

A Safe Fleet Brand

Side To Side Lock Down Systems

For Smooth Wall Transfer Trailers

RR Part # 103890

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Installation Instructions

Required Installation Tools

Man Lift	Electric Grinder	13/64" Drill Bit	1/2" Wrench
Hilo	C Clamps	1/4" Drill Bit	9/16" Wrench
Ladder	Pliers	17/64" Drill Bit	3/4" Wrench
Dielectric Grease	Box Cutter	1/2" Drill Bit	3/16" Allen Head Driver
Marker	Hammer	3/8" Nut Driver	Portable battery Station
Cordless Drill	Wire Stripper	7/16" Nut Driver	Zip Ties
Cordless Impact	Wire Cutter	1/2" Nut Driver	Chop Saw
Portable Bandsaw	#3 Phillips Bit	9/16" Nut Driver	Sch. 30 3" PVC
Measuring Tape	T-40 Torx Bit	3/4" Nut Driver	Heat Gun & Roller for patching

Squaring off front of Trailer

- 1. Locate the wind deflector components and fasteners provided for squaring off the nose of the trailer:
 - (2) 103824 Side Corner Squaring Plates
 - (2) 103812 2"x3" Aluminum 90° Angle Brackets
 - (1) 103863 Front Wind Deflector
 - (22) 18651 $\frac{5}{16}$ "-18 x 1" 6 Lobe Pan head Type-F ZC self-tapping
- 2. Tools required:
 - a. Man Lift
 - b. Measuring Tape
 - c. Electric Grinder
 - d. C Clamps
 - e. T-40 Torx bit
 - f. Marker
 - g. 17/64" Sharp drill bit
 - h. Cordless Drill
 - i. Cordless Impact
- 3. Pre-assemble one side plate to the short side of an angle bracket using a pair of the 18651 ($5/16''-18 \times 1''$ self-tapping screws). If there is a sheared edge, make sure it faces down and the smooth edge is up in order to reduce the risk of tarp wear. Additionally, the angle bracket top edge should lay below the rounded smooth top edge of the side plate. Repeat for other corner.
- 4. Measure widest point of top of trailer just behind the angled corner and note the measurement.

5. Using the measurement and the corner assemblies from above along with the front wind deflector, create the front assembly (figure 1). Complete this by securing the wind deflector ends to the long side of the angle bracket which is assembled to the side plates from step 3 above. Use a pair of $18651 (\frac{5}{16}''-18 \times 1'')$ self-tapping screws) per side to complete the wind deflector assembly. The ID of the assembly should equal the trailer width measured in step 4.





6. Using a grinder, clean up any sharp edges/excess weld/slag on the corner straps and top edges of the trailer (Figure 2).



Figure 2

- 7. With the wind deflector held flush to the front face of the trailer align the top edge of the side squaring plates with the top most edge of the trailer top rail. Temporarily clamp the assembly to the trailer to hold this position and mark the holes using the existing pre-drilled $\frac{5}{16}$ holes in the side plates as a guide. Drill out four $\frac{17}{64}$ holes through the top rail corner strap on each side of trailer at the marked locations.
- 8. Secure the wind deflector side plates to the trailer by fastening four $18651 (5/16"-18 \times 1")$ self-tapping screws) through the side plates and into the drilled out holes in the side wall corner strap. Repeat for other corner.

 Drill six ¹⁷/₆₄" holes through the front face of the wind deflector and through the front side wall of trailer in the locations indicated below in Figure 3.



10. Fasten the front of the wind deflector to the trailer with six 18651 ($^{5}/_{16}$ "-18 x 1" self-tapping screws) provided. The finished assembly should look similar to Figure 4, although with bolts instead of rivets.



Figure 4

Front Locking Lip and Rub Rail Installation

- 1. Locate the following components:
 - (2) 102554 Locking Lip Extrusion
 - (1) 37510 12" Rub Rail Guard
 - (3) 18110 ¹/₄" x 1" Hex Head Self Drilling Fastener
 - (8) 103830 ¹/₄" x 1¹/₄" Pan Head Phillips Fastener

- 2. Required Tools:
 - a. Man Lift
 - b. Cordless Drill
 - c. Cordless Impact
 - d. ¼" sharp drill bit
 - e. 13/64" sharp drill bit
 - f. Measuring Tape
 - g. #3 Phillips bit
 - h. 3/8" Nut Driver
- 3. Pre-drill two locking lips with a 1/4" drill at each corner approximately 1" in from the edge through the drill guide groove.
- 4. Install one of the front Locking Lip sections on the top rail at the front of the trailer just behind the corner strap. The Locking Lip will go on the passenger side for a driver stowing system or the driver side for passenger stowing system (as shown in Figure 5 below). Using the drilled holes from step 2 above as a guide, mark the 4 hole locations in the top rail. Drill-out pilot holes using a ¹³/_{64th}" sharp drill and secure the locking lip to the top rail with four 103830 (¼" X 1 ¼" Pan Head self-drilling screws). Repeat this procedure with the second front locking lip. Position the second front locking lip directly behind the first and flush with each other (Figure 5).



Figure 5

5. Position the Rub Rail Guard in front of Locking Lips near or on the squaring off bracket. Mount the Guard in a vertical orientation. The Rub Rail Guard will prevent the tarp roll from contacting the squaring-off corner bracket fastener heads and damaging the tarp. Drill a ¹³/₆₄" hole through the bottom, middle and top fastener locations and secure guard to side wall with the 18110 (¼" X 1" hex head self-threading screw). (Figure 6).





