

# AUXILIARY BATTERY BOX INSTALLATION INSTRUCTIONS

KIT PN 017340

## Mounting the Auxiliary Battery Box

1. **Remove** the cover from the auxiliary battery box by removing the two lynch pins and washers as shown (Figure 1).
2. **Verify** the parts of the **Auxiliary Battery Box** (Figure 1).

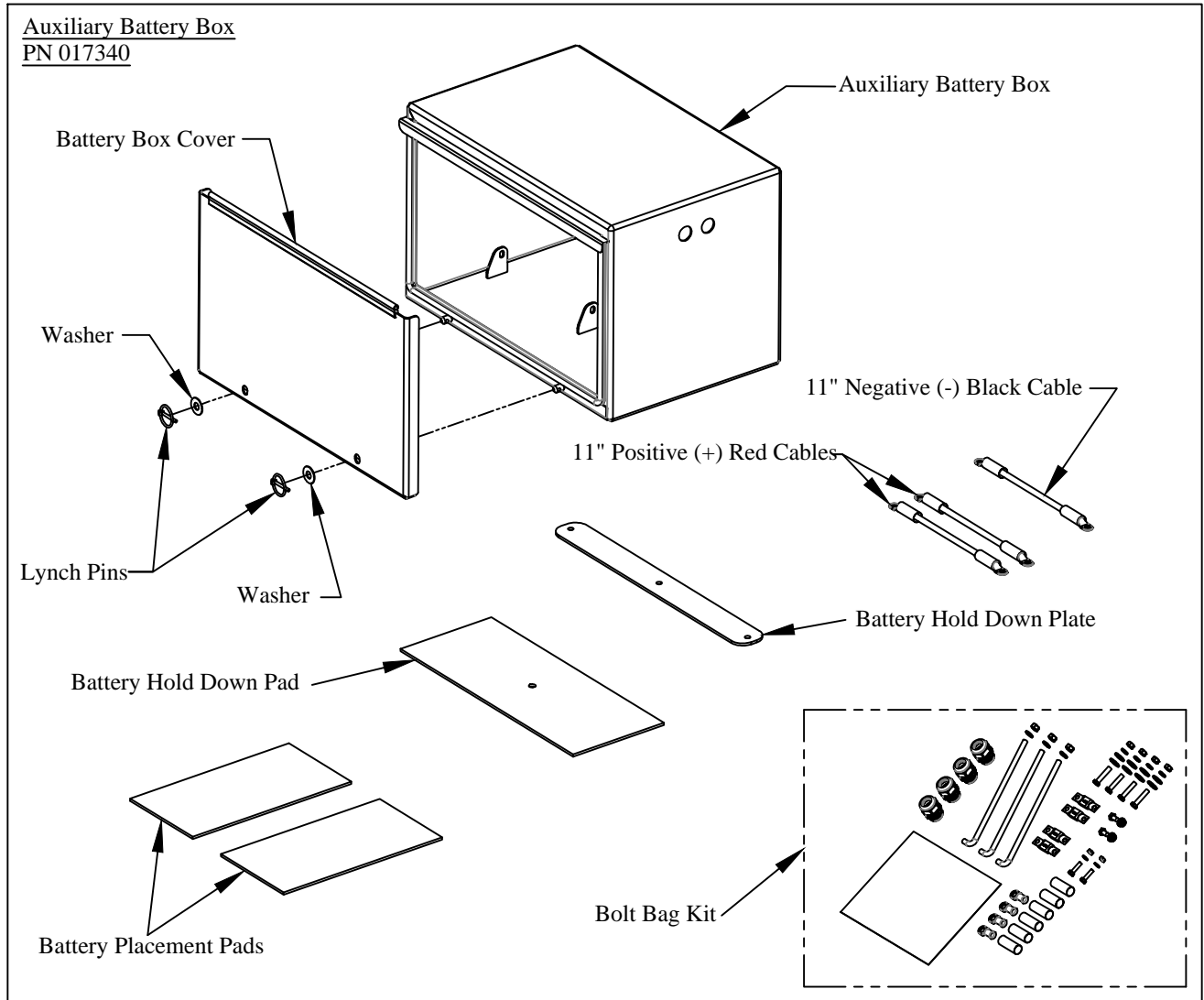


Figure 1: Part identification.

Table 1: Parts list.

QTY	DESCRIPTION	QTY	DESCRIPTION
1	AUXILIARY BATTERY BOX	1	BOLT BAG KIT
1	BATTERY BOX COVER	2	11" POSITIVE (+) RED CABLE
2	STAINLESS STEEL WASHER	1	11" NEGATIVE (-) BLACK CABLE
2	LYNCH PIN		
2	BATTERY PLACEMENT PAD		
1	BATTERY HOLD DOWN PAD		
1	BATTERY HOLD DOWN PLATE		

# Auxiliary Battery Box Installation Instructions

## Mounting the Auxiliary Battery Box (continued)

3. **Select** a location on the truck or trailer frame for the auxiliary battery box to be welded.  
It should be mounted on the passenger side, directly ahead of the liftgate.  
If the wheels of the truck/ trailer prohibit this, the battery box can be mounted ahead of the wheels.
4. **Verify** that there is an adequate length of power cable for your truck or trailer.  
Truck applications use dual conductor power cable only.  
Trailer applications use dual conductor power cable from the liftgate to the auxiliary battery box and single conductor cable from the auxiliary battery box to the front of the trailer.
5. **Prepare** a place for the auxiliary battery box to be welded by removing any debris, rust, and paint from the truck or trailer's crossmembers (Figure 2).



Figure 2: Auxiliary battery box location.

6. **Remove** the masking tape from the top of the battery box.
7. **Position** the auxiliary battery box underneath the truck/trailer using a forklift or other lifting device. Both sides of the auxiliary battery box need to align with a truck/trailer's crossmember to provide adequate support (Figure 3).

Note: If the sides of the auxiliary battery box don't align with a crossmember, additional bracing will need to be added.

8. **Weld** the front and back of the auxiliary battery box to the bottom of the truck/trailer's crossmembers using 1/4" fillet welds along the full width of all adjoining crossmembers. **Stitch weld** both sides of the auxiliary battery box to the crossmembers using 1/4" fillet welds, 1-1/2" long, every 5" (Figure 3).

