

***The entire staff of Roll Rite would like to not only Thank You but congratulate you on your purchase of the finest line of automated tarping systems in the industry.***

## ***Rite-Trap Power Kit Installation Guide***

RR Part # 101782

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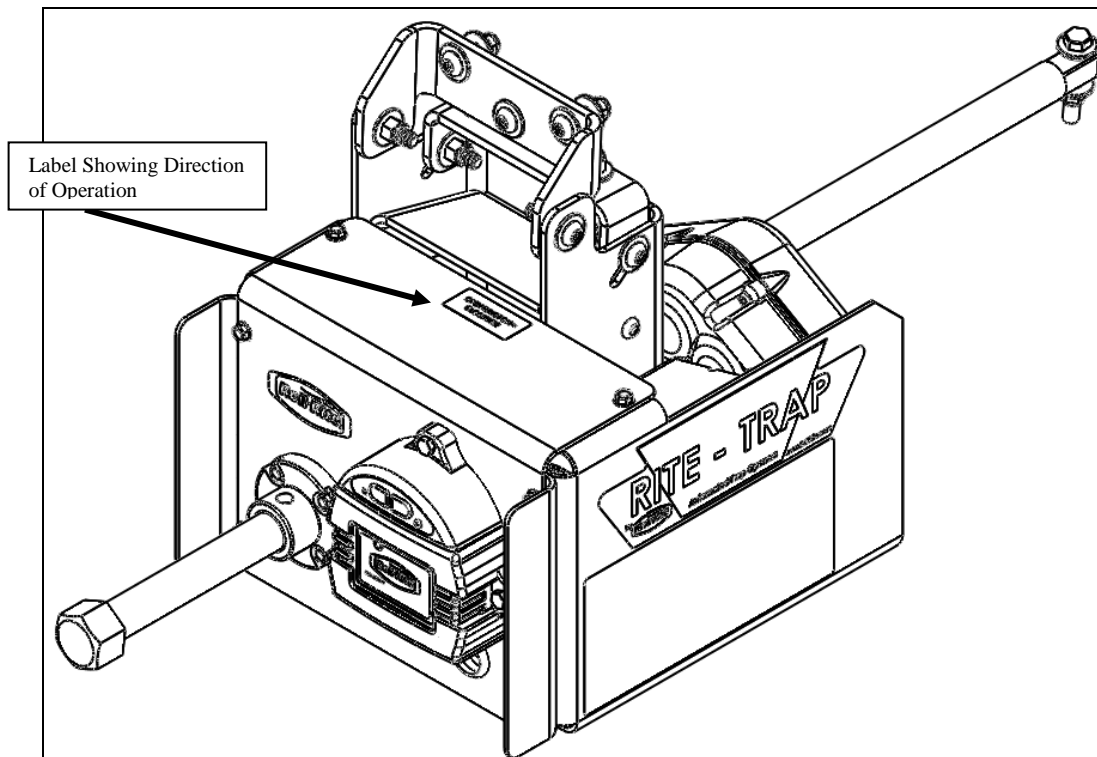
# Pre-Install Instructions

## **\*\* Electrical Circuit Protection \*\***

<b>⚠ WARNING</b>	— System must have 50 Amp breaker in line as close to the battery as possible.
	— Failure to install breaker may cause electrical failure and possible injury.

***This kit is intended to be an "add-on" to the GTX Series Trailer Tarping Kit. Please ensure main electrical source has a 50 amp manually-reset breaker within 12 inches of truck batter source.***

## **\*\* Operation Direction \*\***



**Figure 1: Rite Trap Assembly with Direction Label**

Each Rite-Trap Motor Assembly has a yellow direction sticker that states the direction of rotation for the "open" button on the controller. Match each box with the correct door to ensure open button will open the hopper door. \*If "open" button on controller does not match the function of the door, wiring can be changed to correct this. **Refer to wiring schematics on Page 17 and 18.**

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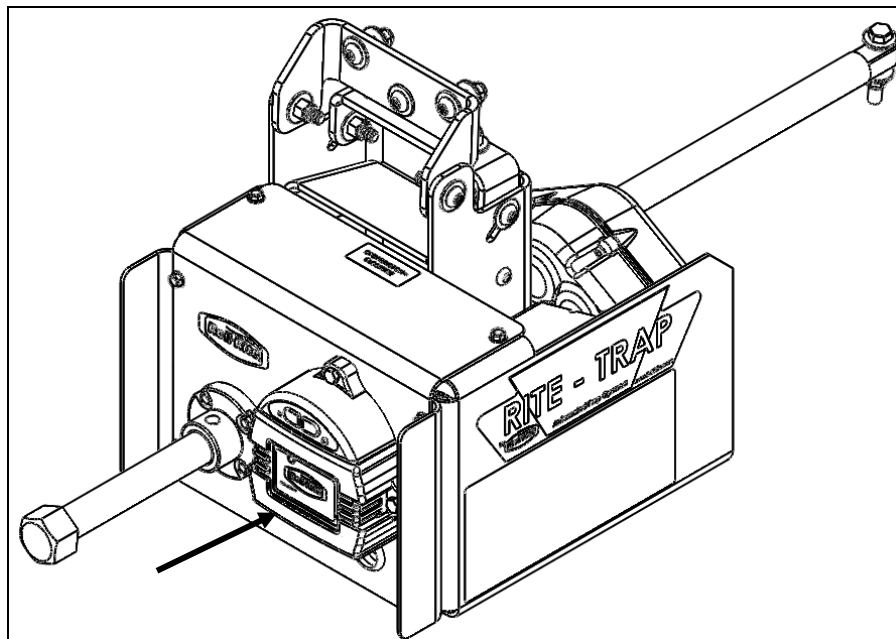
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# Integration Requirements

## *Door Open/Close Travel Stops*

- It is required that each hopper door have an adequate stop that prevents door movement when the door is fully open and closed. The controllers installed on this system are based on sensing of load current. Therefore, during normal operation the operator can press and hold either open or close button, resulting in full travel, stop, high load current, and automatic shutoff. The system will automatically stop when the door reaches its full range of motion whether it is fully open or closed without damaging any components.
- Strap Style Hopper Door: It may be necessary to add stops to keep the door from stopping against rollers or unwanted components and adding unwanted stress on hopper door components.
- Rack and Pinion Hopper Door: It may be necessary to reinforce stops either at fully open or fully closed position to ensure gears will not skip and to prevent unwanted stress on the hopper door or other components.



**Figure 2: Rite Trap Assembly with Motor Controller**

## *Electrical Corrosion Protection*

- It is required to apply dielectric grease to all electrical connections to prevent electrical conductor corrosion and/or connection issues (see **Figure 2**)

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- **FAILURE TO APPLY:** Failure to apply supplied dielectric grease will void warranty of controller or other electrical components. If dielectric grease was not supplied, please contact Roll Rite customer service immediately at 800-297-9905.

## Installation Instructions

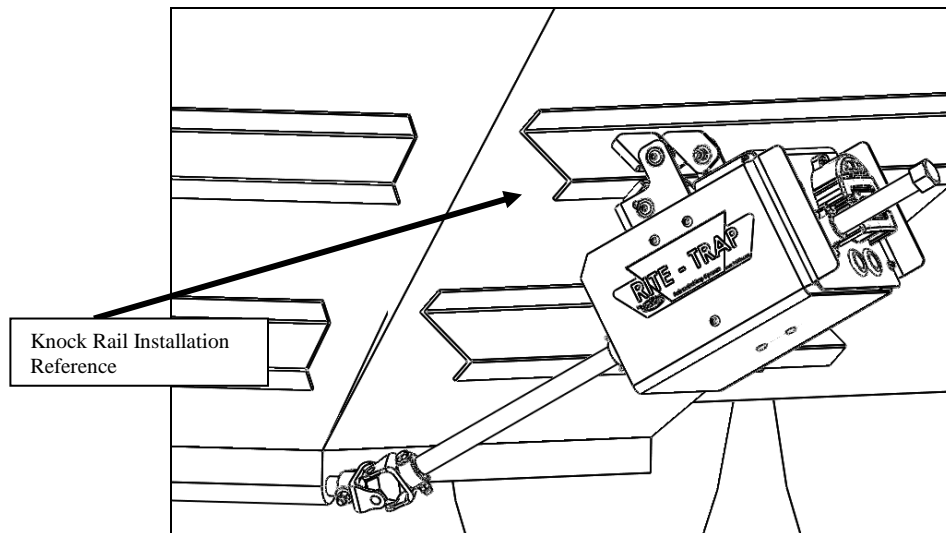
### ***Determine Mounting Location and Knock Rail Type***

These instructions have been developed for two types of knock rail. The instructions for both types are separated in this document into the following two sections:

1. "Z" Shaped Knock Rail
2. "Flat" Shaped Knock Rail

Review instructions for both types, and then determine which set of instructions to use for installation before moving forward

### ***Gear Motor Assembly: "Z" Shaped Knock Rail***



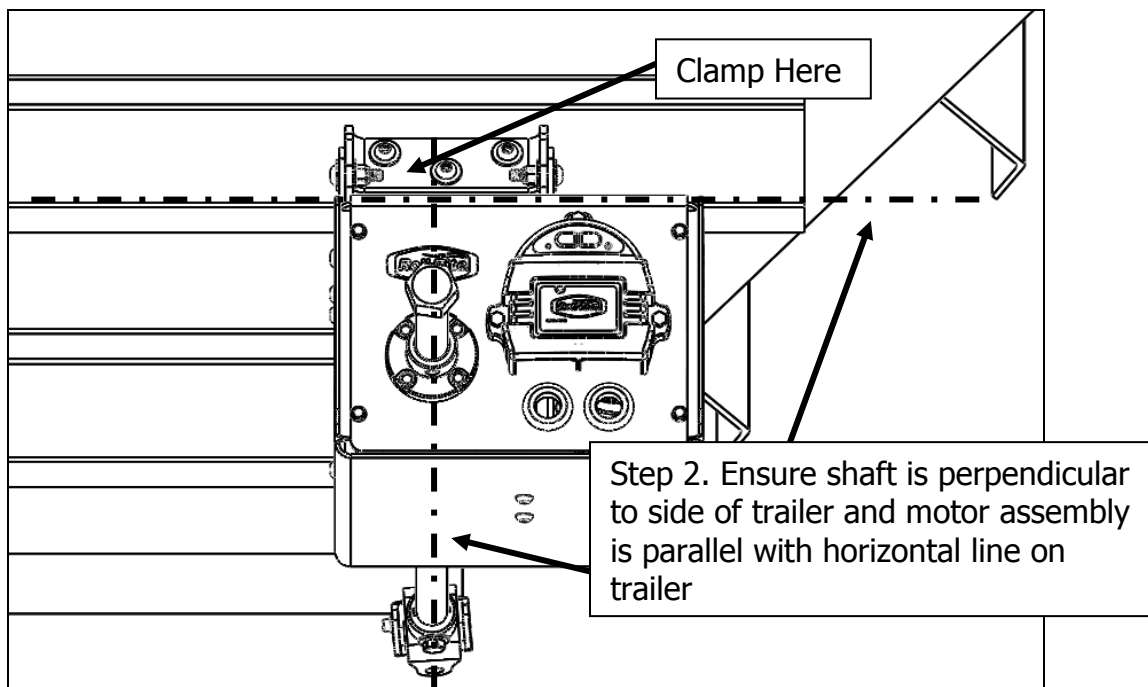
**Figure 3: Rite Trap Assembly Attached to Typical Knock Rail**

