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Installation Instructions

Electric Dump Truck Tarp System **Aluminum or Steel** **4-Spring or 5-Spring**

Congratulations on your new tarp system! This is the installation manual for our popular Aluminum Electric Dump Truck Tarp System. All of our items are designed with your needs in mind and we stand behind the quality and craftsmanship of this product. If you have any questions, comments, or concerns, please feel free to contact us through our website at www.carolinatarps.com.

WARNING:

- Never operate tarp system under power lines, this may cause injury due to electrocution.
- Never operate tarp system while moving.

CAUTION:

- Read through entire instructions and follow directions thoroughly to ensure proper installation and operation of the system.

SYSTEM CONTENTS:

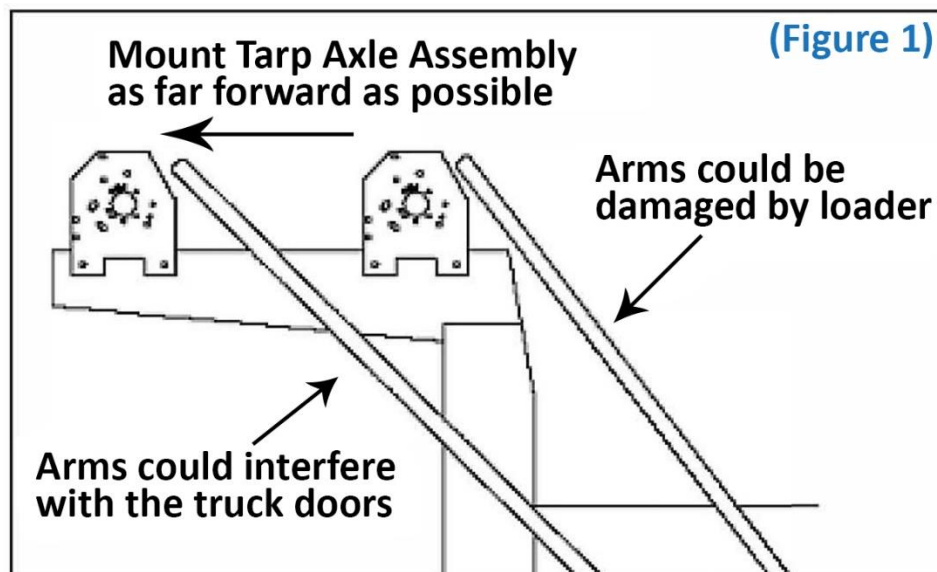
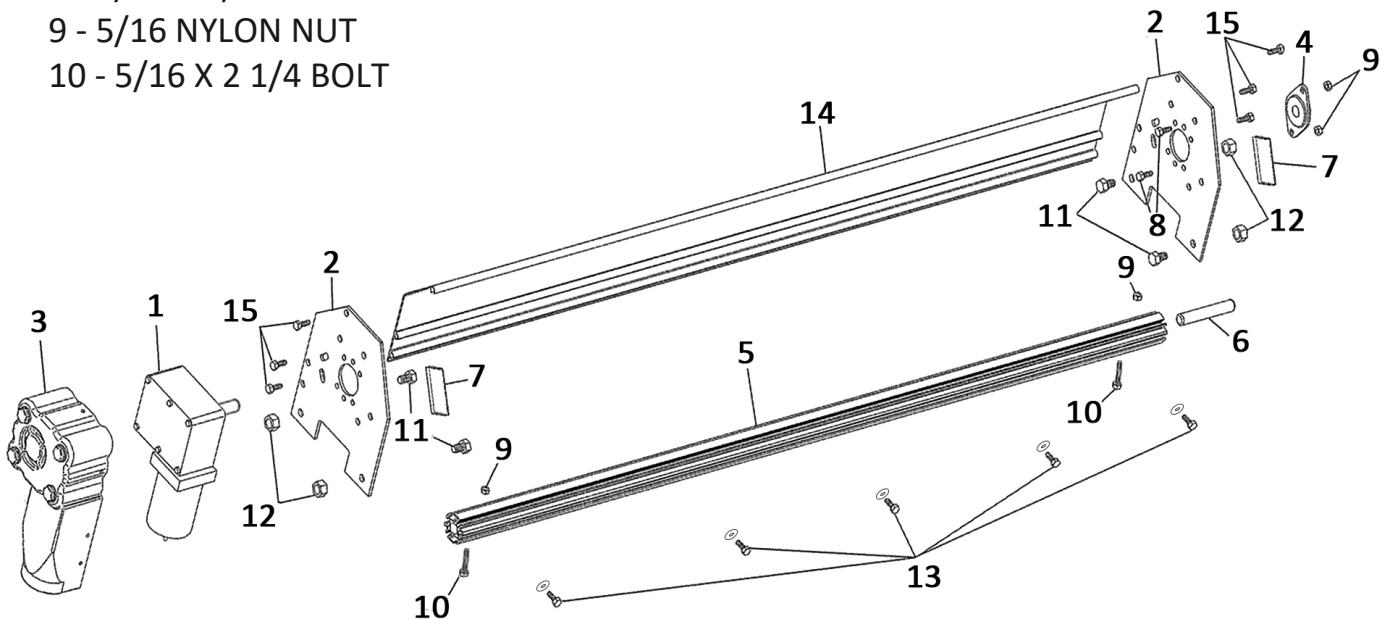
QTY	Description
	<i>Long Box</i>
2	Lower Arms
2	Upper Arms
1	Cross Tube
1	Aluminum Tarp Axle
	<i>Small Box</i>
2	Pivot Pins
8 or 10	Spiral Torsion Springs
1	Axle Bearing with Flange
2	Tarp Spool Mounting Brackets
2	Plastic Tarp Centering Flanges
1	Steel Stud Shaft
1	Hardware Bag
1	Tarp Motor
1	Roll of Dual Connector Wire
1	Rotary Switch Kit
2	90° Corners (Steel Systems Only)
	<i>Optional Parts</i>
2	Aluminum 30° or 45° Elbows
1	Aluminum Wind Deflector
1	Aluminum Tarp Housing
1	Weatherproof Reverse Polarity Solenoid Switch Kit