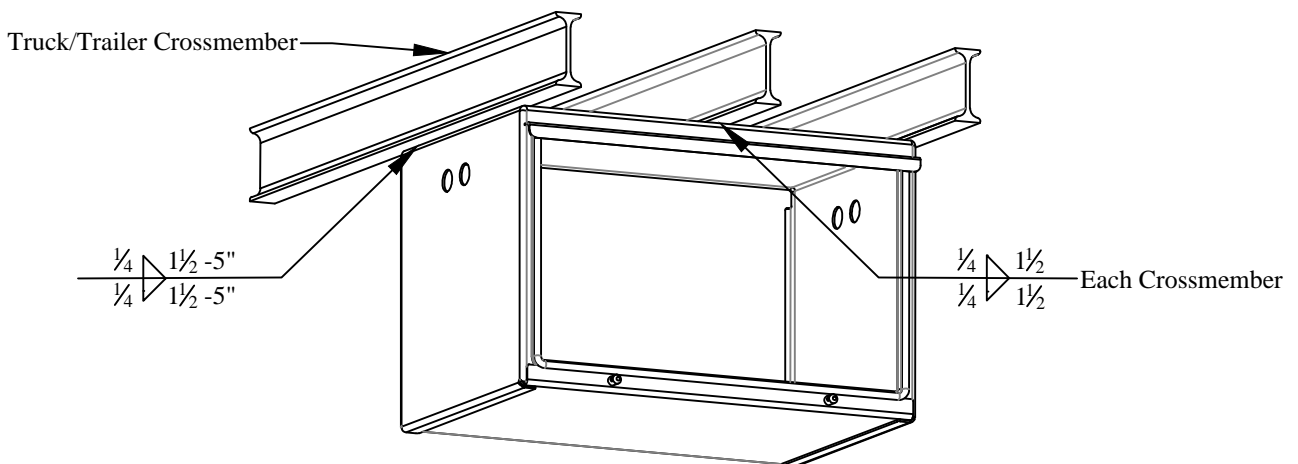


Figure 3: Weld locations.

9. **Allow** the welds to cool.
10. **Paint** the welded surface and top portion of the auxiliary battery box.

# Auxiliary Battery Box Installation Instructions

## Assembling the Auxiliary Battery Box

1. **Install** the four cord grips in the auxiliary battery box (Figure 4).

Note: Cord grip threads go toward the inside of the auxiliary battery box.

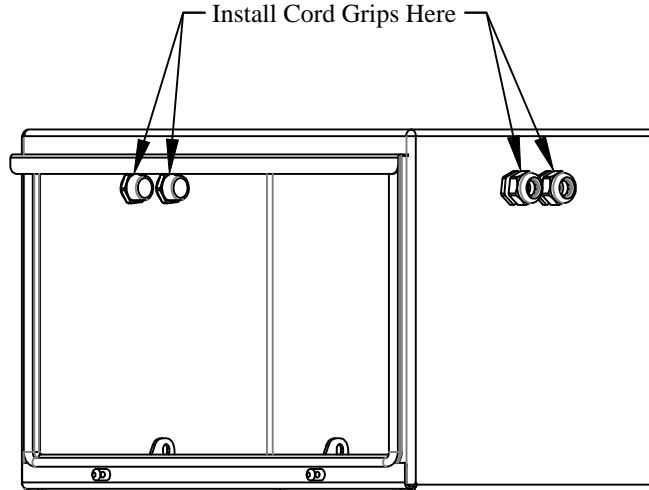


Figure 4: Cord grip installation.

2. **Find** the circuit breaker located in the liftgate's maintenance manual kit bag.

3. **Fasten** the circuit breaker to the auxiliary battery box with the supplied 1/4"-20 x 1" bolts, lock washers, and nuts (Figure 5).

Note: Be careful to not over-tighten and crack the circuit breaker base.

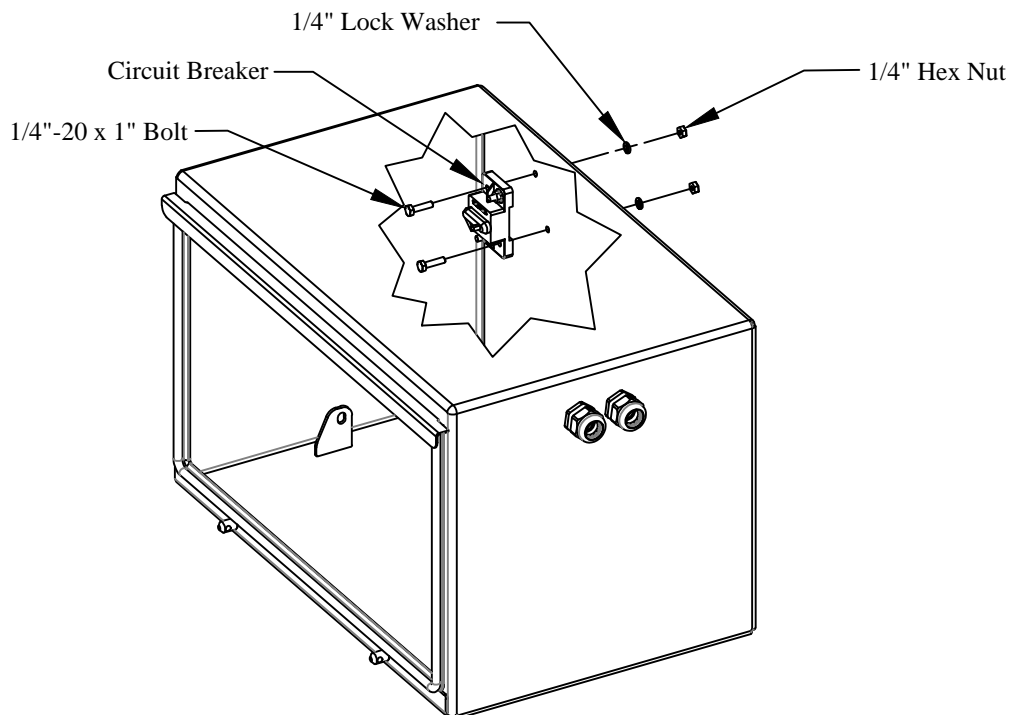


Figure 5: Circuit breaker installation.