1. Remove factory crank shafts and mounts from the knock rails on the trailer See Reference in **Figure 3**. *Note: Some trailers you may not be able to remove the entire mount. Instead you may need to cut mount and attach to this mount in place of the knock rail in future steps.*
2. Remove the factory shaft from the U-joint on door. It may be necessary to replace U-joint if shaft is seized to the U-joint or U-joint does not match the 1" inch diameter shaft supplied.
3. With the shaft inserted through the motor and into the U-joint, square and clamp the upper mounting bracket to the knock rail where the factory crank mount was attached. (**Figure 4**)

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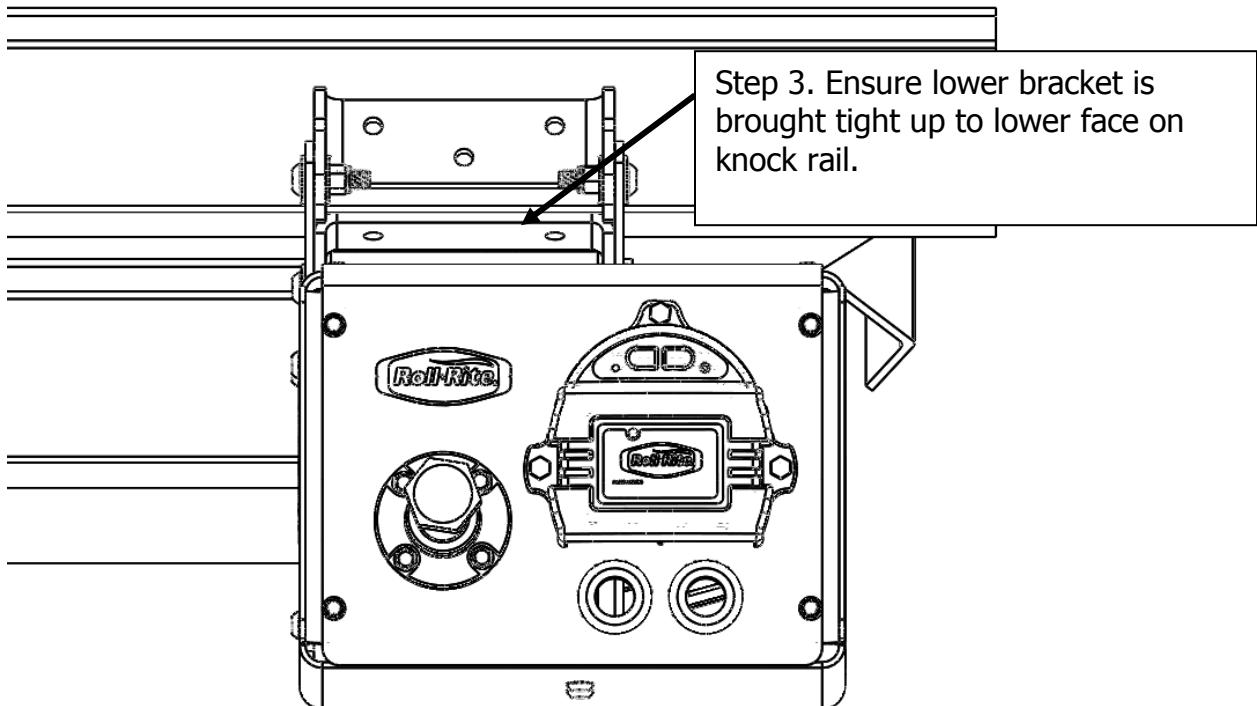
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**Figure 4: Rite Trap Assembly**

4. For mounting on a "Z" shaped knock rail the lower mount should be brought up tight to lower face on the knock rail (**Figure 5**). The lower two bolt holes will be drilled at a later step.



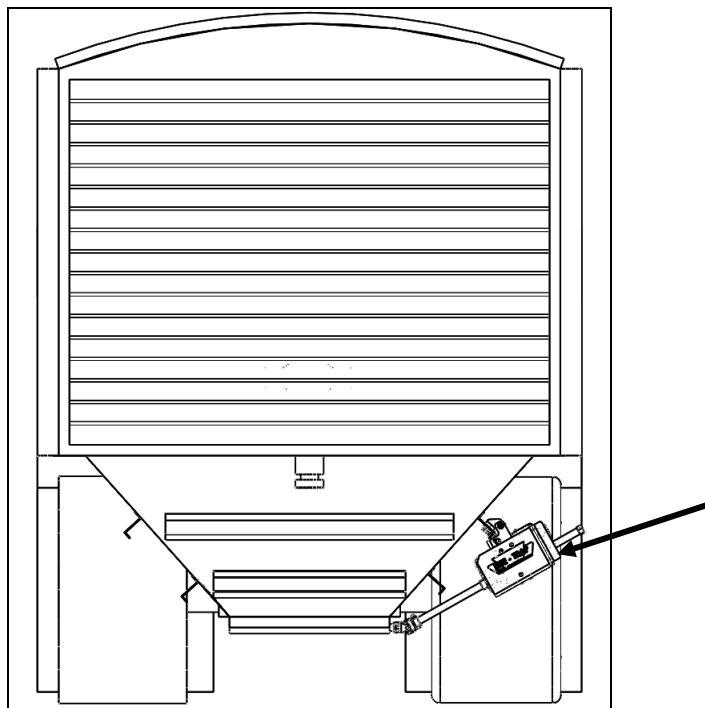
**Figure 5: Rite Trap Assembly Installation on Typical Knock Rail**

4. Ensure that motor assembly does not extend beyond the factory width of the trailer. (**Figure 6**) Note: shaft will be trimmed later

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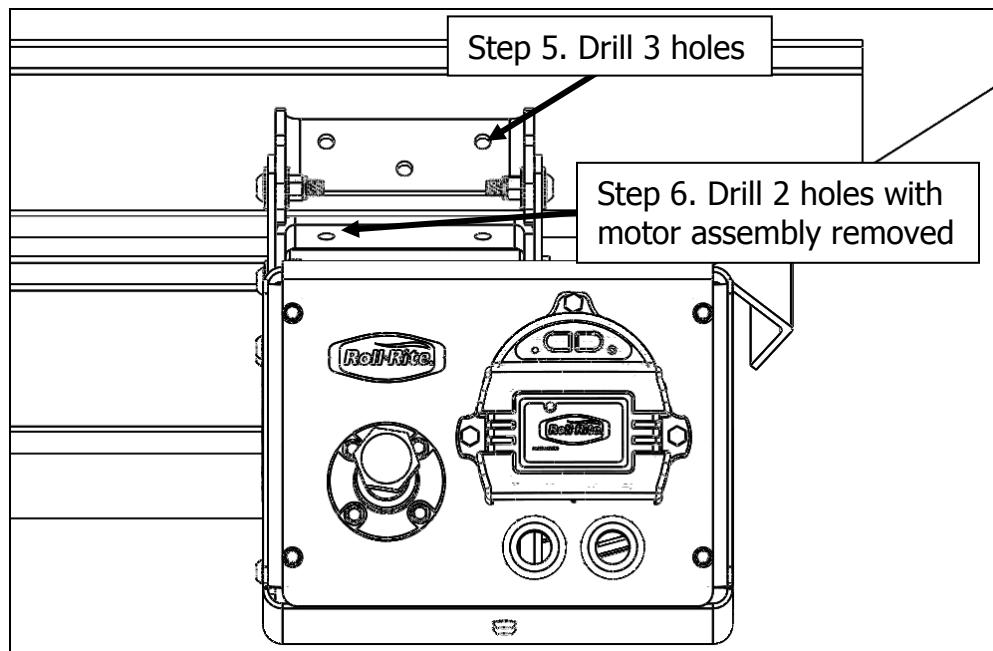
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**Figure 6: Rite Trap Assembly Installed Within Width Limit of Vehicle**

5. Using the holes in the upper mount as a guide drill three 3/8" holes and bolt bracket in place (**Figure 7**).
6. For mounting to "Z" shaped knock rail, mark the lower mount two holes and remove motor assembly and drill the holes to 3/8" diameter (**Figure 7**)



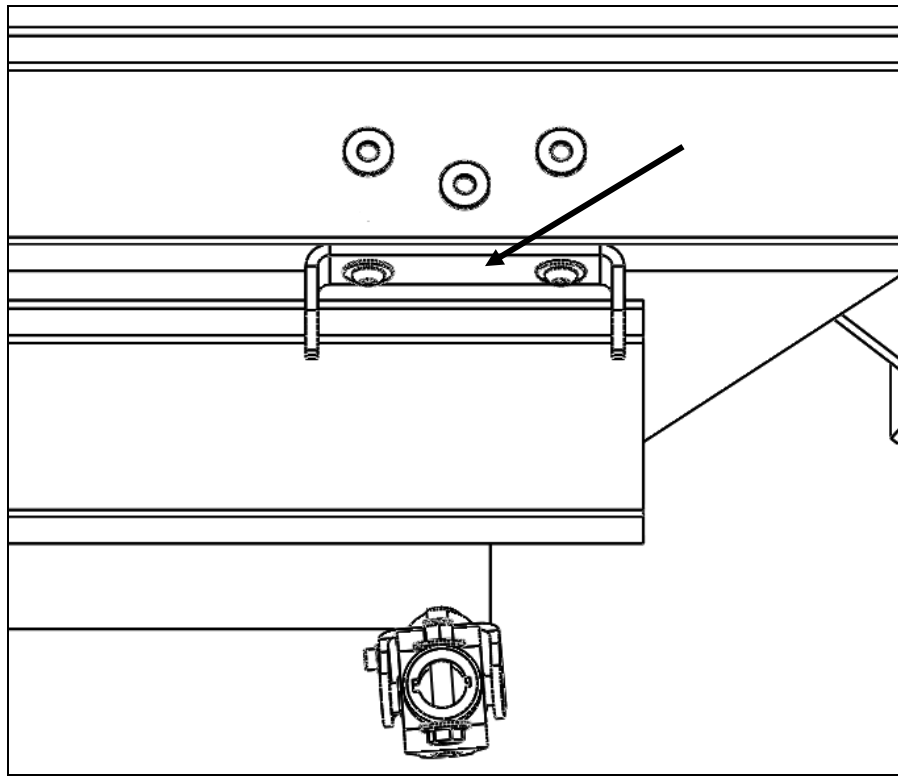
**Figure 7: Rite Trap Assembly, Mounting Hole Locations**