TOOLS REQUIRED:

- Ratchet
- 3/8", 1/2", 9/16", and 3/4" Sockets and Wrenches
- Pipe Wrench
- Screwdriver
- Drill
- 3/8" and 1/2" Drill bits
- Allen wrench set
- Level
- (Optional) Welder - Steel and Aluminum
- (Optional) 1-1/2" Hole Saw

INSTALLING THE TARP AXLE

- | | |
|---------------------------------|---|
| 1 - TARP MOTOR | 11 - 1/2 X 1 BOLT |
| 2 - TARP AXLE MOUNTING BRACKETS | 12 - 1/2 NUT |
| 3 - CHROME MOTOR COVER | 13 - 5/16 X 3/4 BOLT & WASHER |
| 4 - 3/4" BEARING WITH FLANGE | 14 - ALUMINUM WIND DEFLECTOR (optional) |
| 5 - ALUMINUM TARP AXLE/SPOOL | 15 - 3/8 X 1 1/2 SELF-TAPPING BOLTS |
| 6 - 5" X 3/4 STUD SHAFT | (for use with wind deflector) |
| 7 - RUBBER BUMPER | |
| 8 - 5/16 X 3/4 BOLT | |
| 9 - 5/16 NYLON NUT | |
| 10 - 5/16 X 2 1/4 BOLT | |



INSTALLING THE TARP AXLE (CONTINUED)

STEP 1: CHOOSING THE MOUNTING LOCATION OF THE TARP SPOOL KIT

The Tarp Spool (5) and Tarp Motor (3) should be mounted on top of the cab guard, as far forward as possible to avoid damage by loaders, but not so far forward that the upper arms block the vehicle doors (see Figure 1). Bends or elbows (sold separately) can be added to the arms for more ideal positioning.

Note: *If there is no room to mount the Tarp Axle Assembly due to exhaust stacks or vehicle design, the axle and motor will need to be mounted on the top of the side board pockets or at the front of the dump bed.*

STEP 2: INSTALLING THE MOUNTING BRACKETS

Once you have determined your mounting location, you can install the included Tarp Spool Mounting Brackets (2) or just use the brackets as a template to drill directly into the frame of the truck. *Note: Make sure to factor in the space needed between the tarp axle and the roof of the cab guard to allow the entire tarp to roll up effectively.* Use the included Rubber Bumpers (7) to protect the upper arms from getting damaged when they rest against the axle or brackets.

STEP 3: MOUNTING THE TARP MOTOR AND TARP SPOOL

Measure from the inside of one mounting bracket to the inside of the other and cut the Tarp Axle 1" shorter than that length. The axle is predrilled with holes $\frac{3}{4}$ " from the ends. After cutting, drill a new $\frac{3}{8}$ " hole through the axle on the side that you cut, $\frac{3}{4}$ " from the end (drill in one of the round-bottomed slots, not in one of the threaded slots). Slide one end of the Tarp Axle over the motor output shaft and secure with a $\frac{5}{16}$ " bolt (10), washer, and nut (9). Attach the Axle Bearing (4,8,9) to the mounting bracket opposite the motor. Slide the Stud Shaft (6) through the Axle Bearing into the Tarp Axle. Line up the holes in the Tarp Axle to the hole in the Stud Shaft and secure with $\frac{5}{16}$ " bolt (10), washer, and nut (9) and tighten the axle bearing set screws to secure the stud shaft's position inside the axle bearing.