# Auxiliary Battery Box Installation Instructions

## Mounting the Power Socket - Trailer Applications

1. **Skip** to page 9 for truck applications.
2. **Verify** the parts of the **Auxiliary Battery Trailer Wiring Kit** (Figure 6).

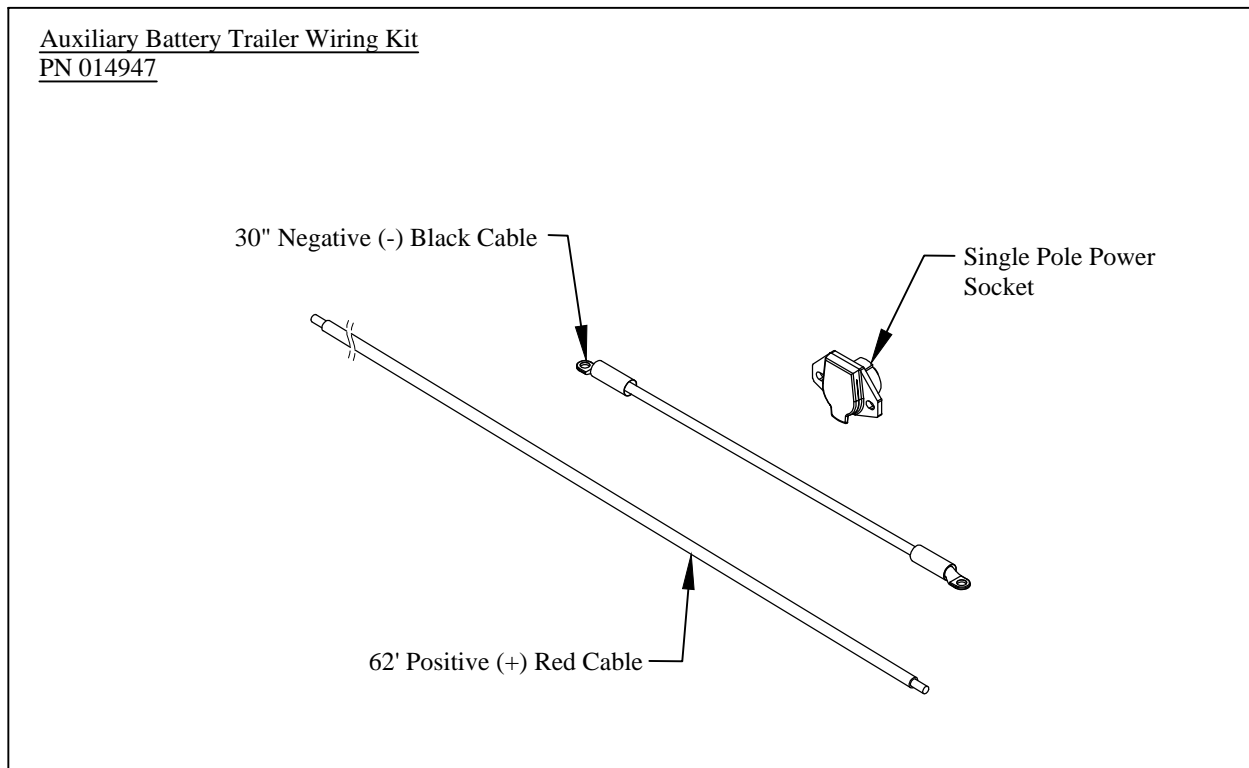


Figure 6: Part identification.

## Auxiliary Battery Box Installation Instructions

### Mounting the Power Socket - Trailer Applications (continued)

3. **Locate** and **Mark** a place on the front, driver's side of the trailer for the power socket to be mounted.

Note: The power socket should be mounted in a location that will allow access to the backside of the power socket for installation.

4. **Check** for obstructions and **Drill** three holes in the front of the trailer at the location previously marked (Figure 7).

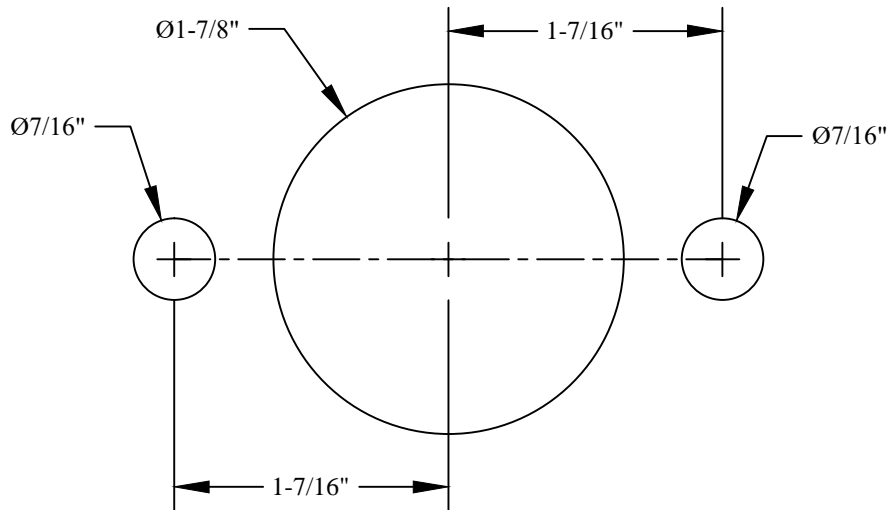


Figure 7: Power socket mounting hole dimensions.

5. **Ensure** that the area where the power socket will be mounted is free of any debris, rust, and paint.

6. **Mount** the power socket to the trailer using the supplied  $5/16\text{-}18 \times 1\text{-}1/2\text{'}$  bolts, washers, and nuts (Figure 8).