8. Remove lower mount from motor assembly and bolt to the lower surface of the knock rail. (**Figure 8**)

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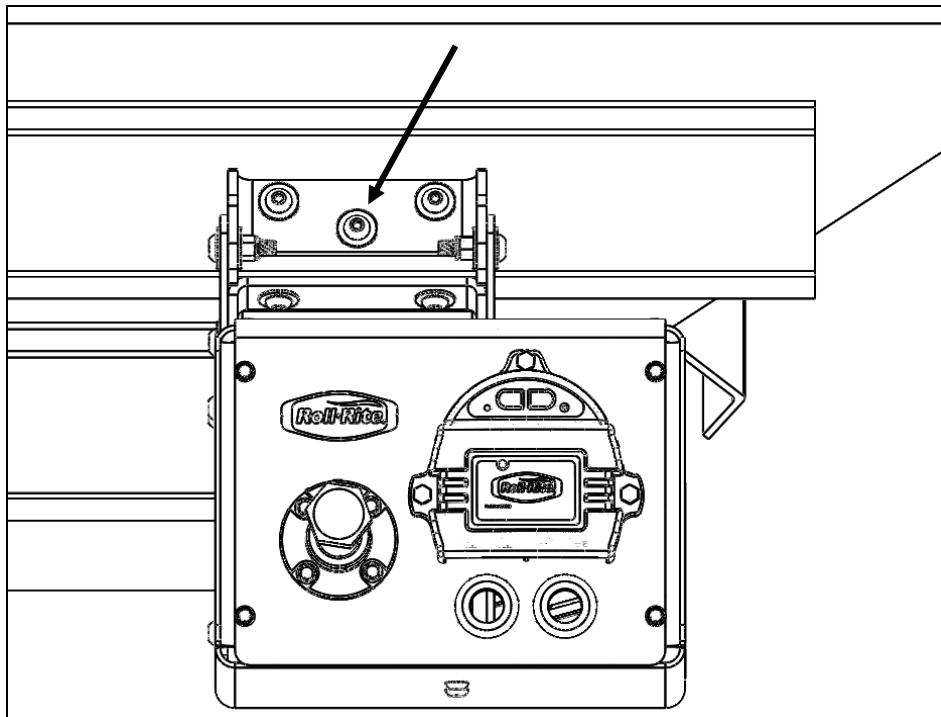
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**Figure 8: Rite Trap, Lower Knock Rail Fasteners**

9. Lift motor assembly and upper mount into position and center with lower mount bracket, fasten the upper mount with the three bolts. (**Figure 9**)



**Figure 9: Rite Trap Assembly, Upper Knock Rail Fasteners**

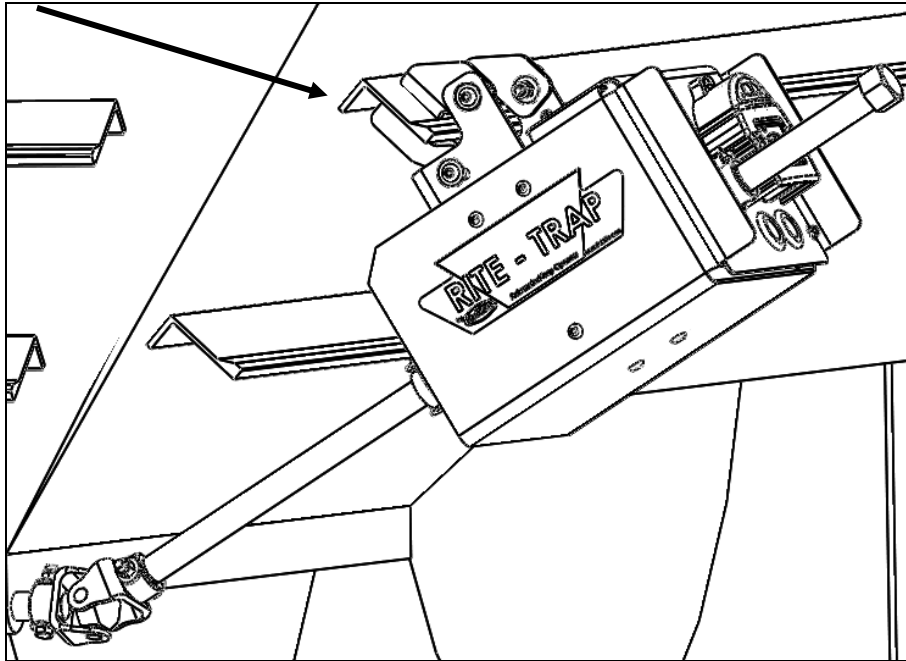
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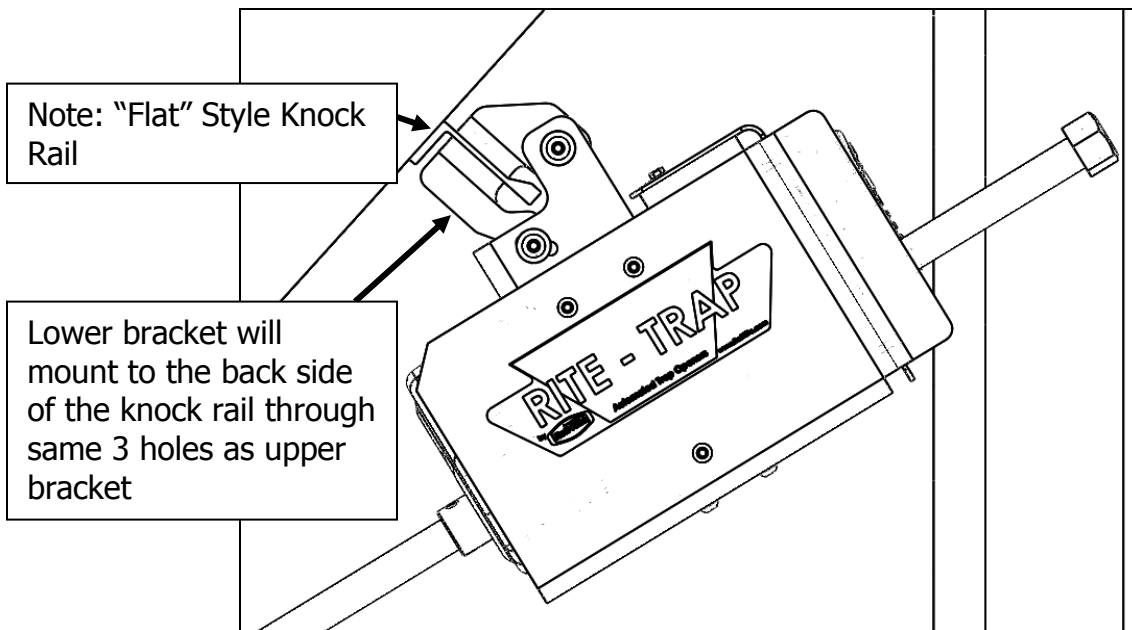


## ***Gear Motor Assembly: "Flat" Shaped Knock Rail***



**Figure 10: Rite Trap Assembly on Typical Flat Knock Rail**

1. If mounting on a "Flat" knock rail, use the lower bracket that will sandwich the rail and bolt through the same 3 holes on the upper bracket. **(Figure 11)**



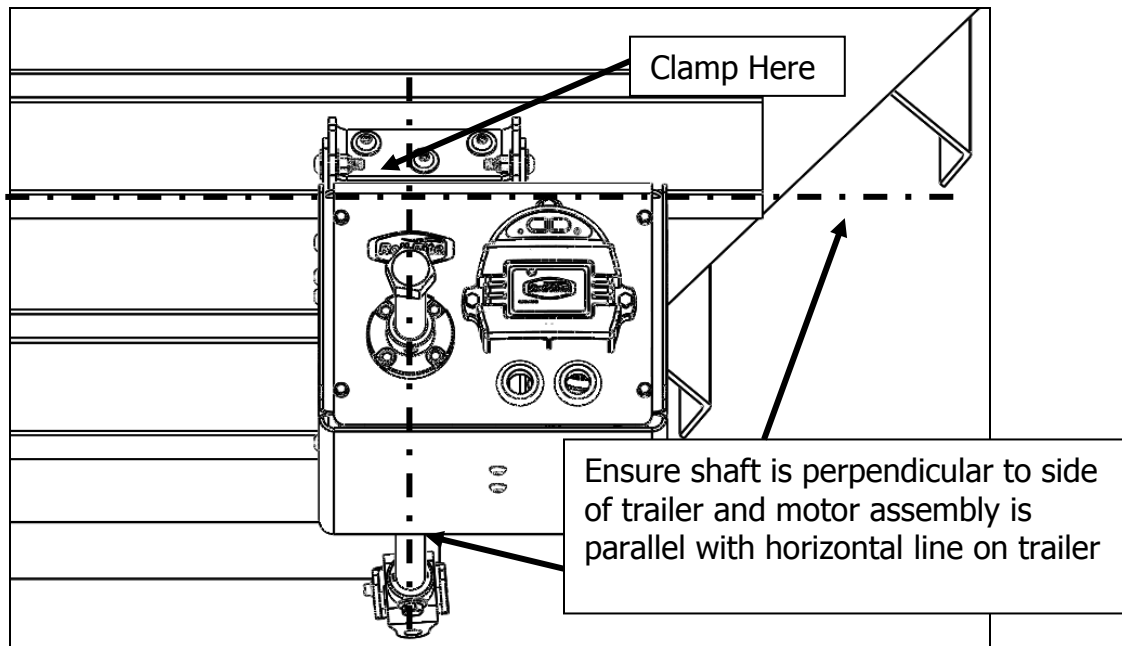
**Figure 11: Rite Trap Assembly on Typical Flat Knock Rail**