(OPTIONAL) STEP 4: INSTALLING THE WIND DEFLECTOR

Measure the distance between your mounting brackets, and cut the Aluminum Wind Deflector (1) to the proper length and attach it to the Tarp Spool Mounting Brackets using the included six self-threading bolts (17)

WIRING THE TARP MOTOR

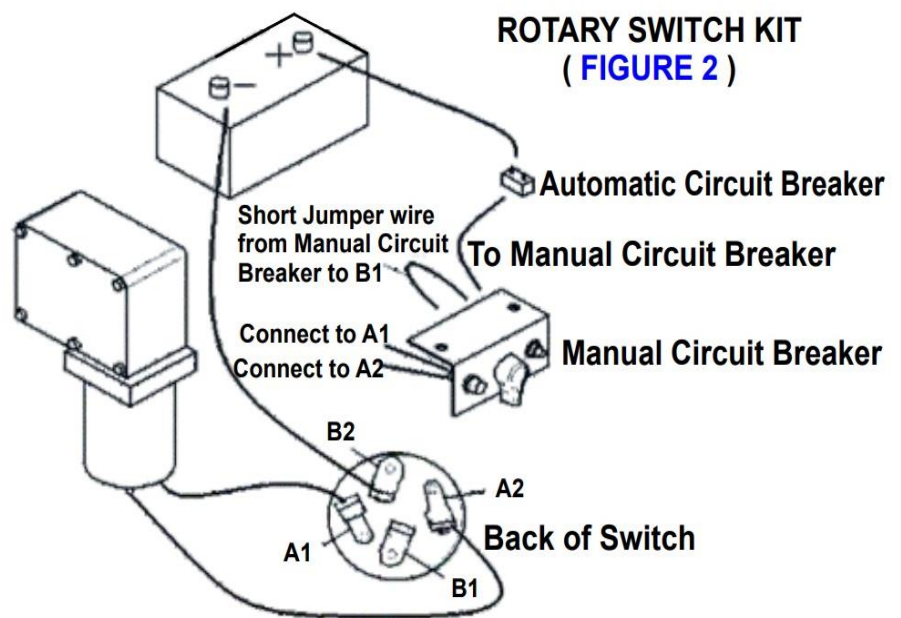
The motor must be wired with the provided 6 or 8 Gauge Wire. Use of smaller wire will cause your tarp system to operate slowly and possibly overheat. **Suggestion:** Run some 3/4" EMT conduit down the front of the body and back along the frame rail to improve safety and aesthetics!

1. Mount the included switch bracket in a safe, convenient location, clear of anything that might bump the switch into the "On" position or prevent the circuit breaker from popping.

2. Connect the switch, circuit breaker, and indicator light in the bracket as shown in **Figure 2** using the included terminals and jumper wire.

3. Unroll the included wire.

Run the wire down from the tarp motor, then along the bottom of the box, around the hinge (leave enough slack to avoid binding or pinching during the operation of the lift) and into the cab where the switch is mounted. For trailers, it is recommended to use a plug set rated to 50 amps or higher so you can easily disconnect between the cab and the dump box.



4. Cut off the extra wire, but leave enough to easily connect to the switch. Set aside one of the pieces of leftover wire to later run from the cab to the positive (+) post of the battery or starter. **WARNING: DO NOT CONNECT AT THIS TIME!** Run another piece of wire from the cab to a ground screw on the firewall or other suitable grounding location.

5. Connect the wires leading from the switch to the motor using the piece leading from the cab to the grounding location.