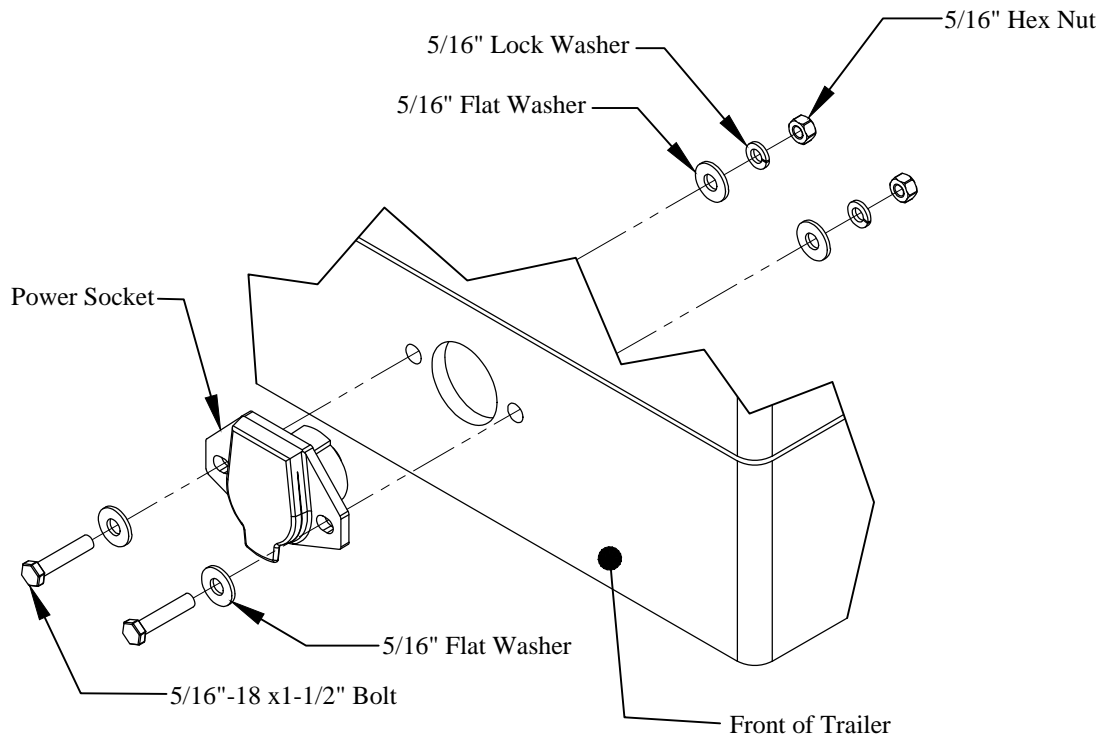


Figure 8: Power socket.

# Auxiliary Battery Box Installation Instructions

## Installing the Power Cable - Trailer Applications

Note: Follow the *Tommy Gate Recommended Electrical Wiring Guidelines* when performing all procedures in this section.

1. **Route** the 62' single conductor power cable through the cord grip on the front most side of the auxiliary battery box, nearest the front of the trailer (Figure 9).

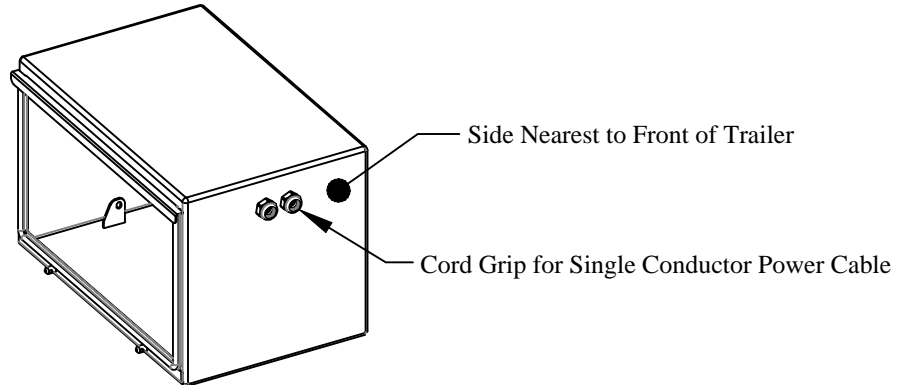


Figure 9: Location of front most cord grip.

2. **Install** the provided copper lug and heat shrink on the power cable.
3. **Connect** the power cable to the BAT. terminal of the auxiliary battery box's circuit breaker (Figure 10).

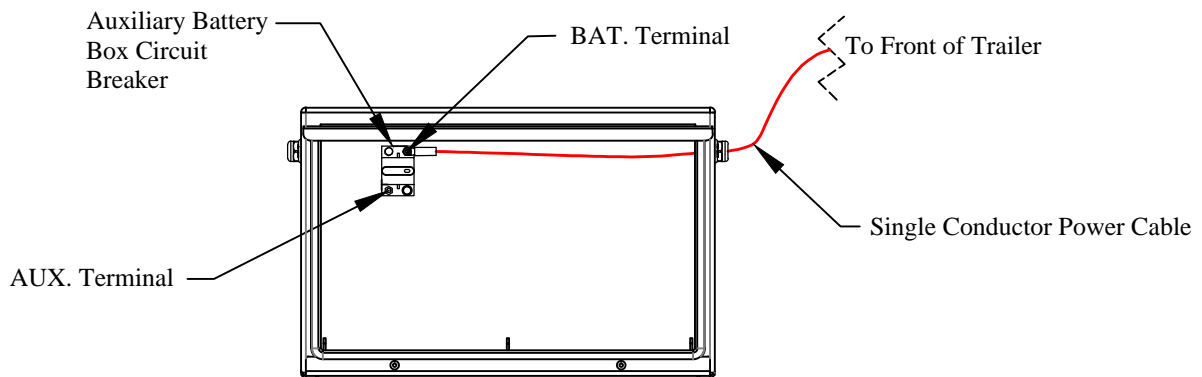


Figure 10: Circuit breaker location.

4. **Route** the power cable underneath the trailer to the power socket on the front of the trailer.
5. **Secure** the power cable underneath the trailer.

## Auxiliary Battery Box Installation Instructions

### Installing the Power Cable - Trailer Applications (continued)

- Cut** the excess power cable to the appropriate length to connect to the power socket.
- Install** the provided copper lug and heat shrink on the power cable and **Connect** it to the terminal on the power socket (Figure 11).

