

Patriot Tarp System

Installation Instructions

Aluminum and Steel

4Spring Assembly



TARPING SYSTEMS

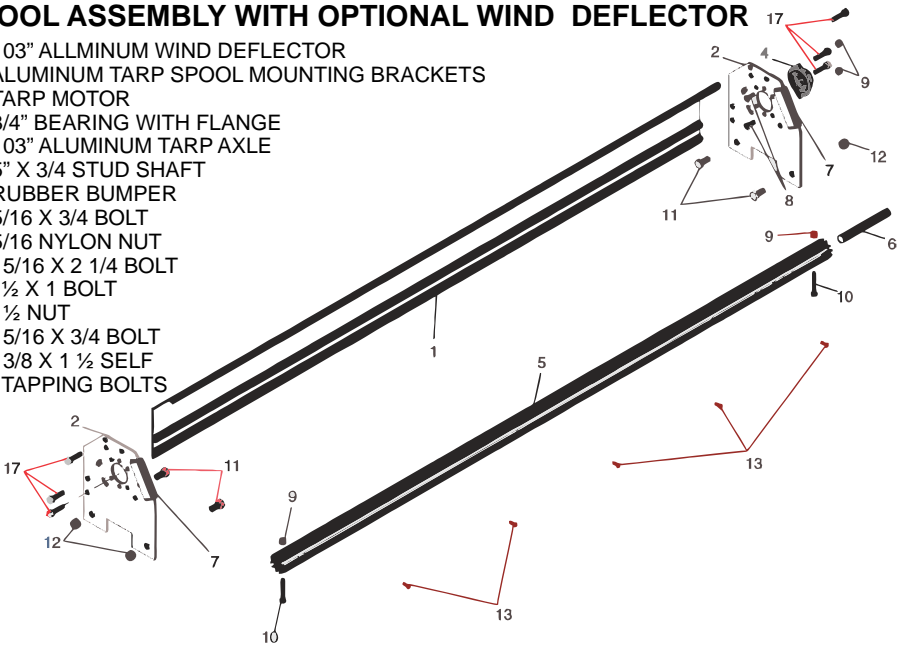
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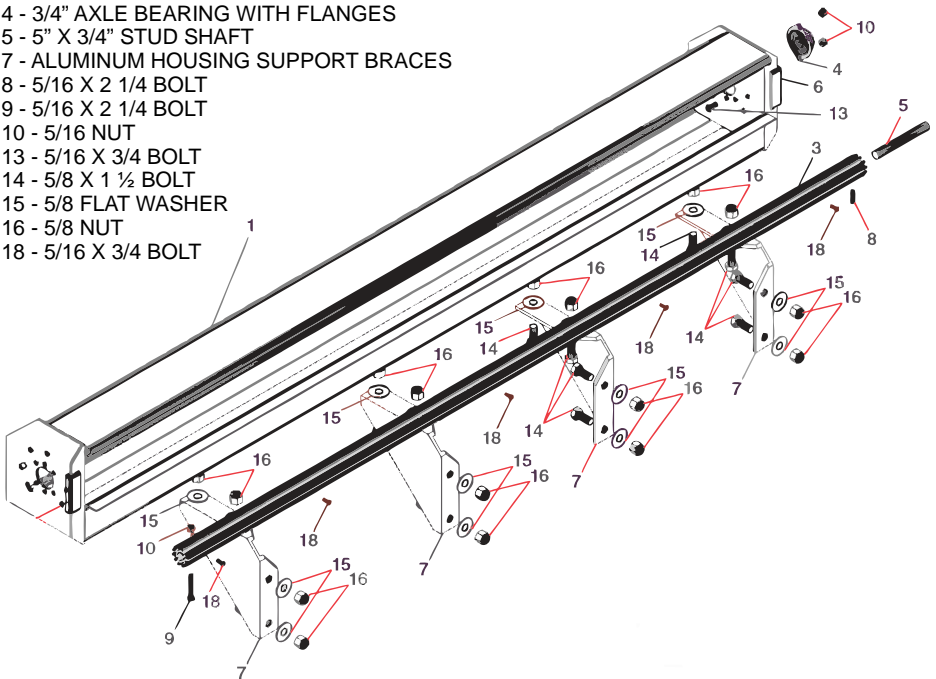
SPOOL ASSEMBLY WITH OPTIONAL WIND DEFLECTOR