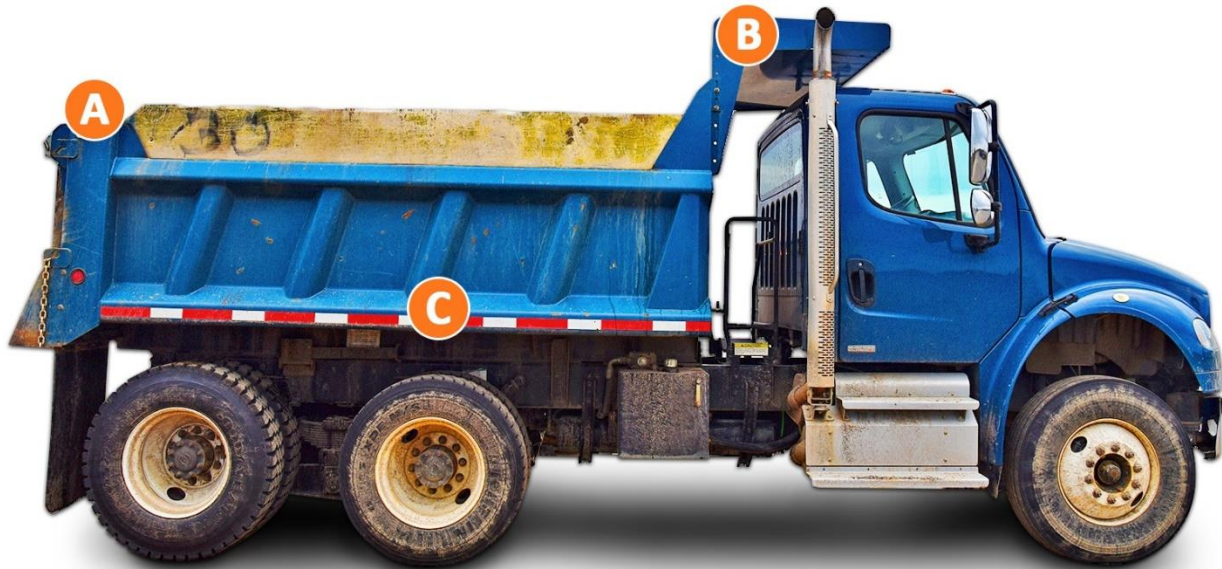
6. Connect the positive wire to the battery terminal marked (+) and check to see that the system is operating as indicated on the switch bracket. To wind up the tarp, the tarp roller bar should spin counter-clockwise (viewing it from the driver's side of the cab). If not, swap the two wires connected to the motor. If the roller bar rotates clockwise, any debris on the tarp will be rolled up in it and possibly cause damage.

INSTALLING THE PIVOT PINS

A: Resting location of deployed cross tube

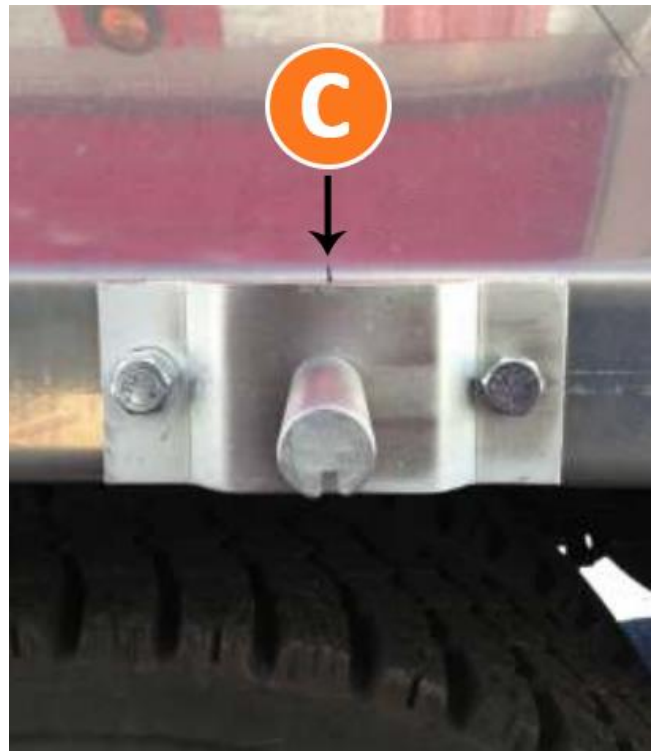
B: Center point of the motor shaft (location of mounted axle)

C: Pivot point



1. Measure your dump body from **Point A** to **Point B**. Divide that number by two to find the halfway point.
2. Measure along the edge of the dump body from **Point A** towards **Point B** and mark the halfway point between **A** and **B**.
3. Copy the halfway mark on the bottom of your bed, either by measuring from the front or back of the bed or by using a level or plumb line. This is **Point C**.
4. Measure from **Point A** to **Point C** and then measure from **Point B** to **Point C**. These measurements should be equal. If they are not, shift **Point C** left or right until the distance between **C** and **A** is equal to the distance between **C** and **B**, then mark it. This will be your pivot point.
 - Depending on where you mount the tarp axle, Point C will not always be located in the exact middle of the dump bed.
 - Make sure the operation of the tail gate will not be inhibited by the position of the cross tube at Point A.
5. Repeat steps 1-4 on the other side of the dump bed and verify that all measurements match on both sides.

6. Hold the pivot pin to the bottom of the dump bed where you intend to mount it. Align the center point of the pivot pin with the **Point C** mark.
7. Use the pivot pin holes to mark your drilling locations. *(You can also weld the pivot pins to the bed if you prefer)*
8. Bolt the pivot pins to the box using the included 5/8" x 1 1/2" bolts, making sure that the notch in the pivot pin is pointed down, and that the bolt heads face the outside, with the nuts on the inside.
9. Repeat steps 6-8 on the other side of the dump bed.