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2. Remove the factory crank shafts and mounts from the knock rails on the trailer. *Note: Some trailers you may not be able to remove the entire mount. Instead you may need to cut the mount and attach to it in place of the knock rail in future steps.*
3. Remove the factory shaft from the U-joint on door. It may be necessary to replace the U-joint shaft if it is seized to the U-joint or if the U-joint does not match the 1" inch diameter shaft supplied.
4. With the shaft through the motor and inserted into U-joint, square and clamp the upper mounting bracket to the knock rail where the factory crank mount was attached. (**Figure 12**)



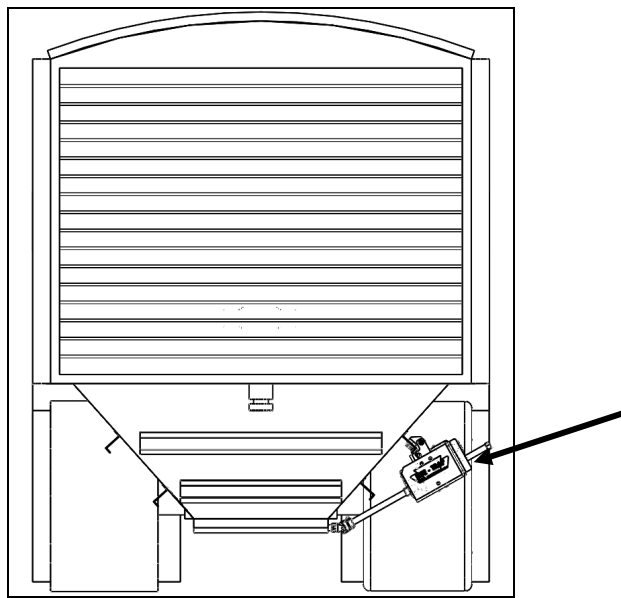
**Figure 12: Rite Trap Assembly on Typical Flat Knock Rail**

4. Ensure that the motor assembly does not extend beyond the factory width of the trailer. (**Figure 13**) *Note: shaft will be trimmed later*

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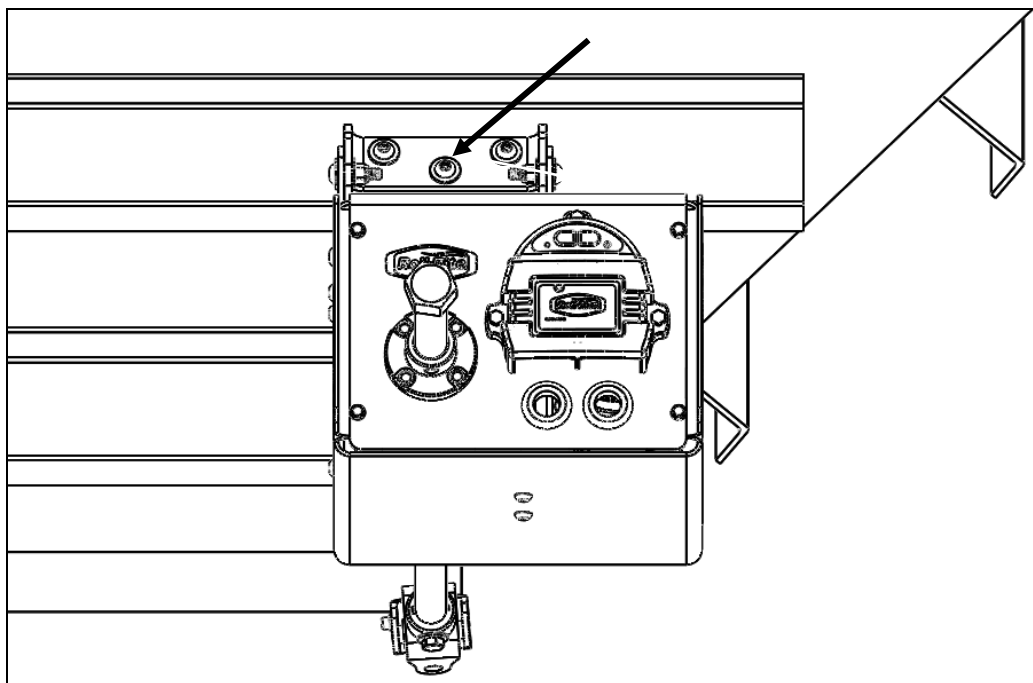
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**Figure 13: Rite Trap Assembly Installed Within the Width Limit of Vehicle**

5. Using the holes in the upper mount as a guide, drill three 3/8" holes and bolt both upper and lower bracket in place (**Figure 14**).



**Figure 14: Fastening Assembly to Flat Knock Rail**

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## ***Crank Shaft Installation***

The provided crank shaft is designed to be usable with two different style of crank handle. Note one end has a  $\frac{3}{4}$ " square drive the other is fitted with a standard nut. (**Figure 15**)

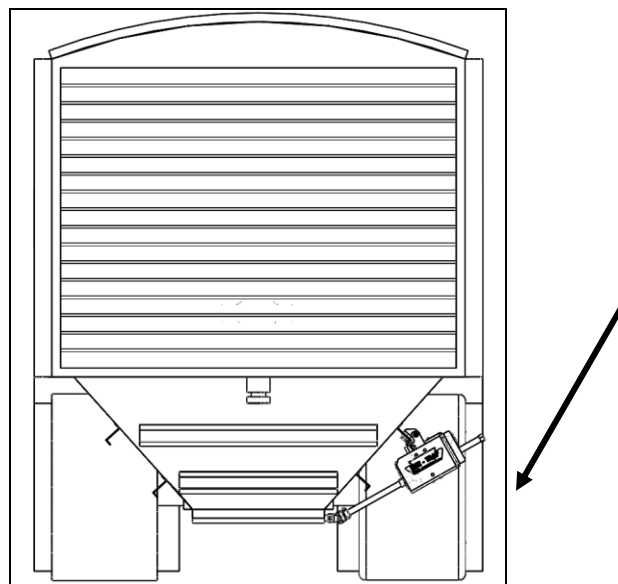


1. Determine which end of the shaft you will need to use if manual operation is needed. If the square drive end of the shaft is needed, cut the hex nut off by cutting as close to the nut as possible. If utilizing the hex nut drive cut the square end of the shaft off as close to the square section as possible.
2. Insert shaft through motor assembly into U-joint.

Note: A new U-joint may be necessary if the stock U-joint does not accept the supplied 1" shaft.

\*\* Ensure plastic sleeve remains installed at all times in motor coupler \*\*

3. Determine the required length to remove from the shaft so that it will not protrude past the overall width of the trailer. (**Figure 16**)



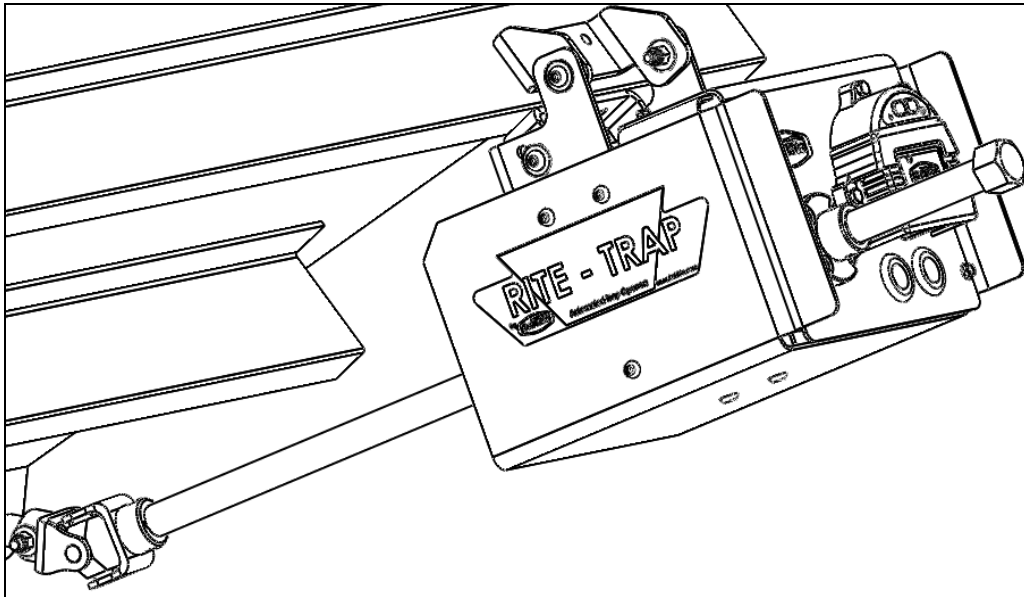
**Figure 16: Rite Trap Assembly Installed Within Width Limit of Vehicle**

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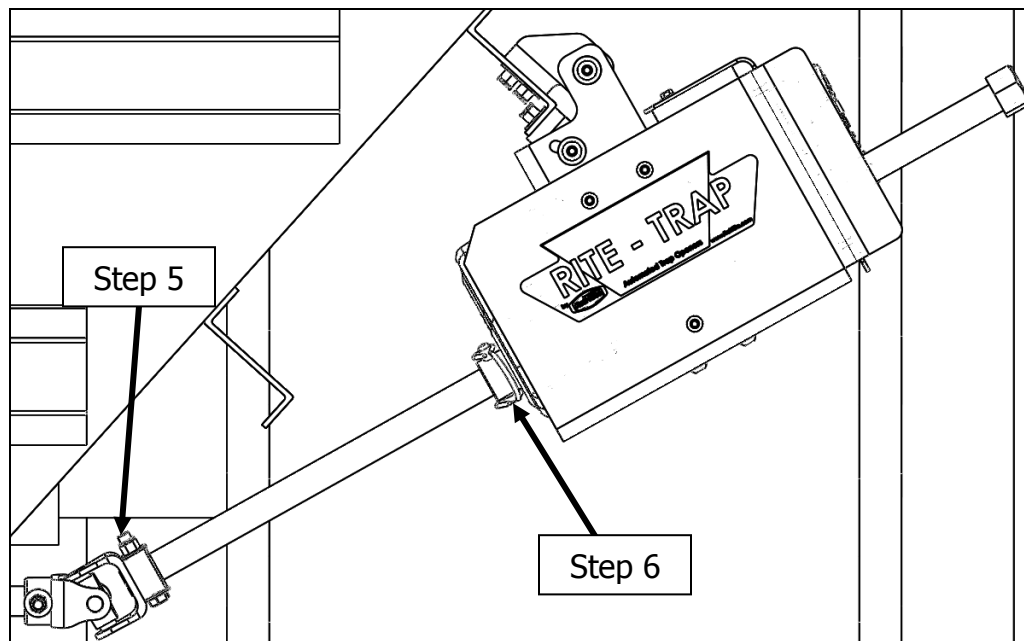
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- After trimming shaft check for proper length by reinserting shaft through the motor assembly. Mark the shaft at each end of the motor. Remove the shaft and apply anti-seize between the marked locations. While ensuring the plastic sleeve remains fully installed to the gear motor coupler, reinsert shaft into U-joint. (**Figure 17**)