- 1 - 103" ALLMINUM WIND DEFLECTOR
- 2 - ALUMINUM TARP SPOOL MOUNTING BRACKETS
- 3 - TARP MOTOR
- 4 - 3/4" BEARING WITH FLANGE
- 5 - 103" ALUMINUM TARP AXLE
- 6 - 5" X 3/4 STUD SHAFT
- 7 - RUBBER BUMPER
- 8 - 5/16 X 3/4 BOLT
- 9 - 5/16 NYLON NUT
- 10 - 5/16 X 2 1/4 BOLT
- 11 - 1/2 X 1 BOLT
- 12 - 1/2 NUT
- 13 - 5/16 X 3/4 BOLT
- 17 - 3/8 X 1 1/2 SELF TAPPING BOLTS



SPOOL ASSEMBLY WITH OPTION HOUSING

- 1 - 98" OR 96" TARP HOUSING
- 3 - 103" ALUMINUM TARP AXLE
- 4 - 3/4" AXLE BEARING WITH FLANGES
- 5 - 5" X 3/4" STUD SHAFT
- 7 - ALUMINUM HOUSING SUPPORT BRACES
- 8 - 5/16 X 2 1/4 BOLT
- 9 - 5/16 X 2 1/4 BOLT
- 10 - 5/16 NUT
- 13 - 5/16 X 3/4 BOLT
- 14 - 5/8 X 1 1/2 BOLT
- 15 - 5/8 FLAT WASHER
- 16 - 5/8 NUT
- 18 - 5/16 X 3/4 BOLT



Aluminum and Steel 4spring

Step #1

Tarp Spool with Gear Motor

(Includes Instructions for Optional Wind Deflector)

Qty: Component Parts Description:

LONG BOX:

- (1) 103" Aluminum Tarp Axle
- (2) 98" Upper Arms with 90 Degree Elbow (Steel kits will come with separate corners)
- (2) Lower Aluminum (60") or Steel Pivot Arms (41")
- (1) Aluminum or Steel Cross Tube

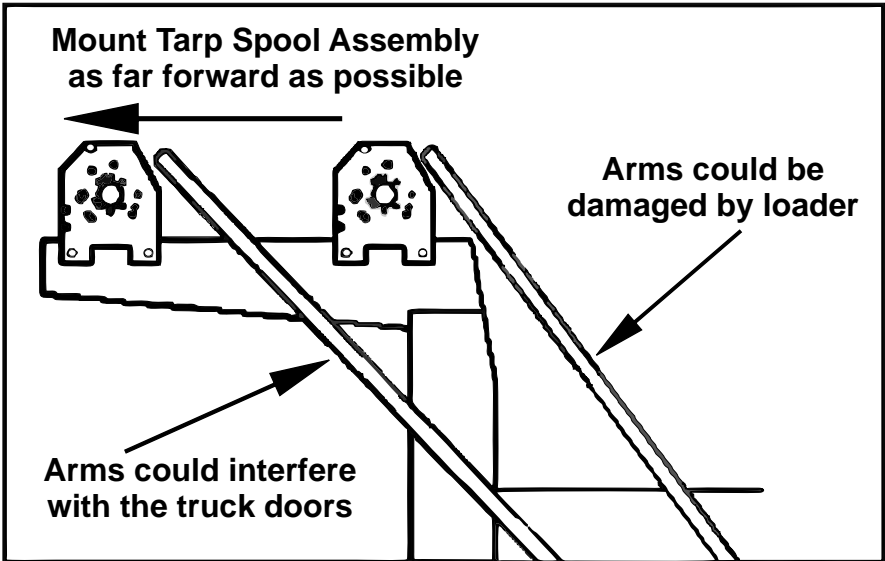
SMALL HARDWARE BOX:

- (1) Heavy Duty Tarp Gear Motor with Cover
- (2) Spring Pivot Pin
- (8) Spiral Torsion Springs
- (1) Axle Bearing with Flange
- (2) Aluminum Tarp Spool Mounting Brackets
- (2) Plastic Tarp Centering Flanges
- (1) Hardware Bag
- (1) Steel Stud Shaft
- (1) Roll of 6 or 8 Gauge Wire

! Before beginning, please ensure that you have all parts necessary to complete system installation. Contact your dealer if parts are missing. Please read through instructions for entire system to get a good understanding of how each component part is installed and how the system will come together.

Choosing the Mounting Location

The Tarp Spool and Tarp motor should be mounted on top of the cab guard and as far forward as possible to avoid damage by loaders but not too far forward so the arms don't interfere with the doors. (See **Figure 1**) The ideal location is determined by placement of the pivot arm from the tarp spool axle to the pivot point on the dump body.



Exceptions: Trucks with vertical stacks may be in the way of the pivot arms if the tarp spool and motor were mounted ahead of the stack(s). You can either re-align or shorten the stack(s) to solve this problem. Otherwise, the tarp spool and motor should be mounted towards the rear of the stacks. If there is no room to mount the tarp spool and motor towards the rear, they will need to be mounted on top of the side board pockets to the front of the body.

Installing the Mounting Brackets

Once you have determined your mounting location, you may either install the included mounting brackets using the enclosed hardware or use the brackets as a template to drill the necessary holes into the cab guard sides or other secure location. **Note: If you use the brackets as a template please ensure that there is enough clearance between the tarp spool and the cab guard to roll-up the entire tarp.**

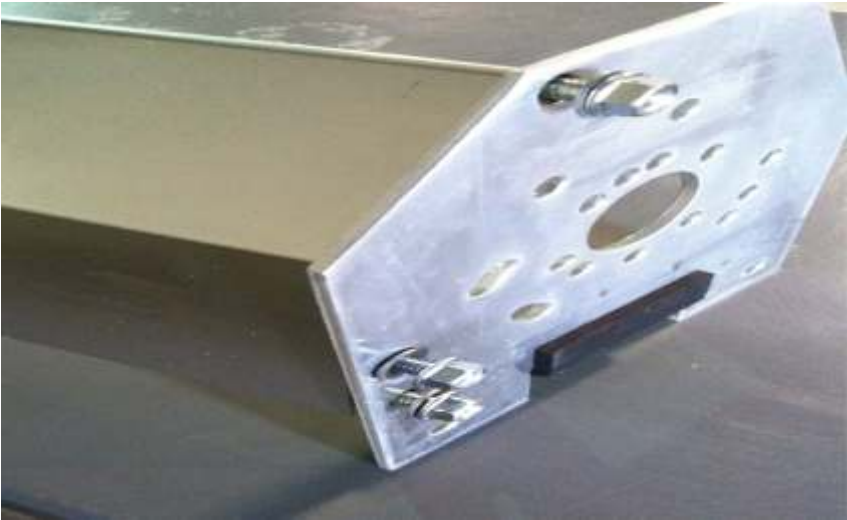
Mounting the Tarp Motor and Tarp Spool

Mount the motor to the mounting brackets or cab guard. Measure from inside of one bracket to the inside of the other. Cut the aluminum roller bar on the end without the pre-drilled hole 1" shorter than its length. Drill a 5/16" cross hole through the aluminum roller bar axle, 3/4" in from the end that was just cut off. Start the hole in one of the round bottomed slots, not one of the threaded slots. Slide one end of the tarp spool axle over the motor output shaft and secure with a 5/16" carriage bolt, washer, and nut. Slide the spool shaft through the axle bearing into the roller bar. Line up the holes in the roller bar to the hole in the spool shaft and secure with 5/16" carriage bolt, washer, and nut.