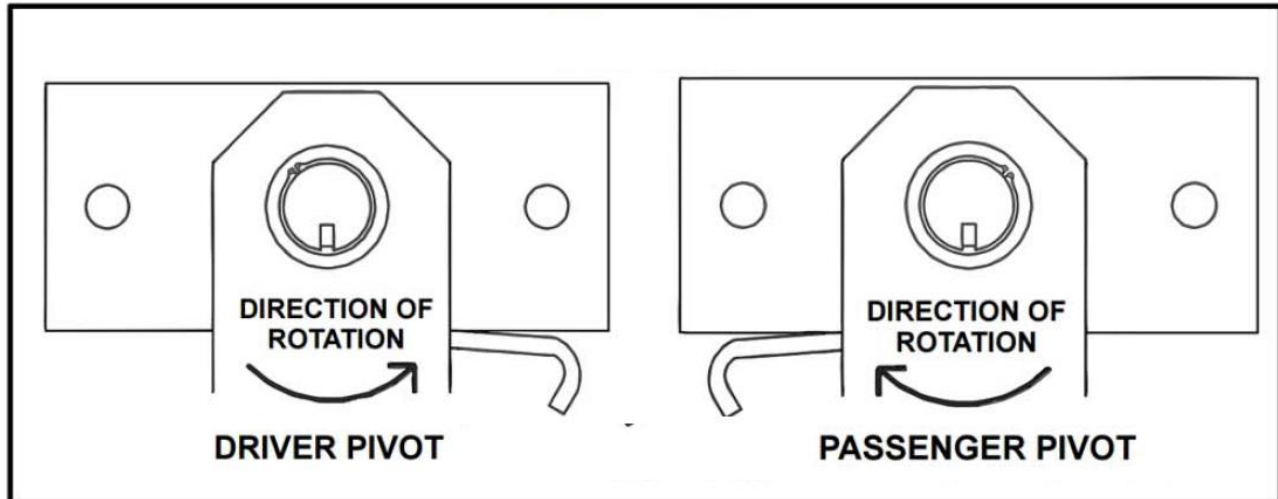


INSTALLING THE TARP ARM SET

Note: Steps 1-10 are just to find and verify the position and functionality of each piece in the tarp arm set. Final installation will be done later. Refer to the Tarp Arm Set Diagram at the end of this instruction manual for guidance.

1. Hold one of the upper arms (4) up to the side of the dump body with the corner (5) against the Tarp Axle, with the end of the tube going towards or past the pivot point. If the arm is at risk of being hit by either the truck doors or a loader, then it is recommended to install an angle to route the arms out of the way. Aluminum systems have separate 30° or 45° elbows (sold separately) that you can install into the arm. Steel arms can be carefully bent, using the correct equipment, to the desired angle.
2. Without loading the springs, fit the lower arms (2) onto the pivot pins (1), pointing towards the back of the truck.
3. Slide an upper arm into the lower arm until the corner (5) rests on the desired landing point at the back of the dump body (Point A). If the arm is too long, cut it to the correct length, being sure to leave about 2 feet of tube sticking into the lower arm. Cut both arms to the same length.

4. Once you achieve the desired position of the upper arms in the lower arms, lightly tighten the set screws to secure the upper arms. Final tightening will be done later.
5. Slide the ends of the cross tube (6) over the upper arm corners.
6. Line up the hole in each end of the cross tube with the holes in the corners of the upper arms and lightly fasten the two included 5/16" x 1 3/4" bolts (15) and 5/16" nylon nuts (16).
7. Rotate the assembled tarp arm set forward until it rests against the tarp axle assembly. Make sure the arm assembly rests symmetrically against the axle. If needed, make small adjustments to the position of the upper arms in the lower arms and lightly retighten the bolts.
8. Swing the tarp arm set back to the rear of the dump body and check the landing position.
9. Check for binding or rubbing of the arms against the sides of the dump body. (Bushings can be used to maintain a certain position of the lower arm spring housing on the pivot pin)
10. Mark both upper arms where they slide into the lower arms. This will allow you to reassemble the tarp arm set without measuring again.
11. Remove the cross tube and upper arms so that you may load the spiral torsion springs into the lower arms and begin final installation.
12. Rotate both lower arms forward so that they are left hanging down. You may need to raise the dump body to allow clearance for the lower arms to fully rotate around the pivot pin during **step 14**.
13. Slide the lower arm off of the pivot pin. Place one Stainless Steel Bushing (8) onto the pivot pin. Hold the spiral torsion springs (3) inside of the spring housing of the lower arm and slide the lower arm back onto the pivot pin, making sure the center tab of each spring sits in the notch in the pivot pin. The springs must be positioned with the hooked ends pointing towards the rear of the dump bed (Figure 4). Make sure that the hook ends of the springs have clipped over the pin in the spring housing. Place a second Stainless Steel Bushing (8) on the pivot pin, and snap the External Retaining Ring (9) into place, in the notch at the end of the pivot pin.