**Figure 17: Rite Trap Assembly with Crank Shaft Installed**

- With shaft inserted into the U-joint, use the hole in the end of the U-joint as a guide, drill a 3/8" hole straight through the shaft. Apply anti-seize between shaft and U-joint. Install the shear bolt. (**Figure 18**)
- Using the hole in the rear of the motor coupler as a guide, drill straight through and install the 3/8" clevis pin. (**Figure 18**)



**Figure 18: Rite Trap Crank Shaft Pin Installation**

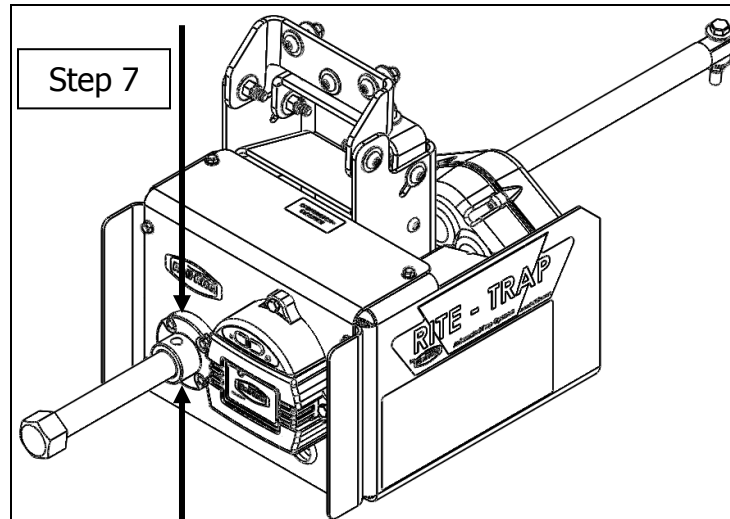
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7. After ensuring a proper fit by installing the 3/8" sheer bolt through the U-joint and the supplied 3/8" clevis pin through the motor collar, use the through holes in the front poly bushing as a guide to drill a 3/8" hole thru the shaft. (**Figure 19**)

*Note: The hole drilled in the shaft through the front poly bushing is only used when you wish to disconnect the motor and manually lock the door to keep it from vibrating open.*



**Figure 19: Rite Trap Assembly Installation of Front Drive Pin**

## ***Electrical Installation Requirements***

- ***Note: Limit switches are NOT required for system operation***
- Use the provided 50 amp manual-reset breaker and install within 12" of the battery in the positive battery lead. (Shown on pages 17 & 18) The Roll-Rite "Tractor Kit" includes the 50 amp manual reset breaker.
- **Single Door Hopper Kits** – A single door kit supplies (1) hopper motor assembly and (1) power junction box (104757). See Figure 21 (page 16) for suggested junction box location
- **Dual Door Hopper Kits** – A dual door kit supplies (2) hopper motor assemblies and (2) power junction boxes (104757). See Figure 22 (page 16) for suggested junction box location

## ***Junction Box Installation Instructions***

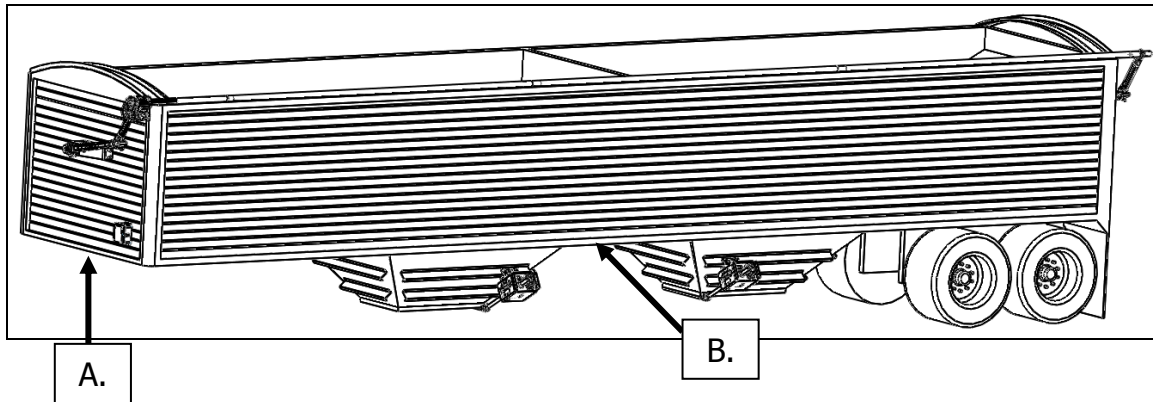
1. Review the System Wiring Diagrams Prior to Installation of Junction Boxes:
2. Determine the proper mounting location for both junction boxes so that all wire can be routed to them. For the front box the suggested mounting

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location is inside on the front wall of the trailer (A). For the rear box the suggested location is between both hopper motor assemblies (B). See Junction Box Suggested Mounting Locations (**Figure 20**)



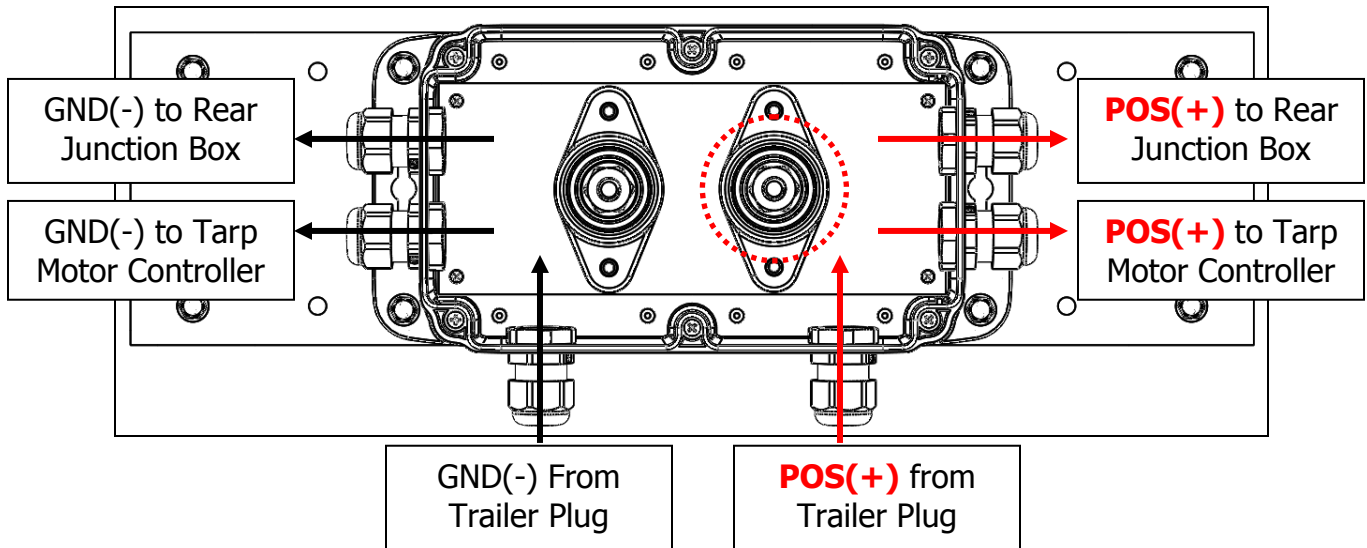
**Figure 20: Junction Box Installation Locations**

3. Mount the junction boxes such that the two wire glands on the long side of the box are facing downward. This will decrease moisture from entering the junction box. See Figures 21 & 22.
4. Connected the front and rear junction box with supplied 6 gauge wire. Route and secure wire to protect from wear from contact with the trailer. See Figures 21 & 22.
5. Insert provided 6 wire ends into each junction box and pull through, then strip wire and crimp terminals sufficiently. (Figure 21 & 22)
6. Fasten terminals to respective POS (+) and GND (-) lugs and apply dielectric grease.
7. After the wiring is routed properly inside the box tighten all cable glands.
8. Fasten lid onto junction box with supplied screws.
9. To install wiring in the rear junction box first insert the lead wires coming from the front junction box and install terminals (**Figure 22**)
10. Insert wire from front hopper controller, strip and crimp terminals.
11. Insert wire from rear hopper controller, strip and crimp terminals
12. Fasten terminals to respective POS (+) and GND (-) lugs and apply dielectric grease.
13. With the wiring routed properly inside the box tighten all cable glands.
14. Fasten lid onto junction box with supplied screws.