Figure 6

Front Pivot Installation

- 1. Locate the front pivot mount components and hardware:
 - (1) 47200 Top Mount Pivot Bracket
 - (1) 103813 Top Mount Pivot Backer Plate
 - (1) 104278 Bracket, Top Pivot Mount Extension Plate (for Waste application only)
 - (1) 46480 6 Spring Top Mount Passenger Side Pivot -or-
 - (1) 46470 6 Spring Top Mount Driver Side Pivot
 - (8) 102010 ¹/₂" x 3¹/₂" hex head Fastener
 - (6) 18296 ¹/₂" x 1¹/₂" hex head Fastener
 - (28) 18412 1/2" Flat Washers
 - (14) 18631 ¹/₂" nylock nuts



Parts Diagrams see "Parts and Diagrams" section on web at <u>www.rollrite.com</u>

- 2. Required Tools:
 - a. Man Lift
 - b. Measuring Tape
 - c. Marker
 - d. ¹/₂" Sharp Drill bit
 - e. ³/₄" Wrench and Nut Driver
 - f. Cordless impact
 - g. Cordless Drill
- 3. Set Pivot Box onto Pivot Bracket, aligning holes (Figure 7). Place a mark on the top tab of the pivot bracket lined up with the center of the pivot pin (Figure 8).









- 4. The front pivot box top plate must be installed 24" down and the pivot pin must be centered on the trailer for proper operation. To locate the pivot mount (see figure 9):
 - a. Measure down from the top of the trailer 22¹/₄" and put a horizontal mark on the face of the trailer near the center.
 - b. Make a vertical mark at this location centered on the trailer from side to side.
 - c. Place top tab of Pivot bracket on horizontal line (Figure 9), and place mark from Figure 8 where the two lines meet.



Figure 9

- 1. Hold the bracket up to the trailer. Make sure the top surface of the bracket is parallel with the top of the trailer. Mark all 8 hole locations with a black marker.
- 2. Drill out the marks to make holes using a 1/2" drill bit. Note: one of the top marks may line up with a welded panel seam. If so, do not drill this location.
- Bolt the mount in place using the 102010 (1/2" x 31/2" hex head bolts), 18412 washers, and 18631 Nylock nuts that were gathered in step 1. Make sure to use the backer plate on the inside wall of the trailer in order to prevent crushing the panels on a smooth wall trailer (Figure 10).



Figure 10

If your system came with a Top Mount Pivot Extension Plate (used in Waste applications) then mount the plate on top of the Top Mount Pivot Bracket (if your system does not require an extension plate then proceed to step 4. Note, only the rear holes on the Extension Plate will align themselves to the rear holes on the top shelf of the Top Mount Pivot Bracket (Figure 11). Secure the Extension Plate to the Top Mount Pivot Bracket using the 18296 $(\frac{1}{2}" \times 1\frac{1}{2}")$ hex head bolts), 18631 nylock nuts, and 18412 washers that were gathered in step 1. Using the middle holes in the Extension Plate as a guide, drill a set of holes through the Top Mount Pivot bracket at these two locations using a $\frac{1}{2}"$ drill bit. These two new holes will be used to mount the Pivot Box to the Extension Plate & Top Mount Pivot. (Figure 11)



Figure 11

Locate the top mount pivot box. Move the clevis pin to the bottom hole (if it isn't already) for maximum spring tension. Secure the Pivot Box to the mounting bracket using the 18296 (1/2" x 11/2" hex head bolts), 18631 nylock nuts, and 18412 washers that were gathered in step 3. Before completely tightening the bolts, slide the pivot all of the way forward in the bolt holes.

Front Arm Assembly and Installation

- 1. Locate the following components:
 - (1) 103836 Assembled Driver Stowing Front Pivot Arm -or-
 - (1) 103810 Assembled Passenger Stowing Front Pivot Arm
 - (1) 10200 Tarp Stretcher Gear Motor (fasteners included)
 - (1) 18560 ¹/₂" x 4¹/₈" long Clevis Pin

- (1) 18510 ¹/₂" x 2³/₄" x Clevis Pin
- (2) 18293 ¹/₂" x ³/₈" set screws
- (2) 18299 Cotter Pins
- 2. Required Tools:
 - a. Man Lift
 - b. T-40 Torx bit and Driver for Set Screws
 - c. Pliers for the Cotter Pins
 - d. Measuring Tape
 - e. Marker
 - f. 3/16" Allen Drive

Note: Arms are shipped pre-assembled, refer to Figure 12 for a Driver Stowing system and Figure 13 for a Passenger stowing.

- 3. Rotate the upper section down until you can get the short pin under the springs at the maximum position. Refer to step 1 in Figure 12 or 13 depending on your system. Once in place install cotter pin.
- 4. While securely holding the lower arm, rotate the upper arm against the spring pressure until you can get the long clevis pin thru the holes under the upper pivot tube. Refer to step 2 in Figure 12 or 13 depending on your system. Once in place install cotter pin.





- 5. Bolt the motor to the pivot arm using six 5/16" x 7/8" Button Head bolts and washers supplied in the motor. Remove the 3/8" bolt and nut that is supplied with the motor from the output shaft and set aside for later. Figure 14 will show motor positioning on arm.
- 6. Connect the yellow striped wire to the + motor terminal and black wire to the terminal. Pull the boots over the terminals and fill with dielectric grease.
- 7. Loosely install the set screws 18293 into the pre-drilled/tapped holes at the open end of the lower arm.
- 8. Slide the arm onto the pivot pin and setscrew it in place. Figure 14 shows what the arm looks like if you are looking at the front of the trailer and have a driver stowing system.