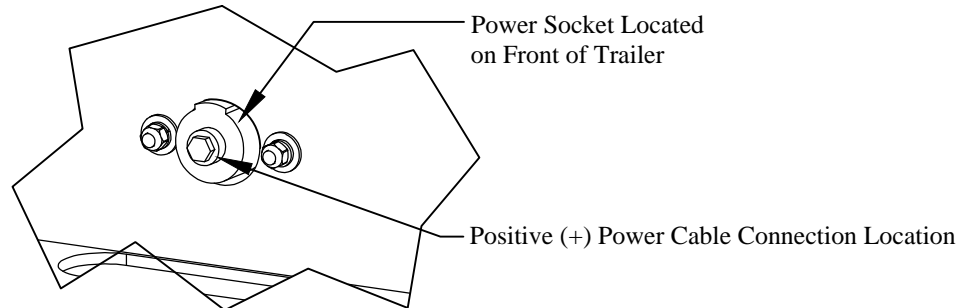


Figure 11: Backside view of power socket.

- Connect** the dual conductor power cable to the liftgate's power unit by referring to the liftgate installation instructions.
- Route** the dual conductor power cable from the liftgate to the auxiliary battery box.
- Secure** the dual conductor power cable underneath the trailer.
- Cut** the dual conductor conductor power cable to a length that will result in 12" of power cable to be inside the auxiliary battery box.
- Separate** the first 18" of the positive (+) and negative (-) leads of the liftgate dual conductor power cable.
- Route** both the positive (+) and negative (-) leads from the liftgate through the cord grips at the liftgate side of the auxiliary battery box (Figure 12).
- Install** the provided copper lugs and heat shrink on both the positive (+) and negative (-) leads of the dual conductor power cable coming from the liftgate.

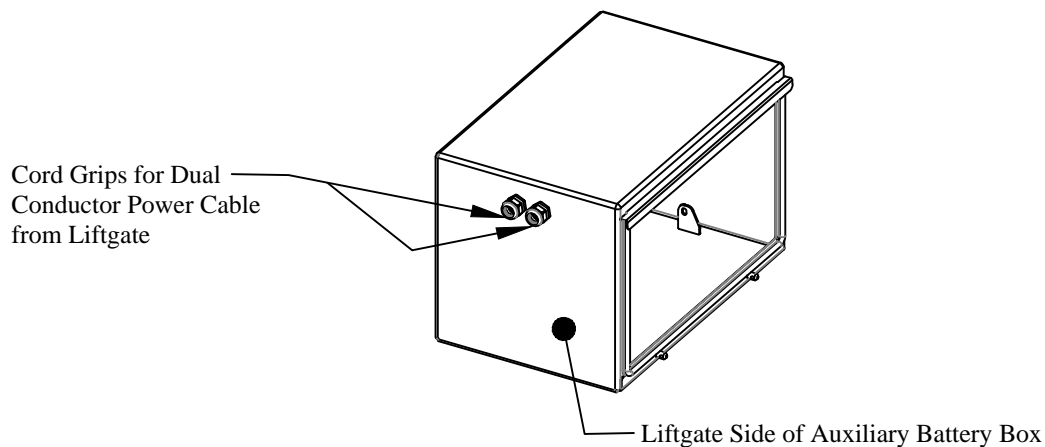


Figure 12: Locations of rear most cord grips.

## Auxiliary Battery Box Installation Instructions

### Installing the Power Cable - Trailer Applications (continued)

**15. Connect** the positive (+) cable from the liftgate to the AUX. terminal of the auxiliary battery box's circuit breaker (Figure 13).

Note: Do not connect the negative (-) cable at this time.

**16. Route** the 30" negative (-) cable through the cord grip on the front most side of the auxiliary battery box and connect it to a suitable grounding point on the trailer frame (Figure 13).

Note: Do not connect the other end of the 30" negative cable at this time.

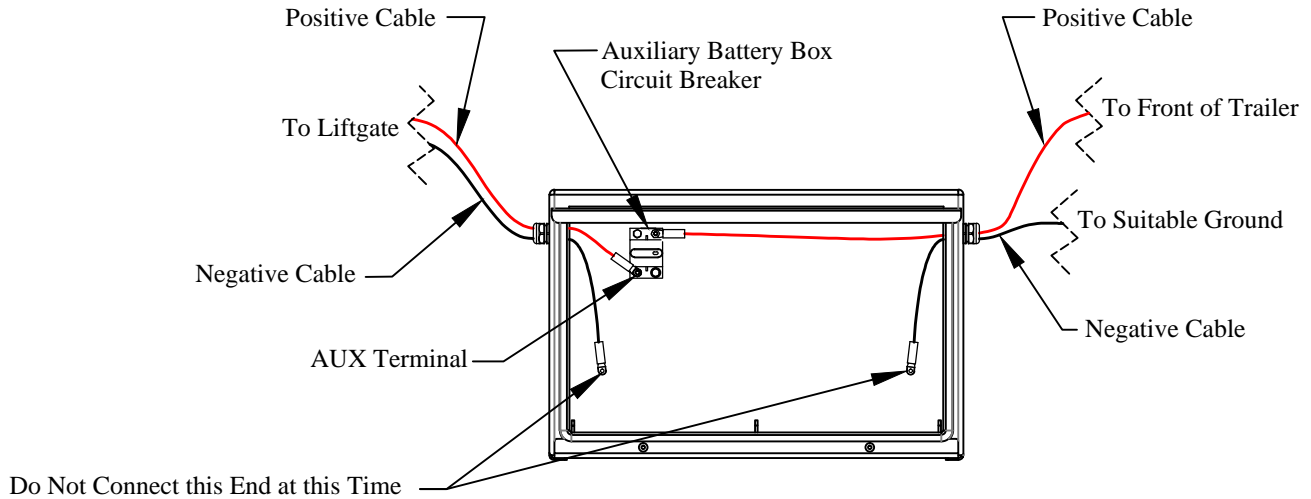


Figure 13: Placement of power cables (trailer applications).



# Auxiliary Battery Box Installation Instructions

## Installing the Power Cable - Truck Applications

Note: Follow the Tommy Gate Recommended Electrical Wiring Guidelines when performing all procedures in this section.

