and trim fasteners. If such routings are not possible, protective devices must be used. If wires must cross a metal edge, the edge should be covered with a protective shield and the wiring fastened within 3 inches on each side of the edge.
- (2) Grommets must be used where wires pass through holes in sheet metal, castings, and / or frame rails. Do not bend wires in a radius smaller than 10 times the wire diameter.
- (3) Routing wires into areas exposed to wheel wash should be avoided. If this cannot be avoided protective shields are required to protect the wires from stones, ice, salt and water damage. Provide a drip loop to prevent moisture from being conducted into switches, relays, circuit breakers, and fuses.
- (4) Wires should be supported every 18 inches with plastic zip ties or rubber-lined clips.
- (5) Wires must be routed to clear moving parts by at least 3 inches unless positively fastened or protected by a conduit. If wiring must be routed between two members where relative motion can occur, the wiring should be secured to each member, with enough wire slack to allow flexing without damage to the wire.
- (6) Maintain at least a 6 inch clearance from exhaust system components. If this is not possible, high temperature insulation and heat shields are required. Existing OEM heat shields, insulation, and wire shielding must be maintained.
- (7) Do not route or attach electrical wires to fuel lines. Route electrical wires at least 1-1/2 inches away from the engine.

BATTERY, WIRE, TERMINALS, AND CONNECTORS

- (1) Wire attachments at the battery must be protected from tension loads so there is no undue strain on the battery terminals. Wires should be routed down rather than horizontally from the terminals with no sharp bends adjacent to the connections.
- (2) Battery power for your Tommy Gate should come directly from the battery or approved connection point through the supplied circuit breaker or fuse. The circuit breaker or fuse should be installed as close to the battery as possible.
- (3) Avoid splicing power cables. If splicing is necessary, the most durable splice joint will be bare metal barrel crimped, flow-soldered and covered with adhesive lined heat shrink tubing. Strip the wire ends making sure that individual conductor strands are not damaged. Use only rosin core solder, proper crimping tools, and wire with a gauge at least equivalent to the circuit being lengthened. Do not use electrical tape.
- (4) Battery cable terminals will be bare metal barrel crimped or flow-soldered and covered with adhesive lined heat shrink tubing.
- (5) Use wire connectors with locking features such as positive locking, inertia locking, bolt together, and soft mold-over with locking external retainers.

GENERAL

- (1) All frame contact areas must be wire brushed to bare metal, free of paint, dirt, and grease. Frame connections must be made using hardened flat washers under the bolt head and lock nuts. Corrosion preventive grease or compound is to be applied to the terminal area of the frame connection.
- (2) Frame cross members are not recommended as part of the ground return.
- (3) All circuit breakers and fuses should be located in one easily serviceable location with a means provided for identification of circuit function and current rating. If possible, avoid putting circuit breakers or fuses in the vehicle cab.
- (4) Before welding to the chassis disconnect the battery. Also disconnect the power train, engine, valve, and transmission control modules.
- (5) Do not alter vehicle ignition, starting, and / or charging systems. Do not reroute engine compartment wiring.
- (6) Full copper circuitry and standardized polarity grounds are recommended.
- (7) Never increase the rating of a factory installed fuse or circuit breaker.
- (8) Disconnect the battery negative (ground) wire prior to any vehicle modification.

Following the above guidelines will provide you with years of trouble free service. Failing to incorporate the above guidelines may result in a voided warranty. Non-compliance with the guidelines above may result in a failure of electrical components, shutdown of engines, loss of backup brake systems, and the possibility of fire.



SVE BULLETIN

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QVM Bulletin: Q-226R2

Date: 20 October, 2014

Revised: 13 March, 2017

Revision	Update	Revision Date
Q-226R2	Added recommendation for vehicles requiring greater than 30 Amps	13 March, 2017

Accessing Battery Power on Transit

Models Affected: 2015 Transit – All models

Description: For modifications and equipment installations requiring B+ current loads greater than 30 Amps, the guidelines provided below should be followed.