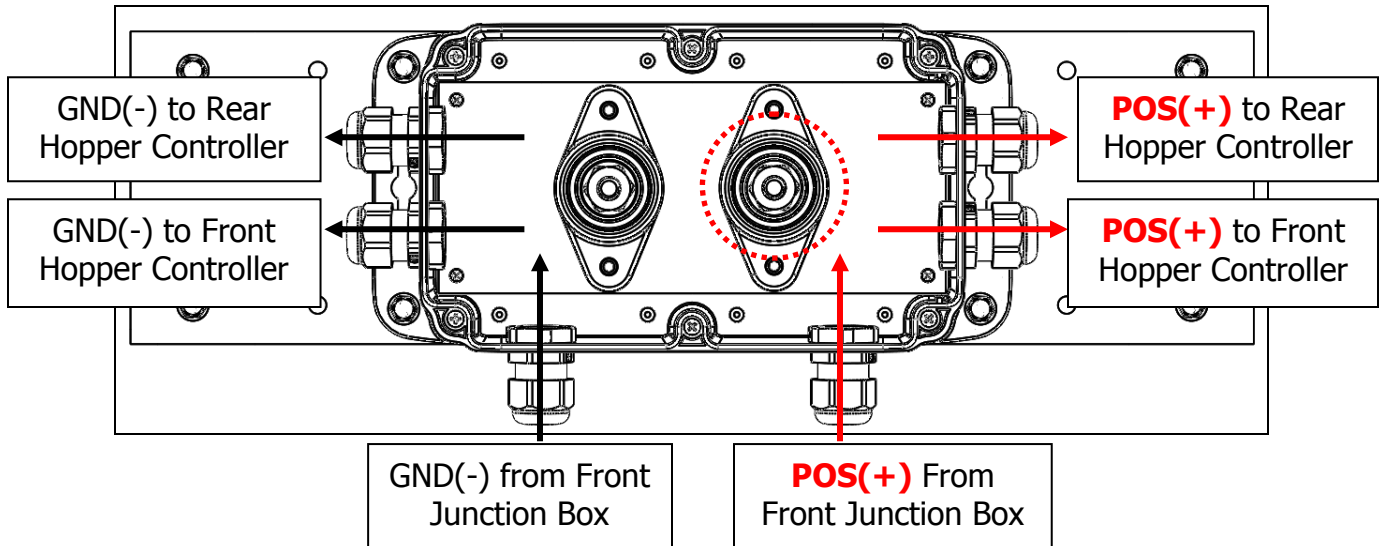
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**Figure 21: Front Electrical Junction Box Input and Output Wiring**



**Figure 22: Rear Electrical Junction Box Input and Output Wiring**

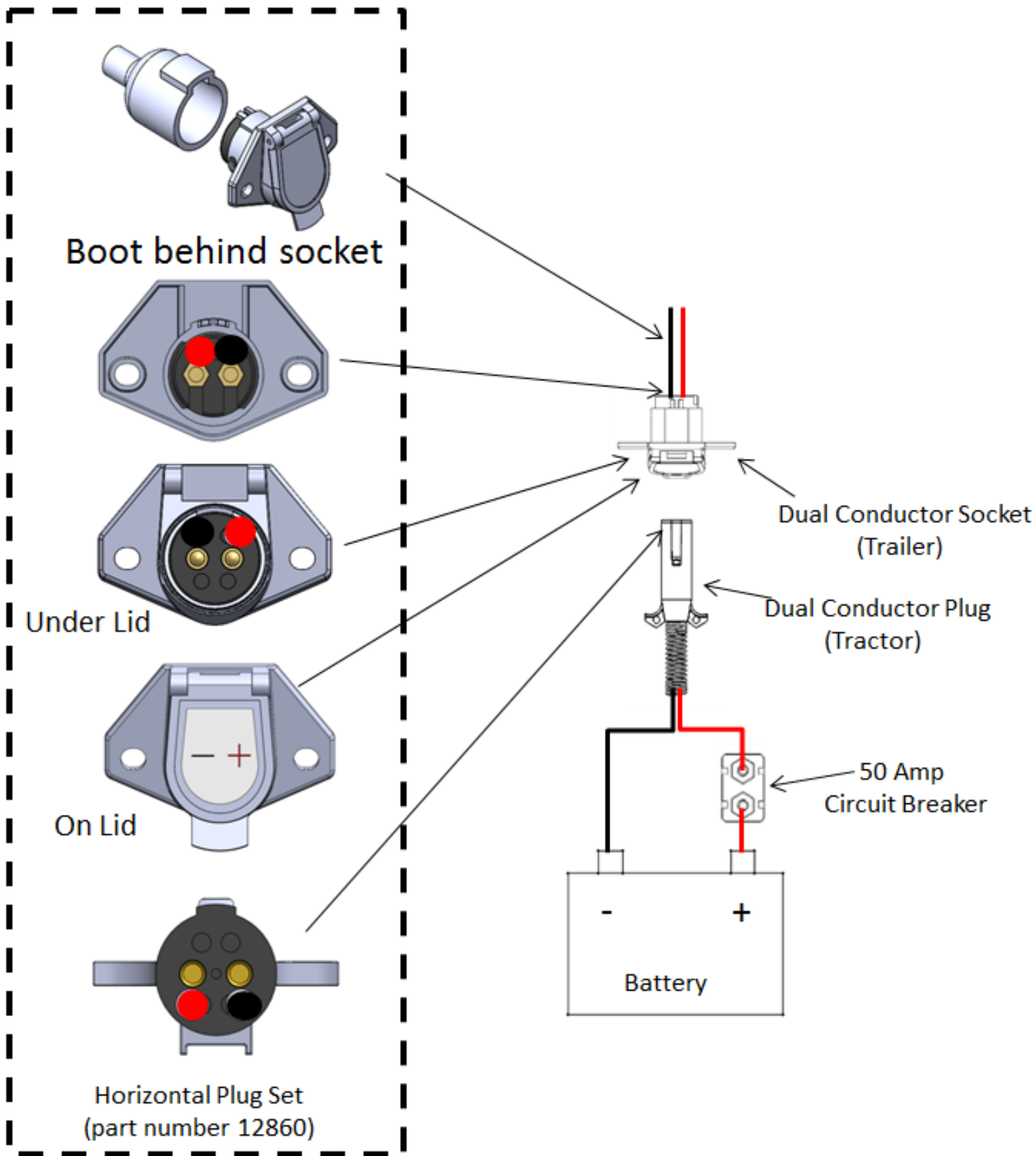
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# Horizontal Trailer Plug Set