Figure 14

Multi-Flex Rear Arm Assembly & Installation

1. Locate the Multi Flex Rear Arm (MFRA) and Universal Bracket Assembly components.

a. (1) 46507 Assembled Rear Multi-flex Arm, Driver Stowing System –or–

- b. (1) 46506 Assembled Rear Multi-flex Arm, Passenger Stowing System
- c. (1) 47277 Inner Bracket for Multi-flex Rear Arm
- d. (1) 47278 Outer Bracket for Multi-flex Rear Arm
- e. (1) 103815 Backer Plate for Multi-flex Rear Mount (may be required)
- f. (4) 18296 $\frac{1}{2}$ " x $1\frac{1}{2}$ " Hex Head Fastener
- g. (2) 18295 $\frac{1}{2}$ " x $1\frac{1}{2}$ " Button Head Fastener
- h. (4) 102010 $\frac{1}{2}$ " x 3 $\frac{1}{2}$ " Hex Head Fastener
- i. (10) 18631 ½" Nylock Nut
- j. (18) 18412 ½" Flat Washer
- k. (1) 18560 $\frac{1}{2}$ " x $4\frac{1}{8}$ " Clevis Pin
- I. (1) 18299 Cotter Pin
- 2. Required Tools
 - a. Man Lift
 - b. Pliers for the Cotter Pins
 - c. Measuring Tape
 - d. Marker
 - e. 1/2" Sharp Drill Bit

f. 3/4" Wrench and Socket

- g. T-40 Torx Bit
- h. Cordless Drill
- i. Cordless Impact

3. The Tailgate style affects the position of the Multi-Flex Rear Arm Mounting Bracket.

a Top Hinged Tailgate:

With these style rear gates, the MFRA Pivot Pin Center should be located 42" in from Lockdown side of trailer. The recommended vertical position of the MFRA Pivot Pin Center is 32" down from top of gate or arch. The MFRA will compensate for some variation in the mounting location. If this location does not work due to interference or if relocating the pivot would result in a more preferred location, the pivot pin center can be located vertically anywhere from 28 - 36'' down from top of gate or arch and horizontally anywhere from 42'' to Center in from lockdown side.

b. High Lift Tailgate:

With these style rear gates, the MFRA Pivot Pin Center should be CENTERED Left to Right. The recommended vertical position is 32'' down from top of gate to the Center of MFRA Pivot Pin. The MFRA will compensate for some variation in the mounting location. If this vertical location does not work due to interference or if relocating the pivot would result in a more preferred location, the pivot pin center can be located vertically anywhere from 28 - 36'' down from top of gate.

c. A Split Door or Single Piece Swing Gate:

With these style rear gates, the MFRA Pivot Pin Center should be CENTERED Left to Right. A Cantilever style mounting bracket is used on Split Door Tailgates. The recommended vertical position of the MFRA Pivot Pin Center is 32" down from top of gate or arch. The MFRA will compensate for some variation in the mounting location. If this vertical location does not work due to interference or if relocating the pivot would result in a more preferred location, the pivot pin center can be located vertically anywhere from 28 - 36" down from top of gate or arch.

- On the Rear of Tailgate, locate the CenterPoint of the Inner Universal Bracket <u>(this will correspond to the Pivot Pin ideal Center</u> <u>location described in Step #3).</u>
 - a. IMPORTANT Please note that the Two Piece Universal Bracket may not be necessary in all applications when mounting the MFRA to the Tailgate. The MFRA can be mounted directly to the door if the mounting brackets create interference issues. On thin walled gates or Mesh gates the use of the Two Piece Universal Mounting Brackets is recommended.
- 5. With the Inner Bracket held SQUARE in location on the Tailgate, mark the four mounting holes onto the Tailgate surface.
- 6. Drill $\frac{1}{2}$ " clearance holes at these marked locations.
- 7. Bolt the Inner Bracket in place.
- 8. Bolt the Outer Bracket onto the Inner Bracket.
 - a. It is important to Loose fit the Outer Bracket to the Inner Bracket using #18296 ($\frac{1}{2}$ "X1 $\frac{1}{2}$ " Hex Head Bolts), nuts and flat washers. Do not completely tighten the fasteners at this point. Questions? Contact Customer Service @ 800-297-9905 Or

- 9. Bolt the Pivot Pin installed in the MFRA to the Rear Universal Bracket Set. Note, the slot in the pin should point down see figure 16.
- 10. Secure the Multi-Flex rear arm assembly to the bracket using the two ½" Button Head Bolts. The head must be installed on the outside surface without a washer. Only use washers on the inside surface under the nut. see figure 15.



Figure 16

- 11. IMPORTATNT Make sure the arm is parallel with the tailgate and tighten the fasteners on the Outer mount from STEP 8.
- 12. With the MFRA hanging straight down, install the $\frac{1}{2}$ " x 41/8" clevis pin in the hole creating the Maximum Spring Tension. For a Passenger

Stowing MFRA this would be the Left Hole when viewing from rear of trailer. For a Driver Stowing MFRA this would be the Right Hole when viewing from rear of trailer. The Clevis Pin can be adjusted to decrease spring tension. Secure the Clevis Pin using a Cotter Pin. See Figure 17.



- 13. With the Tarp Axle hanging on the Lockdown side of the Trailer. Insert the end of the MFRA with the Aluminum Axle Adapter on it into the back end of the Tarp Axle. The Adapter should be pushed in Flush with the rear of Axle. Secure the rear Axle to the Axle Adapter using short self-drilling screws. The ideal location to fasten these components is 2" from rear of axle and thru the axle adapter ribs in two locations. See Figure 18.
- 14. Slide the Poly Axle Cap onto the Axle, align the holes with the rear axle screw guides and bolt in place. See Figure 19.