1. **Skip** to page 12 for trailer applications.
2. **Connect** the dual conductor power cable to the liftgate's power unit by referring to the liftgate installation instructions.
3. **Route** the dual conductor power cable from liftgate to the auxiliary battery box.
4. **Secure** the dual conductor power cable underneath the truck.
5. **Cut** the dual conductor cable to a length that will result in 12" of power cable to be inside the auxiliary battery box.
6. **Separate** the first 18" of the positive (+) and negative (-) leads of the dual conductor power cable.
7. **Route** both the positive (+) and negative (-) leads from the liftgate through the cord grips at the liftgate side of the auxiliary battery box (Figure 14).

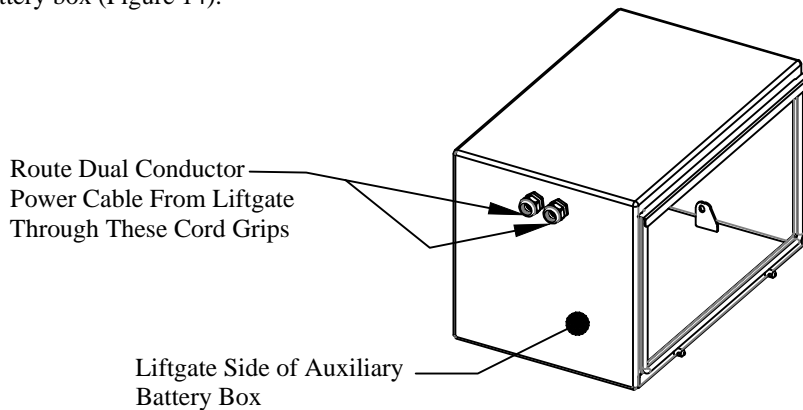
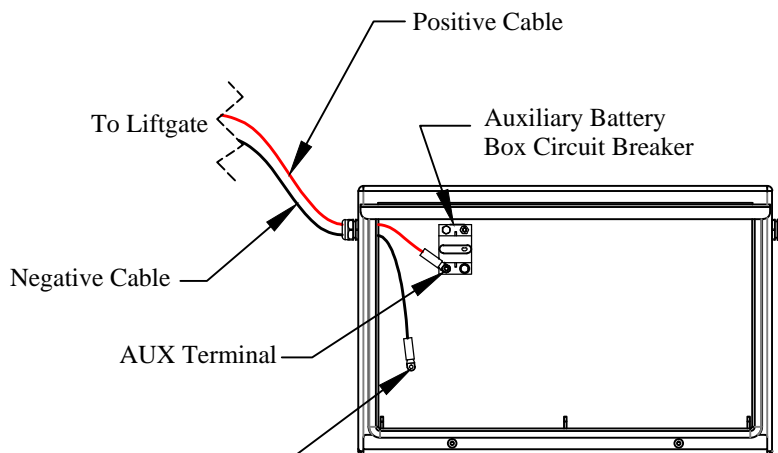


Figure 14: Location of rear most cord grips.

8. **Install** the provided copper lugs on both the positive (+) and negative (-) leads of the dual conductor power cable coming from the liftgate.
9. **Connect** the positive (+) cable from the liftgate to the AUX. terminal of the auxiliary battery box's circuit breaker (Figure 15).

Note: Do not connect the negative (-) cable from the liftgate at this time.



Do Not Connect this End at this Time **Figure 15: Placement of power cables (truck applications).**

## Auxiliary Battery Box Installation Instructions

### Installing the Power Cable - Truck Applications (continued)

10. **Separate** the first 26" of the positive (+) and negative (-) leads of the dual conductor power cable that was previously cut off.
11. **Route** the positive (+) and negative (-) leads of the separated dual conductor power cable through the cord grips on the front most side of the auxiliary battery box so that there is 20" of each power cable inside the auxiliary battery box.
12. **Install** the provided copper lugs on both the positive (+) and negative (-) leads of the dual conductor power cable.
13. **Connect** the positive (+) cable to the AUX. terminal of the auxiliary battery box's circuit breaker (Figure 16).

Note: Do not connect the negative (-) cable at this time.

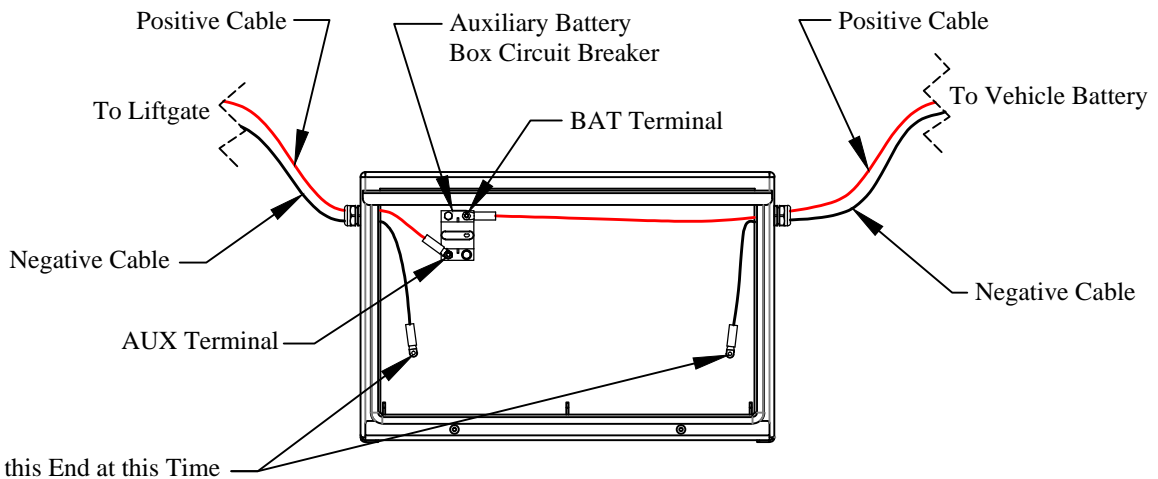


Figure 16: Placement of power cables (truck applications).

14. **Route** the dual conductor power cable from the auxiliary battery box to the vehicle's battery.
15. **Secure** the dual conductor power cable under the truck.
16. **Pull** the power cable beyond the vehicle's battery and **separate** the positive (+) and negative (-) leads.
17. **Cut** the positive (+) lead to the length required to reach the vehicle's positive battery terminal.
18. **Install** the provided copper lug on the previously cut positive (+) lead.