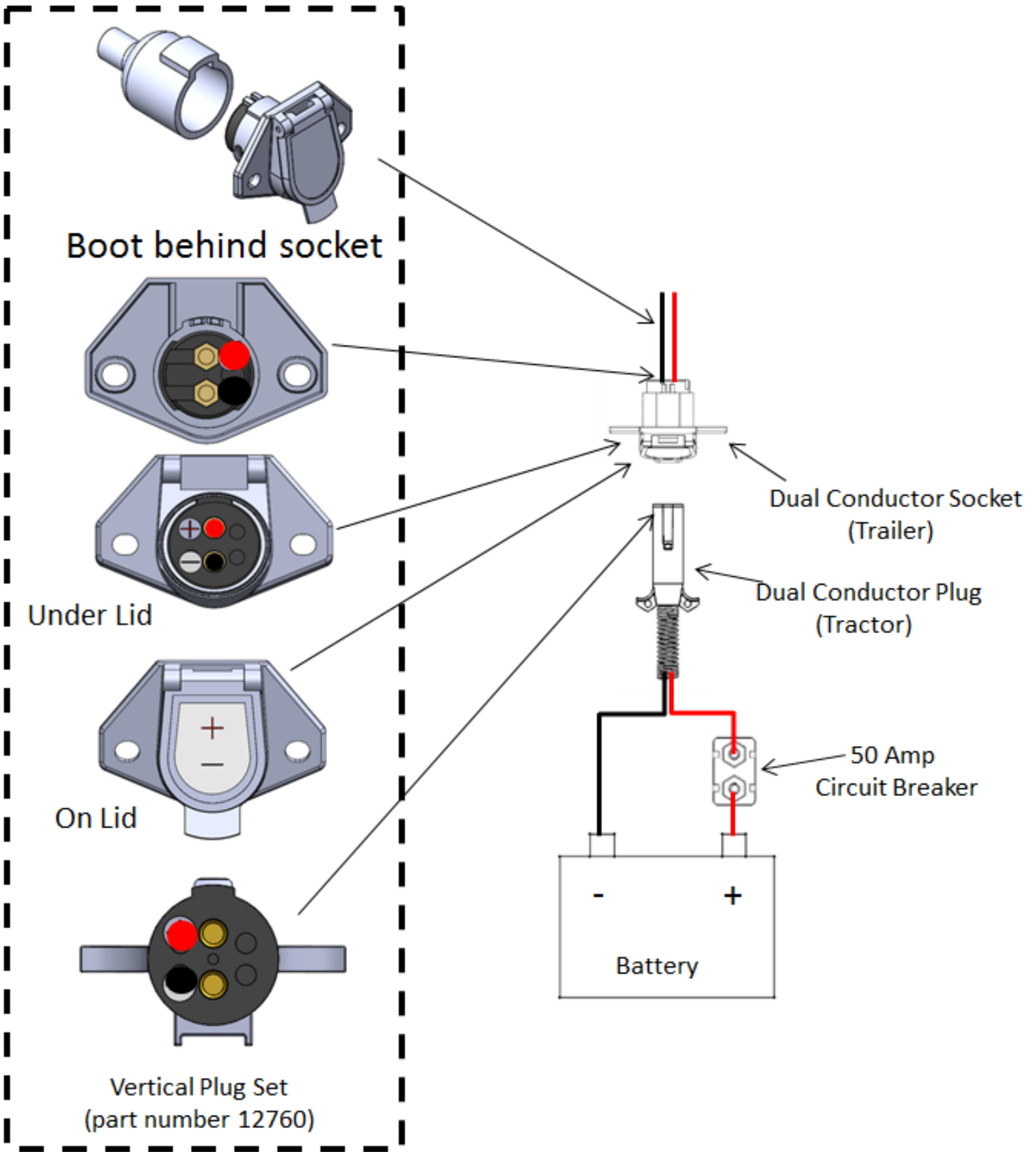


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# Vertical Trailer Plug Set

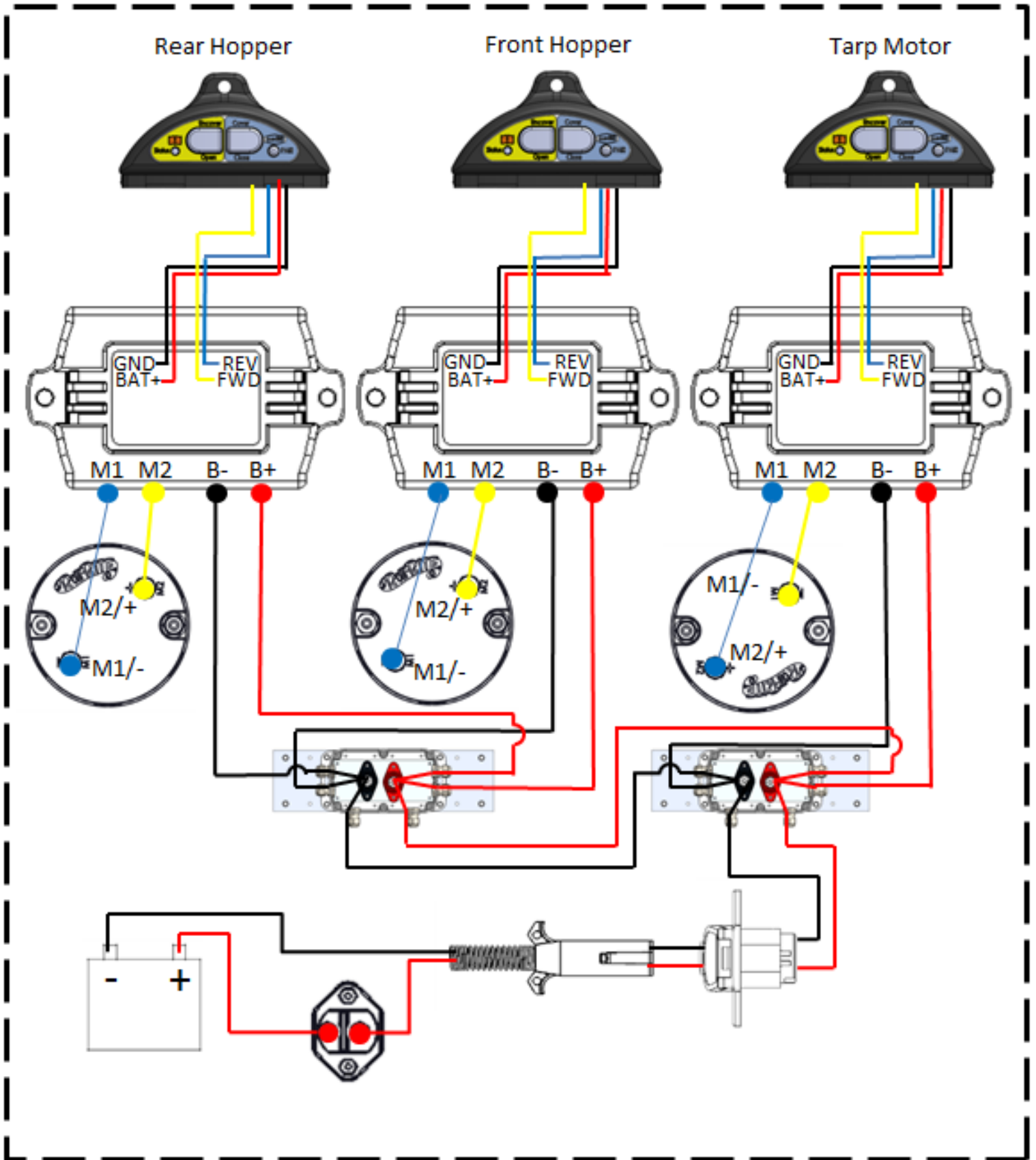


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# Trailer Wiring Diagram/ Two Hopper Doors-Uncover Left

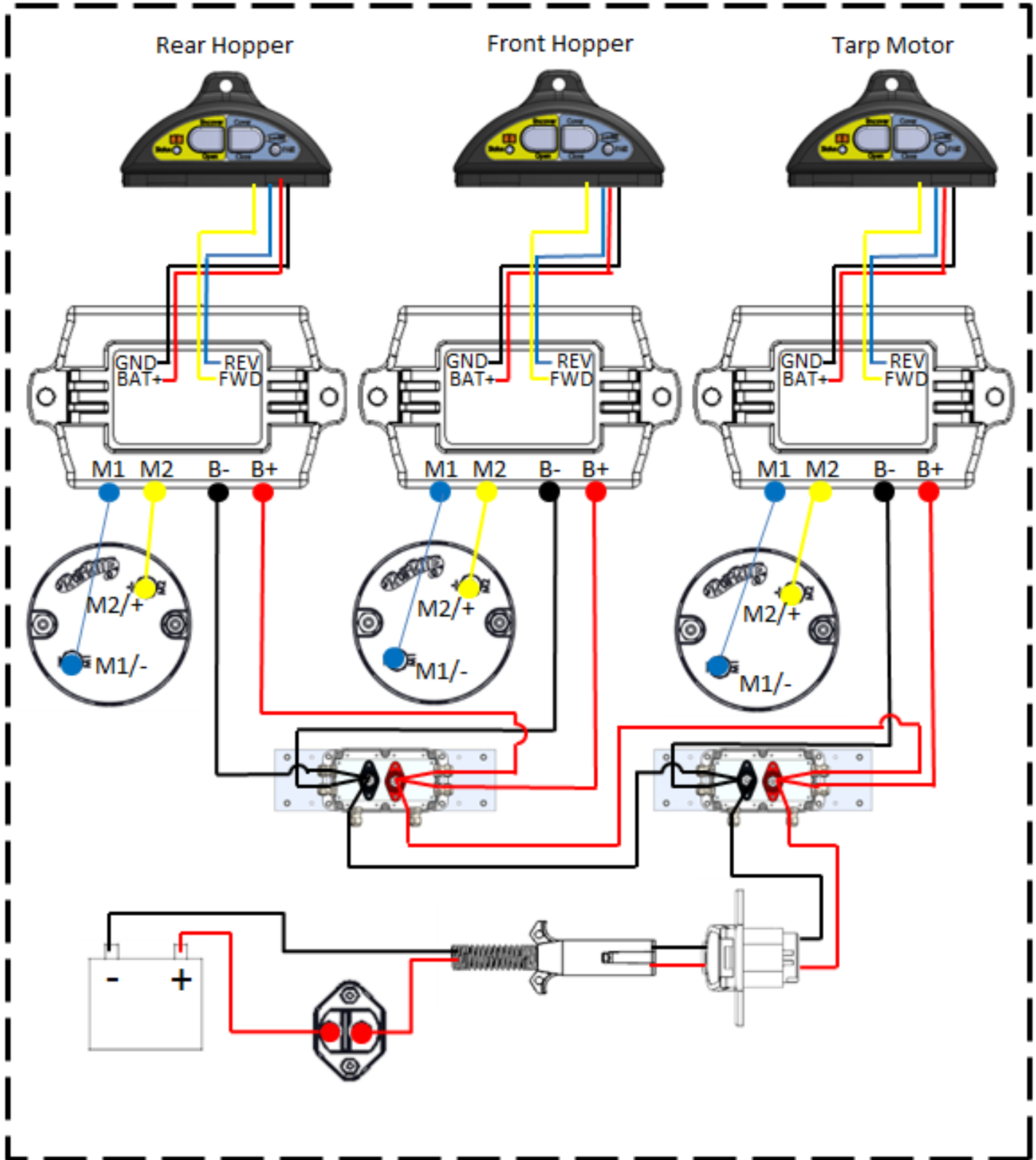


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# Trailer Wiring Diagram/ Two Hopper Doors-Uncover Right