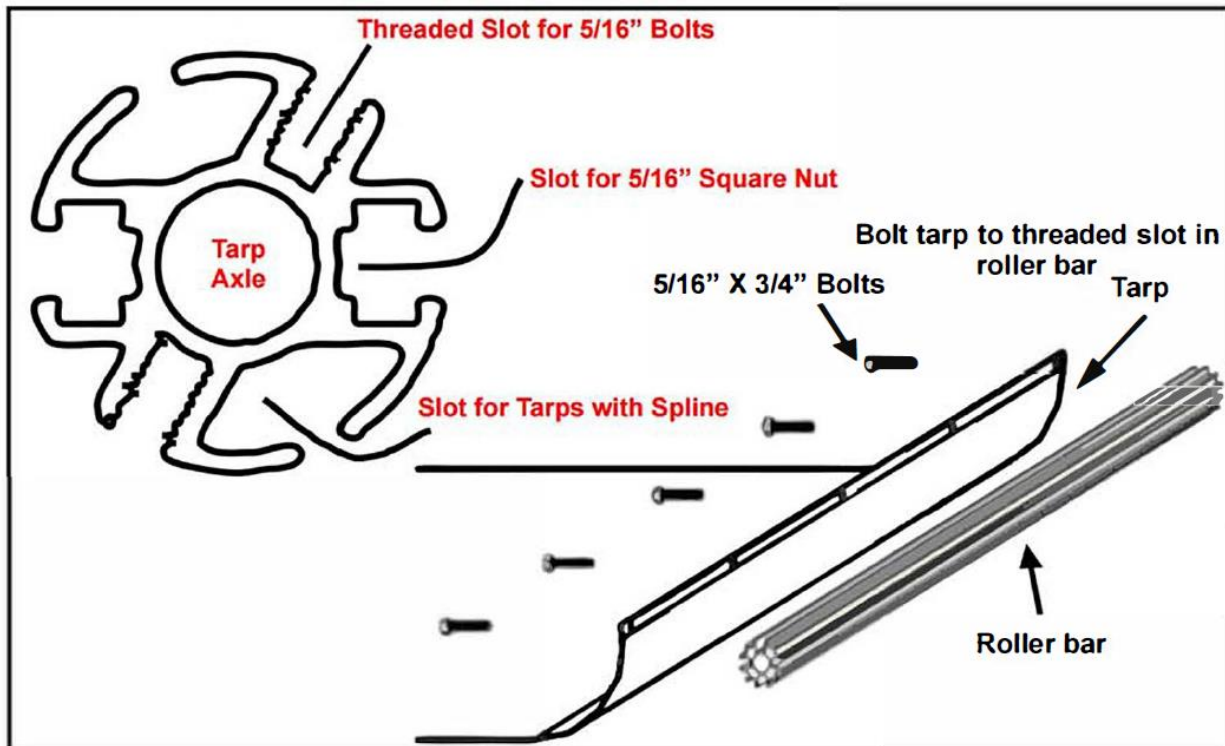
FIGURE 4

14. With the spiral springs loaded (with no tension on them yet), rotate the lower arm up (counterclockwise on the driver side, clockwise on the passenger side) until you can install the upper arm into the lower arm. **CAUTION:** Make sure to maintain a firm grip on the lower arm to prevent the spring-loaded arm from spinning freely and potentially causing damage or injury. Slide the upper arm into the lower arm to the mark made in Step 10 and tighten the bolts that hold them in place.

15. Set the rear cross tube across the back of the body, but do not reconnect with the upper arms until you are ready to install your tarp.

INSTALLING THE TARP

The tarp axle has several ways of attaching a tarp. You can screw bolts through the tarp grommets into the threaded slot of the axle, or use the square slot to bolt through the grommets into 5/16" square nuts. There is also a slot to receive a splined tarp. The most common method is to use the threaded slot, which allows you to securely fasten the tarp at the grommet locations. The included hardware assumes this method. See **Figure 5** for more information.