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Figure 19

15. The MFRA design will allow you to create Maximum Tension and obtain the lowest possible profile. To Avoid System damage, The Rear Arm should not have a higher profile than the top or trailer (Figure 20) or Stowed Axle when the Tarp Axle is in the STOW (Fully UNCOVERED)]position. To correct this you can adjust the Cable Length inside the Arm.



- a. IMPORTANT ---- The tarp system has to be fully operation to continue with this adjustment
- b. **IMPORTANT ---- All Adjustments SHALL be made in the DEENGERGIZED STATE** (Tarp Axle hanging on the Lockdown side of trailer and at its lowest point of travel).



Figure 21

c. While De-energized loosen the three Set Screws in the MFRA Aluminum Cast Insert. See Figure 22.



Figure 22

- d. Slide some cable into the arm and re-tighten all three set screws securely.
- e. Run the System back to the STOW (Fully Uncovered) position and evaluate the Arm location. Repeat Step 15b 15e if the arm needs to rotate further towards the STOW location to lower the profile more.

Tarp Catch Installation

- 1. Locate the tarp catches and all related hardware:
 - (10) 36730 Tarp Stop
 - (20) 18613 5/16" Nylock Nut (located with Tarp Stops)
 - (20) 18224 5/16" x 4" Hex Head Fastener (located with Tarp Stops)
 - (40) 103004 5/16" x 1 Hex Head Self Tapping Fastener

(10) 104295 Tarp Stop Spacer Shims (Not included with Standard Kit)

Alternative fasteners provided - Tarp Stops may come with a pair of preinstalled Clevis & Ring Keepers P/N 104619 for quick installation.

- 2. Required Tools
 - a. Man Lift
 - b. Tape Measure
 - c. Marker
 - d. Cordless Impact
 - e. Cordless Drill
 - f. 1/2" Wrench & Nut Driver
 - g. 17/64" Sharp Drill bit
- 3. Pre-assemble each tarp catch to a bracket using a 5/16" x 4 bolt through the bottom hole. Finger-tighten the nylock nut to the bracket. For later use, install the remaining bolt into the remaining hole in the tarp catch. Finger-tighten the nut to hold the bolt in place. See Figure 23.



- Figure 23
- 4. On a Top Hinge Tailgate, position the first tarp catch assembly on the top rail as far forward as possible. Position the top edge of the bracket 2" down from the top of the top rail. This position ensures the axle is off the top rail when tailgate opens. On an East smooth wall trailer, this will be just behind the corner strap, and the top holes in the bracket will line up with a groove on the top rail. See Figure 24 for approximate location.

Note: On a Side Swing Tailgate, the top edge of the Tarp Stop bracket will be mounted flush to the top rail of trailer. This will ensure the axle has clearance above the tailgate when it is swung open.



Figure 24

- 5. Mark the holes and drill the top rail with a $\frac{17}{64}$ drill.
- 6. Secure the tarp stop bracket to the trailer with the two $\frac{5}{16}$ " Hex Head self-tapping bolts.
- 7. If you ordered Tarp Stop Spacer shims (required if you are mounting bracket 2" below top rail to fill the offset Figure 24) mark the bottom two holes in the Stop Bracket and drill through wall with a ¹⁷/₆₄" drill. Position the shim in-between the bracket and side wall and secure to the trailer using two ⁵/₁₆" self-tapping bolts per assembly.
- 8. Space the nine remaining tarp stops out evenly along the Stow side top rail positioning them 2" low. The back edge of the last bracket needs to be mounted flush with the back edge of the last panel, make sure that it will not interfere with the tailgate. If the tarp ends short of the tailgate the last catch should be at the back edge of the tarp. See Figure 25 for example installation.



Figure 25 Questions? Contact Customer Service @ 800-297-9905 Or Parts Diagrams see "Parts and Diagrams" section on web at <u>www.rollrite.com</u>

Tarp Axle and Tarp Assembly

- 1. Locate the following components:
 - (1) 102034 Front Section for 3" Axle Kit (full length)
 - (3) 102292 Center Section for 3" Axle Kit (full length)
 - (4) 101815 Steel Tarp Securing Rods with Swage (12')
 - (1) 102305 Steel Tarp Securing Rod w/o Swage (88 ³/₄")
 - (5) 18140 ¹/₄" x ³/₄" Pan Head Phillips Self-drilling Screw
- 2. Required Tools
 - a. Hammer
 - b. #3 Phillips bit
 - c. 13/64" Sharp Drill bit
 - d. Cordless Drill
 - e. Cordless Impact
 - f. Tape Measure
 - g. Portable Band Saw
- 3. Layout the three axle pieces with the motor adapter and spliced ends pointing toward the front of the trailer. The motor end will have a "cross shaped" adapter welded in it that protrudes 6" out. The splice sections will have the same adapter, but with 18" of the adapter protruding out (Figure 26).



Figure 26

4. Unfold and lay out the tarp on the ground with the axle pocket (large pocket) on the lock down side of the trailer and the center reinforcement on the bottom side.

5. Starting at the front of the tarp with the axle splice end facing the front of the trailer, slide an axle section (with axle splice) into the tarp axle pocket. Leave the adapter sticking out of the tarp pocket. Assemble the next axle section by lining up the tarp clip grove (Figure 27).



6. To secure the axle pieces together, use a ${}^{13}/{}_{64}"$ bit to drill thru one axle piece into the splice of another between 6" & 10" in from the end of the empty section and directly in line with the factory plug weld (Figure 28). Secure the sections together with 18140 (14 " x ${}^{3}\!4"$ pan head Philips screws).



