

The 12 volt (12V) battery in the all-electric Ford F-150 Lightning is significantly smaller than the 12V battery in a typical gasoline powered truck. For this reason, Ford does not allow a liftgate to be connected directly to this battery. Tommy Gate recommends installing an auxiliary 12V battery and DC-DC charger in the Lightning's Frunk to power the liftgate (specific recommendations below). The auxiliary 12V battery is sized larger than the Lightning's 12V battery so that it can provide sufficient power demanded by the liftgate. The DC-DC charger electrically isolates the two battery systems.

What is a DC-DC Charger?

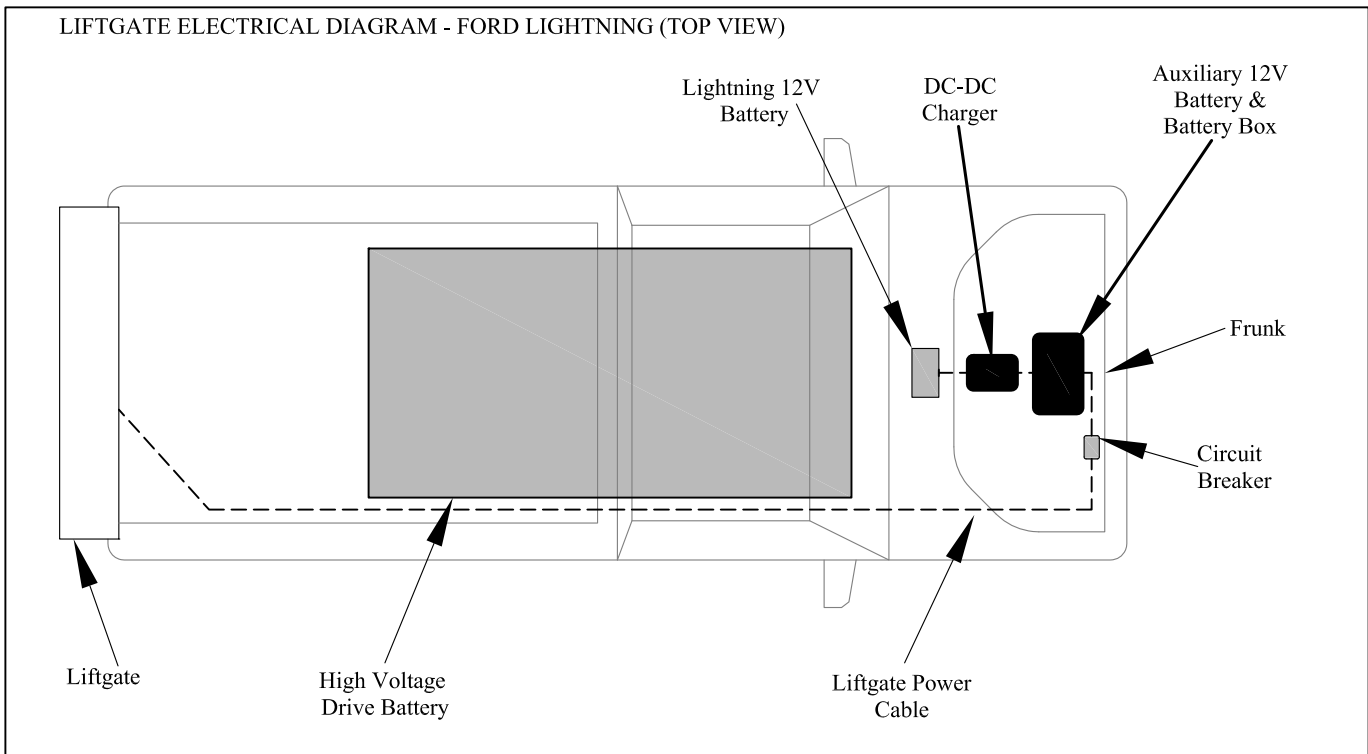
A DC-DC charger is an automatic battery charger that is powered by another battery instead of a common AC outlet. In the case of the F-150 Lightning, the added DC-DC charger is taking power from the Lightning's 12V battery and slightly increasing the voltage to charge the auxiliary 12V battery. It continually monitors the condition of the auxiliary battery and alters the output that best suits the auxiliary battery. DC-DC chargers come in a variety of different voltage/ampere ratings, so it is important to choose the right one for the application. The DC-DC charger recommended below is sized to follow Ford guidelines and have minimal demand on the Lightning's 12V battery.

Tommy Gate Recommended Components

1. DC-DC charger (Tommy Gate recommends RedArc BCDC1212T 12-amp charger or equivalent, see note A)
2. Auxiliary 12V battery (Tommy Gate recommends a 70 amp hour flooded, AGM, or gel type battery)
3. Aftermarket battery box
4. Plastic hose to vent auxiliary battery (see note B)

Notes:

- A. DC-DC Charger Specifications: 12 volt to 12 volt, Amp rating between 10 to 20 Amps.
B. The auxiliary battery should be vented to a well ventilated area, such as in the Lightning's 12V battery compartment.





Body Builders Layout Book

26

F-150

F-150 LIGHTNING

BATTERY ELECTRICAL VEHICLE

12 VOLT AFTERMARKET ACCESSORY MOUNTING GUIDANCE

2022

MODEL YEAR

GUIDANCE PROVIDED IS LIMITED TO F-150 LIGHTNING PRO AND XLT ONLY (NOT APPLICABLE TO HIGHER LIGHTNING TRIM SERIES)

RECOMMENDATION:

- The 220A DC-DC converter and range battery pack standard on the F-150 Lightning Pro trim level can be used for applications that add aftermarket equipment such as lighting, radios, video, computers, video, spot lamps, surveillance, radar, etc.
 - There is a maximum of 55 Amps total available for aftermarket equipment for the F-150 Lightning Pro trim level.
 - There is a maximum of 30 Amps total available for aftermarket equipment for the F-150 Lightning BASE XLT trim level
 - Do not add 12V upfits to higher trim levels
 - The addition of a secondary 12 Volt Battery source is **not recommended**, please refer to the F-150 Police Responder Modifiers Guide, Section 2: Electrical, for further circuit details.

WARNING: Exceeding Rated Amps can result in degraded vehicle performance and/or impact to 12 Volt battery charge state.

- 2022MY Lightning Pro Electrical System overview can be found by referencing F-150 Police Responder Modifiers Guide (Section 2: Electrical, further circuit details), and Police Modifier Bulletin P-034 R1 (which includes information to access power, ground points and illustrations of selected high voltage components).
- Additional reference information on the High Voltage and Electrical Guidance found in the General Body Builder Layout Book.
- F-150 Lightning consists of various high-voltage components and wiring. All of the high-voltage power flows through specific wiring assemblies labeled as such or covered with a solid orange convolute, or orange striped tape, or both. Do not come in contact with these components

WARNING: This battery pack should only be serviced by an authorized electric vehicle technician. Improper handling can result in personal injury or death.

WARNING: Working in this area of the vehicle may result in serious personal injury or damage to a vehicle. Before working on this vehicle, the high voltage power must be disconnected