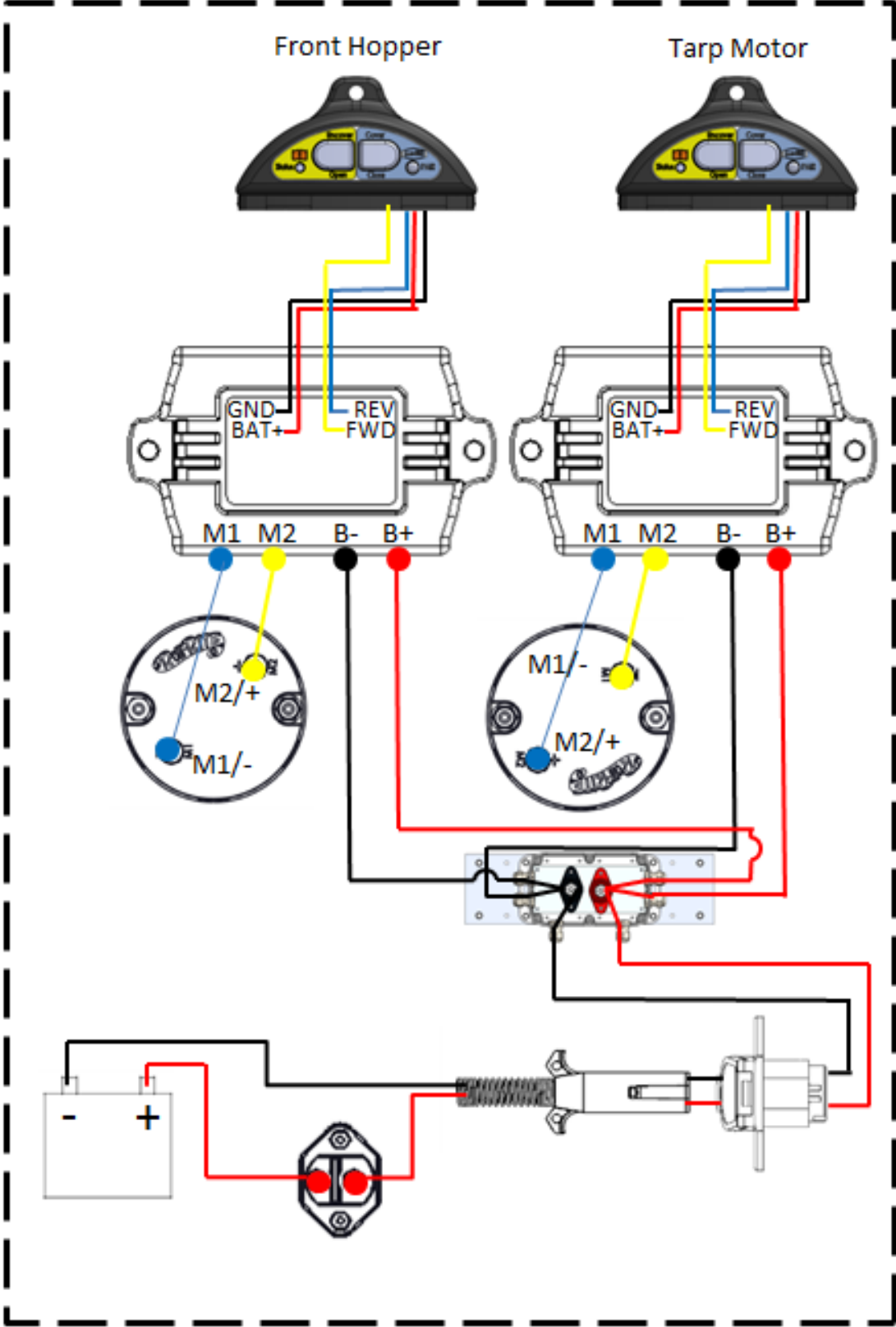


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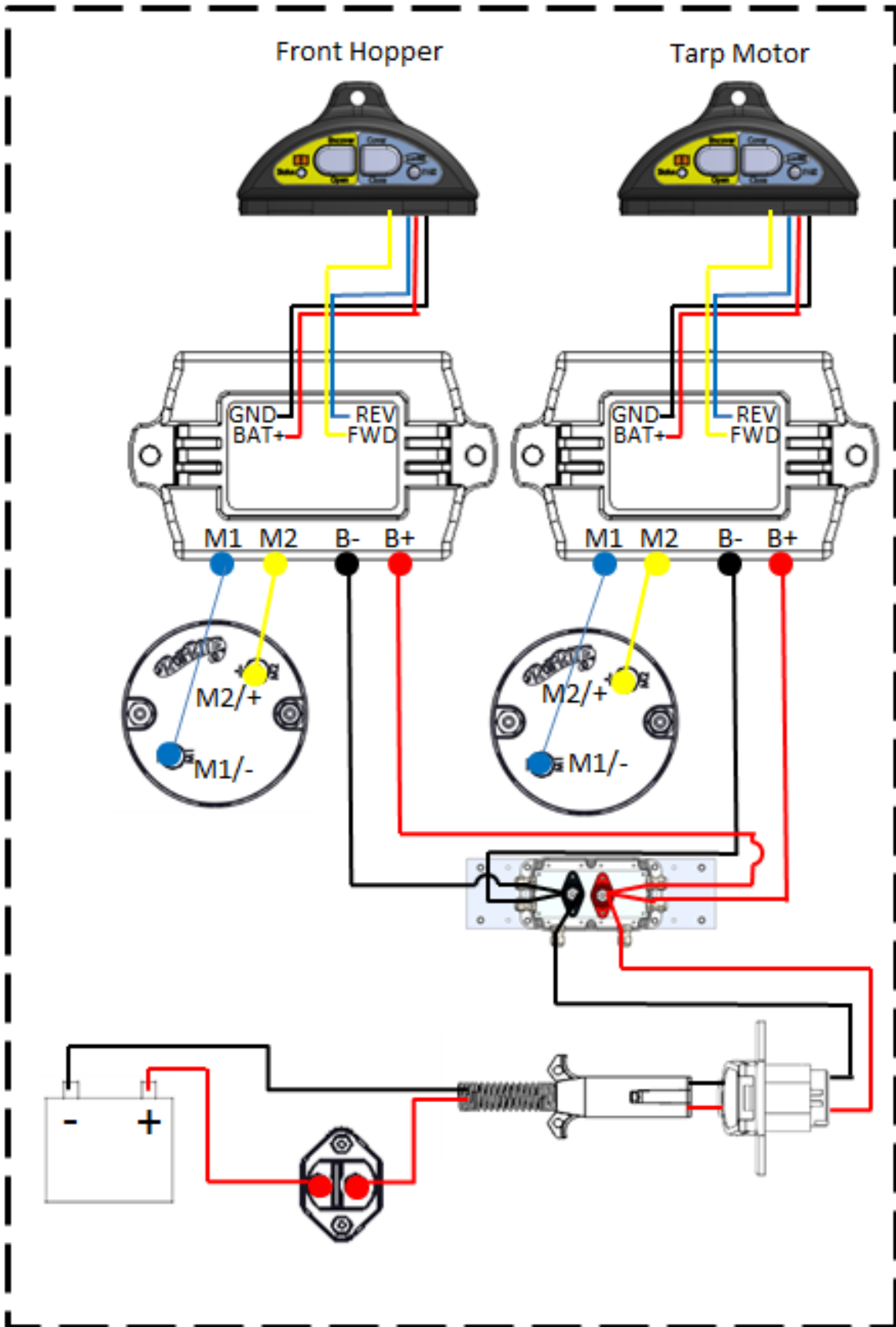
**Trailer Wiring Diagram/ One Hopper Door-Uncover Left**



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# Trailer Wiring Diagram/ One Hopper Door-Uncover Right



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# Operation Instructions

Your Rite Trap system is designed to be easy to operate. The system allows for full opening and full closing of hopper doors. The system also allows the doors to be partially opened for flow metering of material leaving the hopper. In some cases, it is possible to close the hopper door while low density material is flowing.

## ***System Operation***

**Refer to the following instruction publications shipped with this system for information related to the RF remote system:**

**105687: Radio Frequency Control Switch for GTX Tarp System, Quick Start Guide**

**105563: Roll Rite Automated Tarp System Remote Control Owner's Guide**

Paying close attention to which door you are operating press and hold the close button on the motor controller or key fob. The door will continue to close as long as you hold the button or until it reaches the end of travel and trips the amperage sensing programmed in the controller. At any time if you wish to stop closing the door simply release the switch.

***\*\*Ensure door is clear of excess material or foreign objects that may hinder full range of motion.***

## ***Manual Override of the Gear Motor***

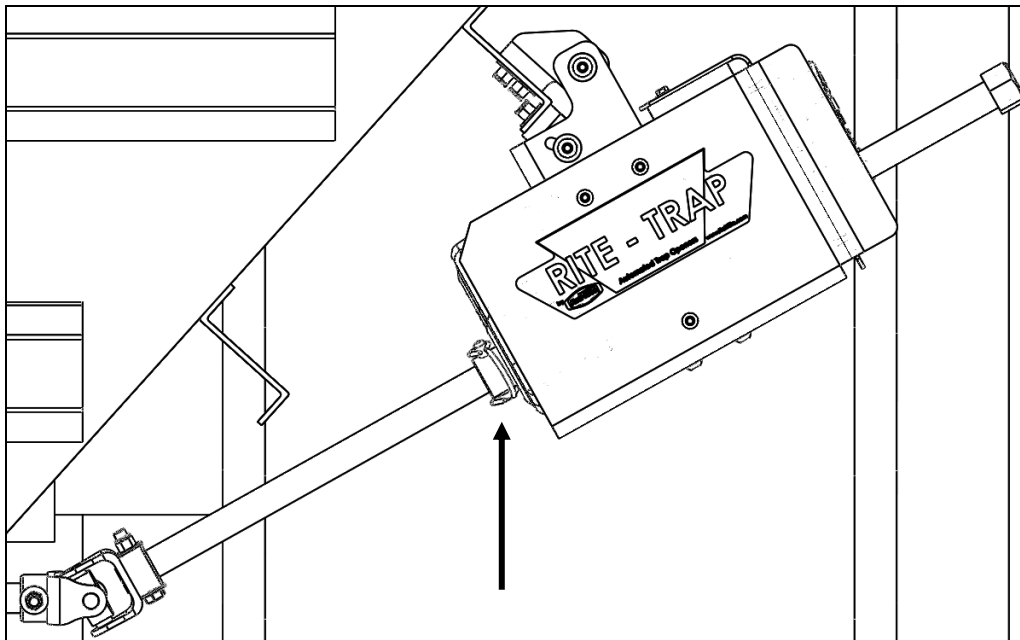
If for any reason there is no power supply available or there is a power failure. Remove the snap clevis that connects the motor coupler to crank shaft, as shown in Figure 23 and 24 below. The crank handle can now be used to operate the hopper door.

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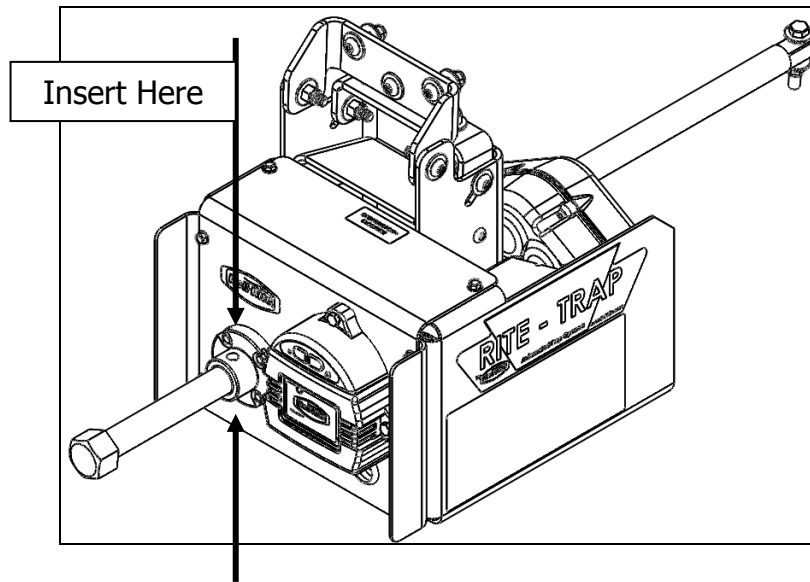
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**Figure 23: Drive Pin Removal for Manual Operation**

With door fully closed, insert the snap clevis through the hole in the poly bushing and the shaft on the front side of the motor assembly to lock the door in the closed position.



**Figure 24: Drive Pin Installation for Manual Operation**

## Maintenance Items

*Roll Rite designs automated covering systems and power kits with minimal required maintenance, adding to the total value you will experience with these products.*

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## **Maintenance intervals vary based on environmental conditions.**

Roll Rite, recommends:

- All electrical connections should be cleaned and greased regularly to prevent corrosion. Fill all electrical boots with dielectric grease. Electrical connections can be found at all motors, switches, contactors, control boxes and batteries.
- Apply anti-seize between components where steel contacts aluminum.
- All bearings with grease fittings should be routinely inspected and greased.
- Check and tighten all set screws. Set screws should be tightened until they touch and then rotate an additional  $\frac{3}{4}$  of a revolution.
- Check motor mounting bolts and apply torque to 70 in-lbs (5.8 ft-lbs).
- All mounting hardware should be checked to insure all system components are securely fastened.
- Visually inspect all moving parts for abnormal or excessive wear.

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***Additionally, we would love to hear from you if you have any questions or issues:***

**Phone - 800-297-9905**

**Fax – (989) 246-1035**

**E-mail – [info@rollrite.com](mailto:info@rollrite.com)**

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