Figure 28

- 7. Repeat steps 3 and 4 for each axle section. The axle section with the motor adapter should go in last. **Do not attach the tarp to the axle at this time.**
- 8. Assemble the tarp rod sections (1" steel tube) into the tarp in the same manner as the axle sections. The last piece to assemble, which will be at the front of the tarp, will be the piece with two cut ends. All other pieces will have one swaged end for splicing them together. Instead of drilling and screwing the sections together, slide the cut end of each piece fully onto the swaged end and crimp/dimple the assembly with a hammer (Figure 29).



Figure 29

- 9. With the tarp rod slid all of the way into the small stationary tube pocket, secure the front tarp binder to the rod with an 18140 (1/4" x 3/4" pan head Philips screws).
- 10. It is important to stretch the tarp on the rod and remove any tarp bunches. At the back of the tarp, brace the tarp rod against a stationary object and pull on the tarp thus stretching the tarp on the tarp rod. Secure the rear tarp binder to the rod with an 18140 self-drilling screw. Cut off any excess of the 1" steel stationary tarp rod.
- 11. Roll the tarp up starting with the axle. Refer to Figure 30.



Figure 30

Questions? Contact Customer Service @ 800-297-9905 Or Parts Diagrams see "Parts and Diagrams" section on web at <u>www.rollrite.com</u>

Wiring the System

- 1. Locate the following components:
 - (1) 103819 Enclosure for Relay and Switch
 - (1) 103844 Surface Mount Housing for Dual Pin Plug Socket
 - (1) 103845 Adapter Plate for Dual Pin Plug to Housing
 - (1) 12770 Dual Conductor Plug Socket
 - (1) 103843 34" Dual Conductor Wire, Pre-terminated for Controller
 - (1) 19300 Rocker Switch (Open/Close)
 - (1) 102847 Rite Touch Relay, Revision D4
 - (1) 103029 Jumper Wire (11"), Switch to Relay
 - (6) 16340 ³/₄" Rubber Coated Wire Clamp
 - (14) 18110 ¹/₄" x 1" Self-Drilling Hex Head Bolt
 - (10) 18722 ³/₁₆ x ³/₄" Fender Washer
 - (2) 102697 ¹/₄" x ¹/₂" Phillips Head Self-tapping Screw
 - (2) $18210^{5}/_{16}$ x $7/_{8}$ Button Head Bolt
 - (2) 18613 ⁵/₁₆" Nylock Nut
 - (7) 01131 15" Zip Tie
 - (1) 103861 Electric Kit for Truck
 - (1) 100740 15' Dual Conductor 8AWG Wire
- 2. Required Tools
 - a. Man Lift
 - b. Measuring Tape
 - c. Cordless Impact
 - d. 3/8" Nut Driver
 - e. Wire Cutter for snipping zip ties
 - f. Dielectric Grease
 - g. 7/16" Nut Driver
 - h. #3 Phillips Bit
 - i. Wire Stripper
 - j. 3/16" Allen Head Driver
 - k. 1/2" Wrench
- 3. Position the relay enclosure on the front driver side of the trailer with the grommet facing down. Locate the enclosure box approximately 18" up with the right-hand mounting flange flush to the weld for the corner post. Secure with four 1/4" x 1" self-drilling screws (Figure 31).



Figure 31

4. Cut out the bottom knock-out on the surface mount plug housing. Position the housing at the center of the trailer directly across from the relay enclosure. Secure to the trailer using four 18110 $\frac{1}{4}$ x 1" self-drilling screws and four 18722 $\frac{3}{16}$ x $\frac{3}{4}$ " fender washers (Figure 32).





5. Route the wire coming out of the front of the arm to the center of the pivot pin. Make sure to pull a couple of extra inches of slack into the knuckle area. Use 2 zip ties to hold the wire in place on the arm. From the pivot point loop the wire around to the pivot mount bracket. Secure the wire to the inside surface of the bracket using a ¼" x 1" self-drilling screw, 3/16" fender washer, and rubber coated wire clamp. Use three additional clamps to route and secure the wire down along the front of the trailer. The bottom clamp should be just above the shelf above the glad hands (Figures 32 & 33).



Figure 33

6. Insert the black and red terminated ends of the wire from the arm through the grommet at the bottom of the enclosure. Get the 34" pre-terminated length of wire and insert through the same grommet (from the top insert the non-terminated end and pull through. Orient the wires (Figure 34).



Figure 34

- 7. On the small switch jumper wire, fill all 5 quick connect terminals with dielectric grease.
- 8. With the "Open" label at the top of the switch, install the small jumper wire to the quick connect terminals on the switch with green on the top,

red on the middle, and blue on the bottom terminals. Insert the switch and wire into the rectangular hole.

9. Connect the wires from the arm to the M1 and M2 studs on the relay. The terminals are color coded with paint and the wires are color coded with shrink tube (blue to M1, yellow to M2). For the power wire, connect the black wire to the GND terminal. Route the switch wire as shown in Figure 35. Connect the small red wire from the switch and the power wire with red shrink tube to the BAT+ post. Use a 7/16" Nut driver to tighten all four connections. Pull the boots over the terminals and fill the boots with dielectric grease. Finally, connect the blue switch wire to the REV terminal and green to the FWD terminal (Figure 35).



Figure 35

- 10. Zip tie the switch wire to the + power wire. Secure the relay to the aluminum mounting plate using two 102697 ($\frac{1}{4}$ " x $\frac{1}{2}$ " Phillips Head Self-tapping Screws).
- 11. Strip the cut end of the 34" power wire, exposing about 3/8" of copper wire of each conductor.
- 12. Attach the dual conductor plug socket to the adapter plate with the 18210 (⁵/₁₆" x ⁷/₈" button head bolts) and 18613 (5/16" nylock nuts). Insert the power wires up through the bottom knock-out hole. Fill the two wire connectors up with dielectric grease on the back of the plug socket. Insert the positive (yellow striped) wire into the top connector and the black ground wire into the bottom connector. Tighten both set screws with small Phillips bit to crimp the wire into position. See Figure 36 for proper assembly.