NOTE: If a converter intends to add systems or accessories that will add significant electrical load (particularly at key off), then vehicles with twin High Performance Deep Cycle AGM batteries should be specified. The twin option is the standard heavy duty system for loads greater than 5mA continuous at key off or 30A at engine run. It is also recommended to upgrade to the heavy duty alternator option if the extra loads are continuously active at engine run and exceed 30A above standard Ford systems.

For Battery Power Less than 60 Amps

- Connect to the 1 x 60A Customer Connection Point (CCP) in the Pre Fuse Box (PFB)
- 1 x 60A MIDI fuse is present on all Transit vehicles (within the PFB in the driver seat pedestal).
- See the Transit Body and Equipment Mounting Manual (BEMM) for information regarding the use of the CCP's.

For B+ Battery Power Greater than 60 Amps

Vehicles with factory installed 3 X 60A Customer Connection Points (available with option 67C-Upfitter switches)

- Connect to the 3 x 60A Customer Connection Points on the driver seat pedestal.
- The CCP's are capable of providing up to a total of 180A.
- Refer to the BEMM for information regarding the use of CCP's

Vehicles without factory installed 3 X 60A Customer Connection Points.

Upfitters may order a Customer Connection Point kit through Ford dealers. The kit part number is:
BK2Z-14S411-A

This kit provides hardware for two additional 60 Amp CCP terminals, allowing the modifier to upgrade from the standard single 60 Amp CCP to three 60 Amp CCP's, for a total of 180 Amps.

For Battery Power Greater than 180A

Vehicles equipped with dual AGM batteries will have a single empty B+ battery post on the rear or second AGM battery (see figure 1). Upfitters wishing to connect to this terminal must adhere to the following guidelines:

- Use only a W520101-S437 nut to secure the aftermarket eyelet (M6 - Electrolytic zinc plate, trivalent chromate, and clear sealer, with integral torque control lubricant). **No other nut or finish may be used.**
- The additional cable eyelet must have a complete flush contact to the terminal and be fully secured.
- The nut must be torqued to **8Nm [+/- 1.2Nm]**.
- The additional battery connection must be protected with an appropriately sized fuse.

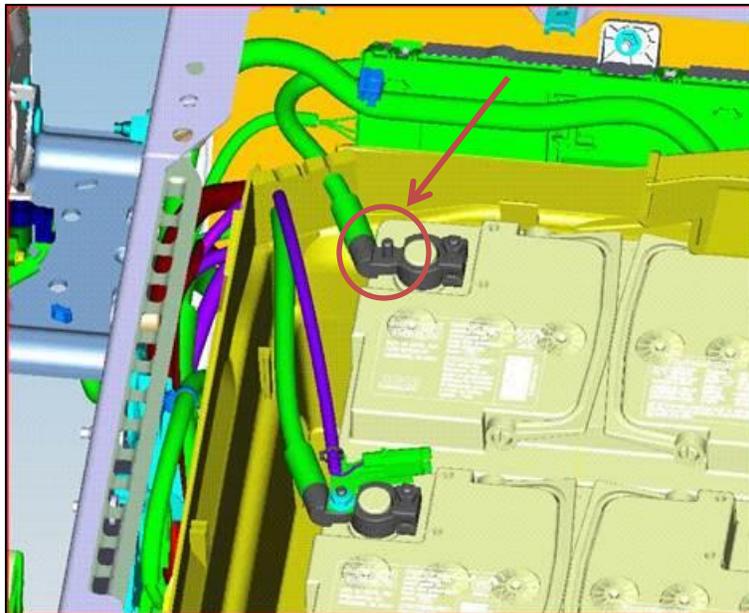


Fig. 1: Location of empty B+ battery post

Note: Single Battery variants

The B+ post on the single battery terminal can only accommodate a single terminal connection. The post is fully occupied by the alternator sense circuit, and cannot support an additional aftermarket terminal connection. **Any additional terminal connection to the single post may cause the charging system to malfunction or fail.** Upfitters connecting to the single battery post must provide an additional stud for their connection. All connection recommendations for the dual battery configuration shown above must be followed, and the additional connection and battery terminal must be protected with an appropriate battery terminal cover.

If you have any questions, please contact the Ford Truck Body Builders Advisory Service as shown in the header of this bulletin.