Note: Do not connect the positive (+) cable to the vehicle's battery at this time.

19. **Determine** which fuse is used for your application by looking at which circuit breaker is installed in the auxiliary battery box.

225 amp fuses are used for liftgate applications that use a 200 amp circuit breaker.

175 amp fuses are used for liftgate applications with a 150 amp circuit breaker.

## Auxiliary Battery Box Installation Instructions

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### Installing the Power Cable - Truck Applications (continued)

**20. Connect** the appropriate fuse to the positive (+) cable using a 5/16 x 1/2" stainless steel hex bolt and nut (Figure 17).

**21. Apply** heat shrink over the fuse's bolted connection (Figure 17).

Note: Do not connect the positive (+) cable to the vehicle's battery at this time.

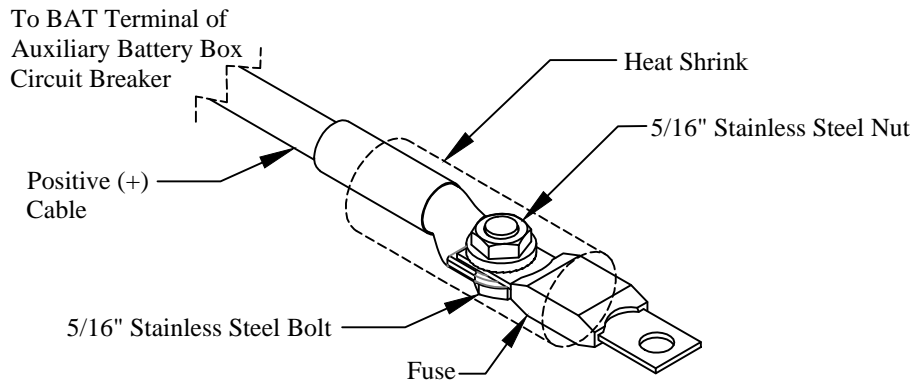


Figure 17: Fuse installation (truck applications).

# Auxiliary Battery Box Installation Instructions

## Installing the Auxiliary Batteries

Note: Follow the *Tommy Gate Recommended Electrical Wiring Guidelines* when performing all procedures in this section.

1. **Place** the two battery placement pads in the auxiliary battery box (Figure 18).

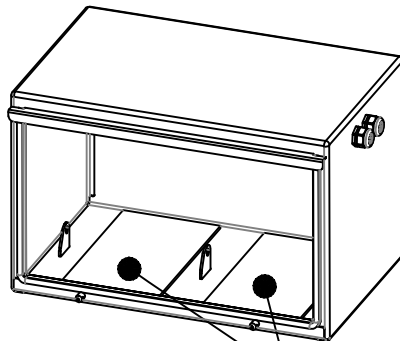


Figure 18: Battery placement pad locations. — Battery Placement Pads

2. **Push** the red button on the auxiliary battery box's circuit breaker to disconnect it from the rest of the circuit.
3. **Place** the batteries in the auxiliary battery box with the positive (+) terminals closest to the circuit breaker.

Note: Use 12 volt batteries only.

Note: Tommy Gate recommends two group 31 AGM batteries with threaded terminal studs for the auxiliary battery box.

4. **Place** the rubber hold down pad and hold down plate on top of the batteries.
5. **Tighten** down the hold down plate and rubber hold down pad with the three j-hooks, lock washers, and nuts (Figure 19).

Note: Do not over tighten. Tighten bolts equally until battery is not able to move.

6. **Verify** that the batteries are secure.

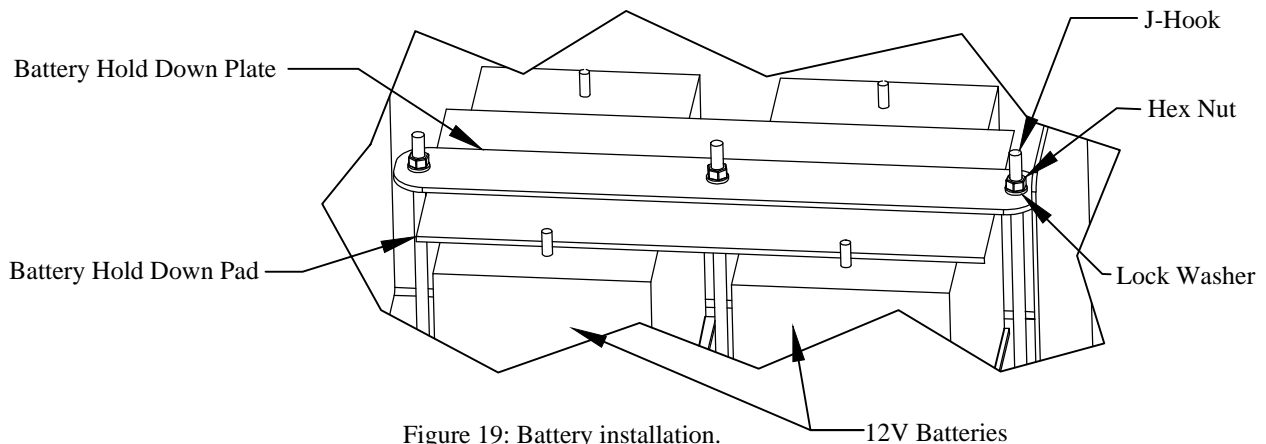


Figure 19: Battery installation. — 12V Batteries

## Auxiliary Battery Box Installation Instructions

### Installing the Auxiliary Batteries (continued)

7. **Connect** the positive (+) terminals of the two batteries together using one of the provided 11" positive (+) red cables.
8. **Connect** the negative (-) terminals of the two batteries together using the provided 11" negative (-) black cable.
9. **Determine** which fuse is used for your application by looking at the circuit breaker previously installed in the auxiliary battery box.  
  
225 amp fuses are used for liftgate applications that use a 200 amp circuit breaker.  
  