Figure 36

13. Secure the plug adapter plate to the surface mount plug housing using the two 5/16" nuts provided on the housing bolts. Secure the power wires and motor wires together with two more rubber clamps, bolts and washers and secure to the front of the trailer. Install the clear lid to the relay enclosure (Figure 37).



Figure 37

14. Spool the 15' section of wire around the trailer glad hands and secure with zip ties. Secure the bag with the truck electric kit (male dual conductor plug, circuit breaker, etc.) to the wire using zip ties (Figure 38).



Figure 38

Tarp Axle and Tarp Assembly to Power Kit

- 1. Locate the following components:
 - (2) 36830 Steel Clamp for Tarp Securing Rod
 - (4) 103004 $\frac{5}{16}$ x 1" Hex Head Self-Tapping Bolt
 - (1) 18312 3/8" x 23/4" Hex Head Bolt
 - (1) 18625 ³/₈" Nylock Nut
 - (2) 76818 Wedge Shim for 3" Axle
 - (13) 37831 Tarp Axle Clip for STS Axle
 - (27) 18140 ¹/₄" x ³/₄" Self-Drilling Pan Head Phillips Screw
 - (2) $18222 \frac{5}{16}$ x 3" Hex Head bolt
 - (2) 18613 ⁵/₁₆" Nylock Nut
 - (2) 18100 ¹/₄" x ³/₄" Hex Head Self Tapping
 - (4) 18652 ¹/₄"-20 x 3/4" Pan Head Self Tapping screw

2. Required Tools

- a. Hilo
- b. 1/2" Wrench and Nut driver
- c. 9/16" Wrench and Nut driver
- d. #3 Phillips Bit
- e. 3/8" Nut Driver
- f. Marker
- g. 13/64" Sharp Drill Bit
- h. 17/64" Sharp Drill Bit
- i. Cordless Drill
- j. Cordless Impact
- k. Cut-off-saw or Portable Band Saw
- 3. Using a Hilo, set the Axle with Tarp Roll on the Stow side of trailer. The motor adaptor splice axle end will be pointing toward the front of the trailer. Note: The tarp should be coming off the bottom of the axle and should be centered between the front wind deflector and the back edge of the Trailer. Before securing the stationary pipe tarp rod into the tarp stop hooks make sure the tarp is centered.
- 4. For each tarp stop, remove the Clevis or bolt that is finger tightened onto the tarp stop. Lock the tarp rod into the hooks by swinging the hooks up and clamping the rod. Reinstall the bolt and snug the nut to the bracket.
- 5. On the Front Stow side corner bracket of trailer position a stationary clamp 36830 over the front binder and mark the holes. Drill holes using a ${}^{17}/_{64}$ " drill bit and secure clamp to trailer with two 103004 ${}^{5}/_{16}$ " x 1" hex head self-tapping screws. Rotate the clamp over rod and secure it with an 18222 (${}^{5}/_{16}$ " x 3" bolt) and 18613 (5/16" nylock nut) (Figure 39).
- 6. On the Rear Stow side of trailer, position a stationary clamp at the back edge of the rear post and mark the hole locations. Drill holes using a $^{17}/_{64}$ drill bit and secure clamp to trailer with two 103004 ($^{5}/_{16}$ " x 1" hex head self-tapping screw). Rotate the clamp over rod and secure it with an 18222 ($^{5}/_{16}$ " x 3" bolt) and 18613 nylock nut (Figure 40).



Figure 39



Figure 40

- 7. Roll the tarp across the trailer allowing it to drop over the lockdown side of the trailer. (Un-energized Position)
- 8. Remove the axle bushing from the arm collar and add a film of grease around the mating surface. Install the axle bushing back into the collar.
- 9. Lift the knuckle arm up to the axle. Pull the axle into the axle bushing and slide it over the motor shaft. Twist the axle to align the hole in the axle with the motor shaft hole. Bolt the axle to the motor using the 18312 (3/8" x 23/4" bolt), 18625 (3/8" nylock nut), and two wedge shaped shims 76818 supplied in the motor end of your axle (**Snug Fit**). Note: the motor may need to be powered to turn the axle to a position that both ends of the bolt are accessible. Refer to Figure 41 for the finished assembly.



Figure 41

10. Power the motor and rotate the axle so the tarp clip flat mounting surface is facing straight down.

11. Cut Axle off flush with tailgate, if necessary (Figure 42).



Figure 42

- 12. Attach MFRA to Axle See Pages 13-19
- 13. The motor back and forth a few revolutions and make sure the front binder of the tarp is parallel with the wind deflector.
- 14. With the Axle Tarp Clip groove mounting surfacing facing straight down attach a tarp clip 37831 centered over the FRONT binder. Securely fasten the clip to the axle using two 18140 self-drilling pan head screws provided. Attach another clip immediately behind the first clip. See figure 43 for positioning. The outside Clip will overhang the FRONT of tarp by 1"



Figure 43

15. For a 53'2" long tarp space another nine individual clips out every 58.8" edge to edge starting from front side and secure with the supplied 18140 self-drilling pan head screws. Be sure to push any slack in the tarp toward the back of the trailer as you go.



Using 13 total clips, a tarp 50' 2" long will require an edge to edge tarp clip spacing of 55.2"

Using 13 total clips, a tarp 48'2" long will require an edge to edge tarp clip spacing of 52.8"

16. As noted in diagram above, attach the last pair of axle clips to the tarps rear binder in the same manner as the front binder but use four 18652 ($\frac{1}{4}$ "-20 x 3/4" Pan Head Self Tapping screw).