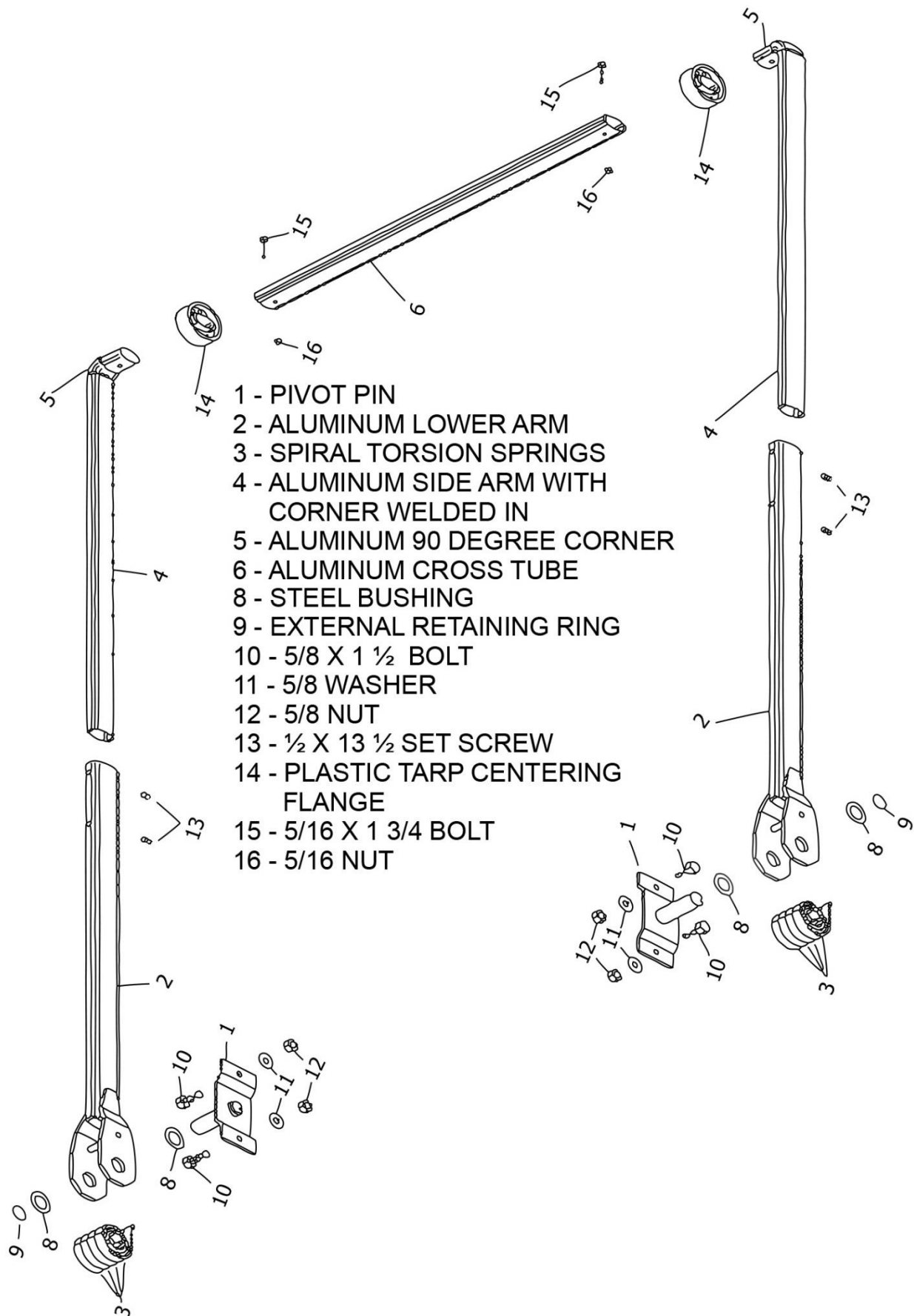
FIGURE 5

1. Line the front tarp grommets up with one of the threaded slot in the axle.
2. Attach the tarp to the front axle with 5/16" x 3/4" bolts and washers.
3. Slide the cross bar through the pocket in the back of the tarp.
4. Slide the plastic tarp centering flanges (14) on each end of the cross tube and then connect the cross bar to the upper arms corner.
5. Position the plastic tarp flanges up against the edges of the tarp so the tarp is centered on the cross tube and tighten the flange set screws securely. These flanges will help keep the tarp centered as well as prevent the tarp from hitting the back of the dump bed or the tarp axle.