175 amp fuses are used for liftgate applications that use a 150 amp circuit breaker.
10. **Connect** the appropriate fuse to one end of the remaining 11" positive (+) red cable using a 5/16 x 1/2" stainless steel hex bolt and nut (Figure 19).
11. **Apply** heat shrink over the fuse's bolted connection (Figure 20).
12. **Connect** the other end of the 11" positive (+) cable to the BAT. terminal of the auxiliary battery box's circuit breaker.
13. **Connect** the batteries to the corresponding cables by referencing the appropriate wiring diagram below (Figure 21 for trailer applications) and (Figure 22 for truck applications).

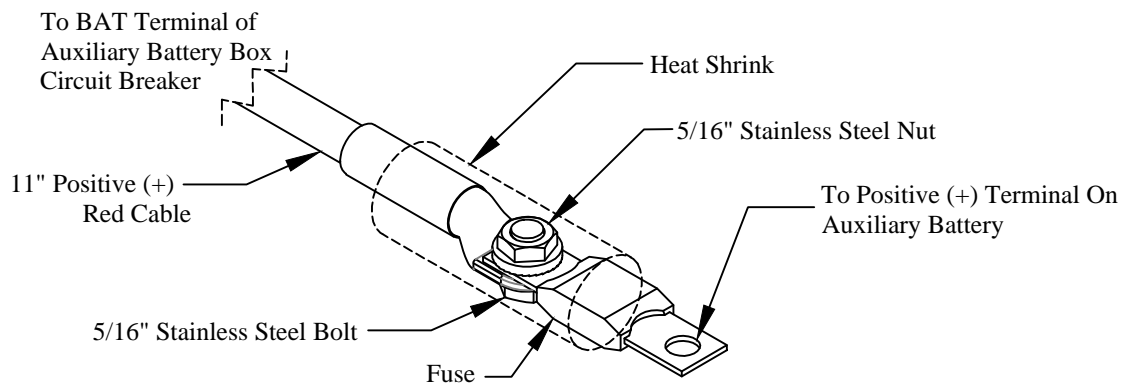


Figure 20: Fuse installation.

14. **Verify** all connections are tight and secure.
15. **Verify** all cord grips are tight and secure.
16. **Re-engage** circuit breaker.
17. **Install** auxiliary battery box cover, washers, and lynch pins.

# Auxiliary Battery Box Installation Instructions

## Wiring Diagrams

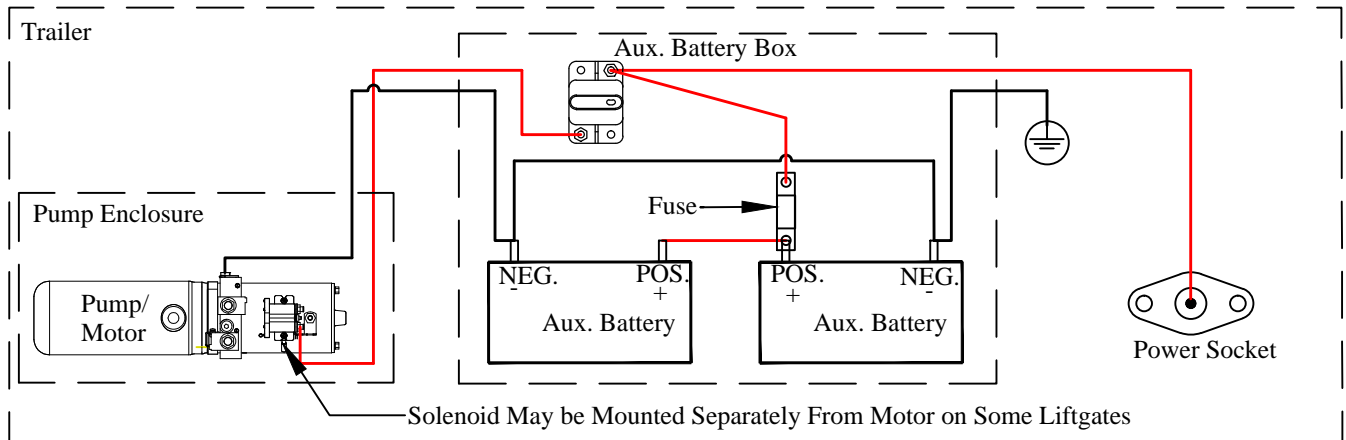


Figure 21: Trailer applications; 12V auxiliary battery wiring diagram.

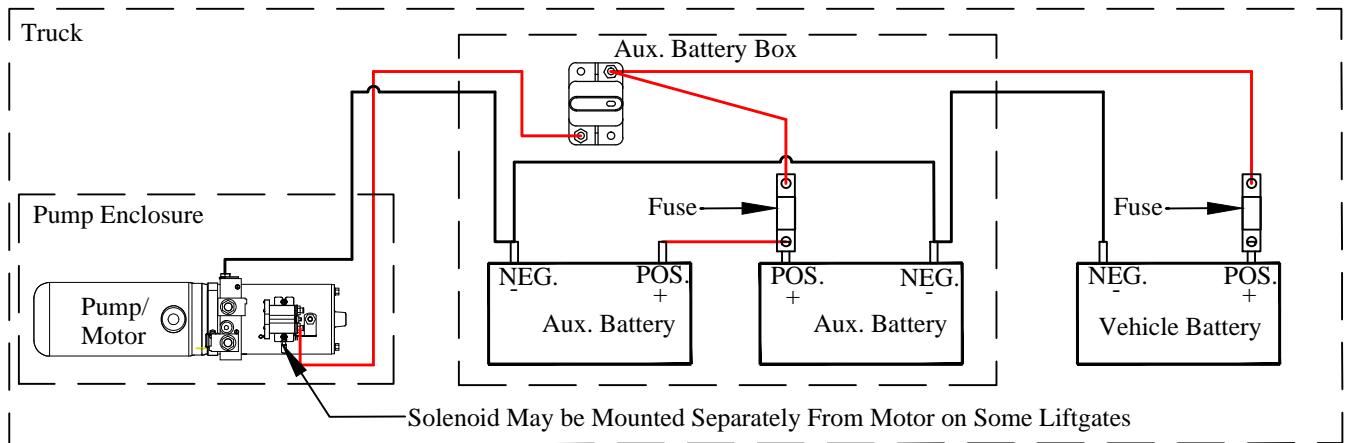


Figure 22: Truck applications; 12V auxiliary battery wiring diagram.



### 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.