- a. Position a tarp clip 37831 centered over the rear binder and drill two 13/64" pilot holes using the existing clip holes as a quide. Drill thru exterior aluminum axle, interior aluminum flex spline & thru the interior plastic bushing. Stop drill when you see plastic shavings. <u>Do not drill into the interior flex Cable</u>
- b. Securely fasten the clip to the axle using the Self-tapping 18652 ($\frac{1}{4}$ "-20 x 3/4" Pan Head screws) being cautious not to strip the threads. The outside clip will overhang the binder by 1".
- c. Position another clip immediately in front of the first clip and drill another set of 13/64" pilot holes.
- d. Securely fasten the clip to the axle using the Self-tapping 18652 $(\frac{1}{4}''-20 \times 3/4'')$ Pan Head screws) being cautious not to strip the threads (Figure 44).



Figure 44

Installing Remaining Locking Lip Sections and Rub Rails

- 1. Locate the following components:
 - (2) 102554 Locking Lip Extrusion
 - (8) 103830 ¹/₄" x 1¹/₄" Self-drilling Pan Head Phillips Bolt
 - (3) 37510 Rub Rail
 - (9) 18110 ¹/₄" x 1 Self-drilling Hex Head Bolt

- 2. Required Tools
 - a. Man Lift
 - b. Marker
 - c. Measuring Tape
 - d. ¼" Sharp Drill bit
 - e. 13/64" Sharp Drill bit
 - f. #3 Phillips bit
 - g. 3/8" Nut Driver
 - h. Cordless Drill
 - i. Cordless Impact
- 3. Run the tarp fully open and then fully closed so that it is locked down.
- 4. While the axle is locked down draw a horizontal mark representing the bottom of the axle at the rear of the trailer about one foot forward of tailgate avoiding any door latches. Make sure the marker is square to the trailer to best represent the bottom of the axle.
- 5. Open the tarp to the fully open position.
- 6. Pre-drill the rear 2 locking lip extrusions with a $\frac{1}{4}$ drill bit at each corner approximately 1" in from the edge through the drill guide groove.
- 7. At the Lock-down side rear panel, position a section of locking lip $1\frac{3}{4}$ " above the horizontal mark and parallel to the top rail. Using the drilled holes from step 6 above as a guide, mark the 4 hole locations in the top rail. Drill-out pilot holes using a $\frac{13}{64th}$ " sharp drill and secure the locking lip to the top rail with four 103830 ($\frac{14}{4}$ " x 1 $\frac{14}{4}$ " Pan Head self-drilling screws). Repeat this procedure with the second rear locking lip. Position the second rear locking lip directly in front of the first and flush with each other. Use four 103830 ($\frac{14}{4}$ " x 1 $\frac{14}{4}$ " Pan Head self-drilling screws) to secure the locking lip to the trailer.
- 8. Using the ¼"x1 self-drilling hex head bolts, install two rub rails vertically on the rear lock down side. The Rub Rails will ensure the Tarp Roll does not contact side wall of trailer (Figure 45).



Figure 45

- 9. Run the tarp open and closed 2 3 times. Make sure that the rear binder of the tarp is tight to the tailgate. If not, move the rear locking lips down to tighten. Re-check and then run the tarp back open.
- 10. Install the last rub rail near the center of trailer to prevent center support bracket from damaging tarp roll (Figure 46).



Figure 46

Adjusting Tarp Timing and Securing the Inner Tarp Flap

- 1. Locate the following hardware:
 - (24) 18652 ¹/₄"-20 x ³/₄" Pan Head Self Tapping screw
 - (24) 103839 ¼" x 1½" Fender Washer
- 2. Required Tools
 - a. Man lift
 - b. Ladder
 - c. 3/8" Nut Driver
 - d. Scissors or box cutter
 - e. 13/64" Sharp Drill
- 3. Open the tarp to the fully open position. The tarp must COMPLETELY/FULLY land in the front and rear catches. See Figure 47, Figure 48 & Figure 49 for reference.

If Tarp Roll does fully land in Tarp Stop Catches than no adjustments are needed. Proceed to step 5.





Figure 48



Figure 49

- 4. If the tarp does not land completely in the front and/or the back catch, the timing will need to be adjusted. Only make this adjustment to the end that is not fully landing. If both are not fully landing, adjust both ends. To adjust the timing (advancing the tarp):
 - a. Run the tarp to the lock-down side until the tarp is completely unrolled and the tarp clips are facing the ground.
 - b. At the end(s) that did not fully seat into the tarp stop, remove the tarp clip(s) at that end of the tarp.
 - c. Rotate the tarp on the axle 1/8th of a turn (when facing the end of the axle turn clockwise on the front, counter clock wise on the back) and hold in position.
 - d. Reinstall the clip(s).
 - e. Run the tarp to the stowed position and make sure the tarp fully seats into the tarp stop. If not, repeat the steps above to advance the tarp further.

Note: There is an acceptable alternative method for tarp advancement commonly referred to as Growing the Axle. This method may be easier if material is on hand or quickly obtainable.