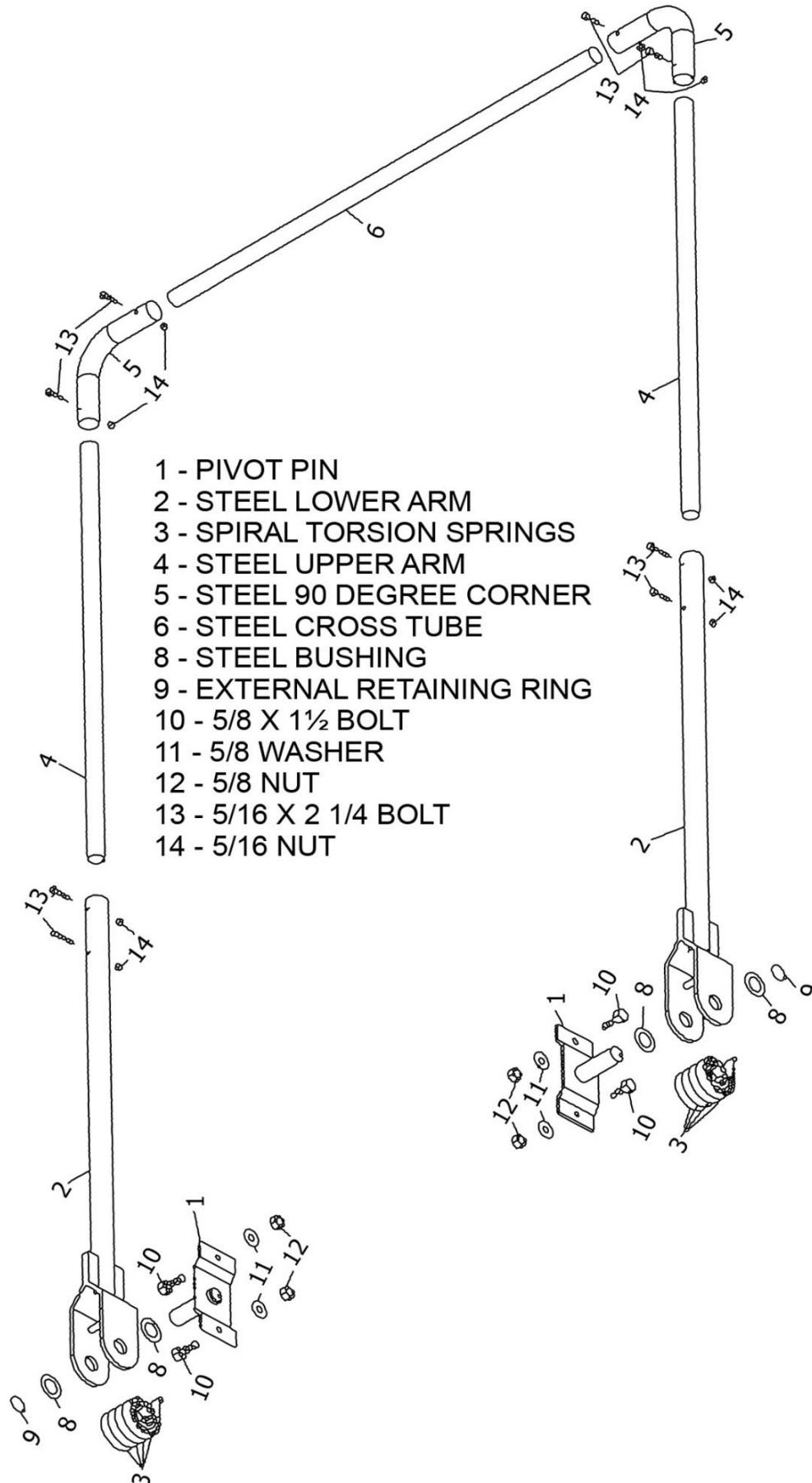
CONGRATULATIONS ON INSTALLING YOUR NEW TARP SYSTEM!

We appreciate your business and look forward to helping you again in the future! If you have any questions, issues, or need to order parts, visit our website at www.carolinatarps.com or call us at 864-283-0056.

TARP ARM SET DIAGRAM (ALUMINUM)



TARP ARM SET DIAGRAM (STEEL)



At Carolina Tarps, we offer quality tarps, tarping systems, and accessories at competitive prices. We pride ourselves on fast delivery and great customer service. No matter what type of truck or trailer you have or what you're hauling, we'll do our best to help you find the tarp you need for the job. Our tarps are designed to stand up to everyday wear and tear and are available in a variety of sizes, styles, colors, and configurations so you can find the exact tarp solution for your needs.

Among our available tarps are:

- Agricultural tarps
- Asphalt tarps
- Cable tarps
- Canvas tarps
- Coated Nylon Tarps
- Container tarps
- Custom tarps
- Flatbed tarps
- Heavy duty tarps
- Landscaping tarps
- Manual pull tarps
- Mesh tarps
- Roll off tarps
- Trailer tarps
- Vinyl Tarps
- And more!

We know how inconvenient and costly it is to have a vehicle out of commission, so our goal is to provide everything you need to tarp your truck and get back up and running as quickly as possible. We sell replacement parts for virtually all tarp system manufacturers, or, if you're ready for an upgrade, we can help you find the perfect system to suit your budget and industry. With our large selection of products, we can provide a solution for just about every hauling or tarping need.

So whether you're a first-time buyer or a long-time partner, you can trust us to take care of you and your business. Please let us know about your experience in one (or all!) of these ways:



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