- a. Cut a piece of 3" diameter schedule 30 PVC approximately seven inches long using a chop saw.
- b. Carefully cut out a straight section of PVC 1.25" wide the entire length of the 7" PVC cylinder.
- c. Before installing the PVC shim, run the tarp to the lock-down side until the tarp is completely unrolled and the tarp clips are facing the ground.
- d. The PVC "shim" can now be snapped over the axle on the end that requires advancement. The increase in overall axle diameter will consume greater lineal tarp during every revolution.
- e. The shim needs to be positioned inside the Axle Pocket. Position the shim so that the 1.25" wide gap will be centered around the tarp clips when it is snapped around the axle.
- f. It may be necessary to tap the shim with a hammer to snap it over the axle. Tap the shim forward so that the rear edge is flush with the binder edge.
- g. Another PVC shim can be positioned directly over the first if further advancement is needed for the Tarp Roll to fully land in the tarp catch stop.
- h. This method can be used to also advance the center of tarp if desired. Remove a center tarp clip in the region you want to advance and cut a 7" long horizontal slice in axle tarp pocket directly in line with where the tarp clip was positioned. Insert a 7" piece of Schedule 30 PVC tarp shim into the slit and push it around the axle so that the axle tarp clip flat groove is exposed. Another PVC shim can be positioned directly over the first if further advancement is needed for the Tarp Roll to fully land in the tarp catch stops
 - 1). To Conceal the tarp slice you should insert a piece of vinyl patch inside the tarp slice and use a heat gun and small roller to weld the exterior vinyl pocket slice to the interior vinyl patch.
 - 2). Fasten two tarp clips over the repaired section

- 5. With the tarp fully open and seated into the tarp stops, go inside the trailer with a ladder.
- 6. Starting at the front, Fold the Inner Flap in half so that the loose edge is tucked under. Tightly pull the folded-over section down and pierce the tarp with a ${}^{13}/{}_{64}$ " drill to make a mark in the top rail. Lift the tarp out of the way and pre-drill the top rail. Pull the folded over flap back down into position and secure with an 18652 (1/4"-20 x 3/4" Pan Head Self Tapping screw) and 103839 (1/4" x 1 1/2" Fender Washer).
- Repeat step 6, continuing to fold the flap over and secure the entire length to the Top Rail with fasteners spaced apart every 24 inches.
 On a Top Hinge Tail gate, you may need to cut the flap at the rear so that the top hinge is not covered by the flap.

Included Fasteners

Hardware List	Part Number	Total Quantity
Bolt: 1/2" x 1 1/2" Button Head Bolt	18295	2
Bolt: 1/2" -13 x 1 1/2" Hex Head	18296	10
Bolt: 1/2" -13 x 3 1/2" Hex Head	102010	12
Bolt: 1/4 - 20 x 3/4" Type F Self Tapping Bolt	18100	2
Bolt: 1/4" x 1" Self Drilling Hex Head	18110	26
Bolt: 1/4" x 1/2" Phillips Head Self-tapping Bolt	102697	2
Bolt: 1/4" x 1-1/4" Pan Phillips Head	103830	16
Bolt: 1/4" x 3/4" Pan Phillips Head	18140	32
Bolt: 1/4"-20 x 3/4" Pan Head Self-tapping Bolt	18652	28
Bolt: 3/8" x 2 3/4" Hex Head Bolt	18312	1
Bolt: 5/16" x 3" Hex Head Bolt	18222	2
Bolt: 5/16" x 4" Hex Head	18224	20
Bolt: 5/16" x 7/8" Button Head	18210	2
Bolt: 5/16"-18 x 1" 6 Lobe Pan Head Type-F ZC Self-tapping	18651	22
Bolt: 5/16"-18 x 1" self Tapping (Type "23") Hex Head	103004	44
Clamp: 3/4" Rubber Coated	16340	6
Cotter Pin	18299	3
Nut: 1/2" - 13 Nylock	18631	24
Nut: 3/8" Nylock	18625	1
Nut: 5/16" Nylock	18613	24
Pin: 1/2" x 2 3/4" Clevis Pin	18510	1
Pin: 1/2" x 4 1/8" Clevis Pin	18560	2
Screw: 1/2" x 3/8" Set Screw	18293	2
Wahser: 1/2" Flat Washer	18412	46
Washer: 1/4" x 1 1/2" Fender Washer	103839	24
Washer: 3/16" x3/4" Z Fend Washer	18722	10
Wedge Shim	76818	2
Zip Tie: 15" Ty Rap	01131	7

Operating Manual

- The Rite-Touch relay has 3 modes of switch operation:
 - Increment mode press and release switch for less than 1.5 seconds to increment tarp in small movements.
 - Automatic mode press and release switch for 1.5 3 seconds for fully automatic complete cycle operation. Interrupt operation by pressing and releasing the switch at any time.
 - Press & Hold mode press and hold button for 3 seconds or greater. As soon as switch is released, tarp operation will stop.
- To cover the load, actuate the switch to the close/cover position. Hold for about 2 seconds and release. The springs in the arm will move the tarp from the stowed position and across the trailer to the locked-down position. The tarp will latch under the locking lips and shut off automatically.
- To uncover the load, actuate the switch to the open/uncover position for about 2 seconds and release. The gear motor will wind the tarp around the axle causing the axle to move from the locked-down position to the stowed position.
- Never travel with the tarp in a partially covered position. The tarp should be either fully open or fully closed and locked under the locking lips. The trailer should be covered as often as possible when traveling.

Maintenance Manual

Roll Rite, LLC designs its tarping systems and power kits to be as maintenance free as possible, contributing to the overall value of the product.

Maintenance intervals vary based on environmental conditions.

Roll Rite, LLC recommends that:

- All electrical connections should be cleaned and greased regularly to prevent corrosion (fill all electrical boots, limit switch boots, etc. with dielectric grease). Electrical connections can be found at all motors, switches, contactors, limit switches, control boxes and batteries.
- All bearings with grease fittings must be greased regularly.
- Check and tension all set screws. Set screws should be tightened until they touch and then torque them ³/₄ of a revolution beyond that.
- Check motor mounting bolts and 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.