Installing the Optional Wind Deflector

Cut the wind deflector to the proper length and attach it to the mounting brackets using the included (6) each self threading bolts.

Option Wind Deflector With Aluminum Mounting Bracket

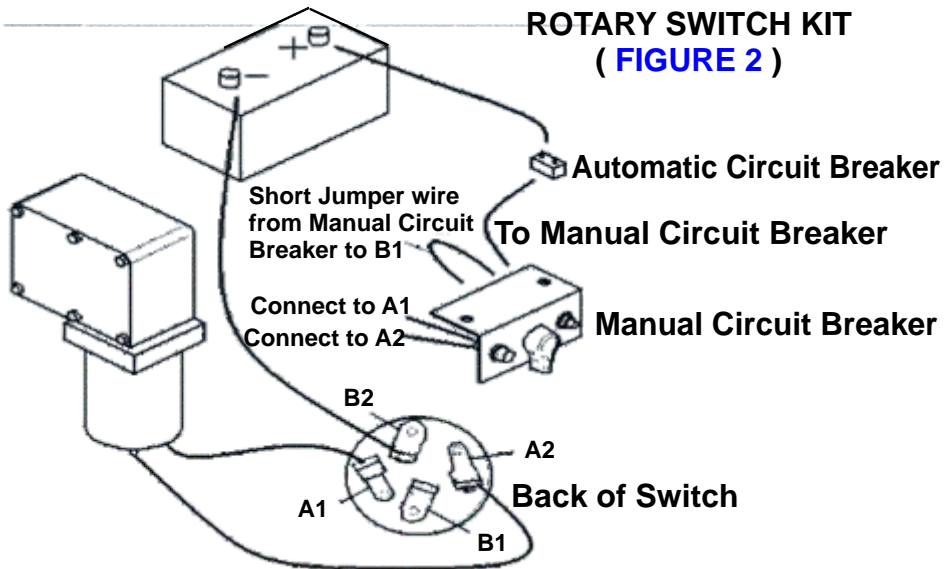


Wiring the Tarp Motor

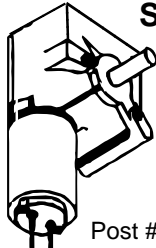
The motor must be wired with the provided 6 or 8 gauge wire. Use of smaller wire will cause your tarp system to operate slowly and possibly overheat.

Suggestion: Running 3/4" EMT conduit down the front of the body and back along the frame rail provides a safe place to run the wires as well as adding a clean look to your system installation.

1. Mount the included switch bracket in a convenient location making sure that nothing will fall or rest against the bracket that could hold the switch in the "On" position or prevent the circuit breaker from popping. Either situation could damage the motor and **will not be covered under warranty.**
2. Connect the switch, circuit breaker, and indicator light in the bracket as shown in **Figure 2 and 3** using the included terminals and jumper wire.
3. Unroll the included 6 / 8 gauge wire. Run the wire down the front of the body from the gear motor, back along the bottom of the box, around the hinge (leaving enough slack to avoid binding or pinching during the operation of the lift) and into the cab where the switch is mounted. For tractor-trailer or lead-pup combinations, a plug set rated to 50 amps or higher should be used between the truck and the trailer(s).
4. Cut off the extra lengths of wire, leaving enough to easily connect to the switch. Set aside one of the pieces of left-over wire to later run from the cab to the positive (+) post of the battery or starter. **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 using the included terminal.
5. Connect the wires leading from the switch to the motor using from the cable to the ground terminal of the battery and connect using the included terminal.
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.



**SOLENOID SWITCH KIT OPTIONAL
(FIGURE 3)**

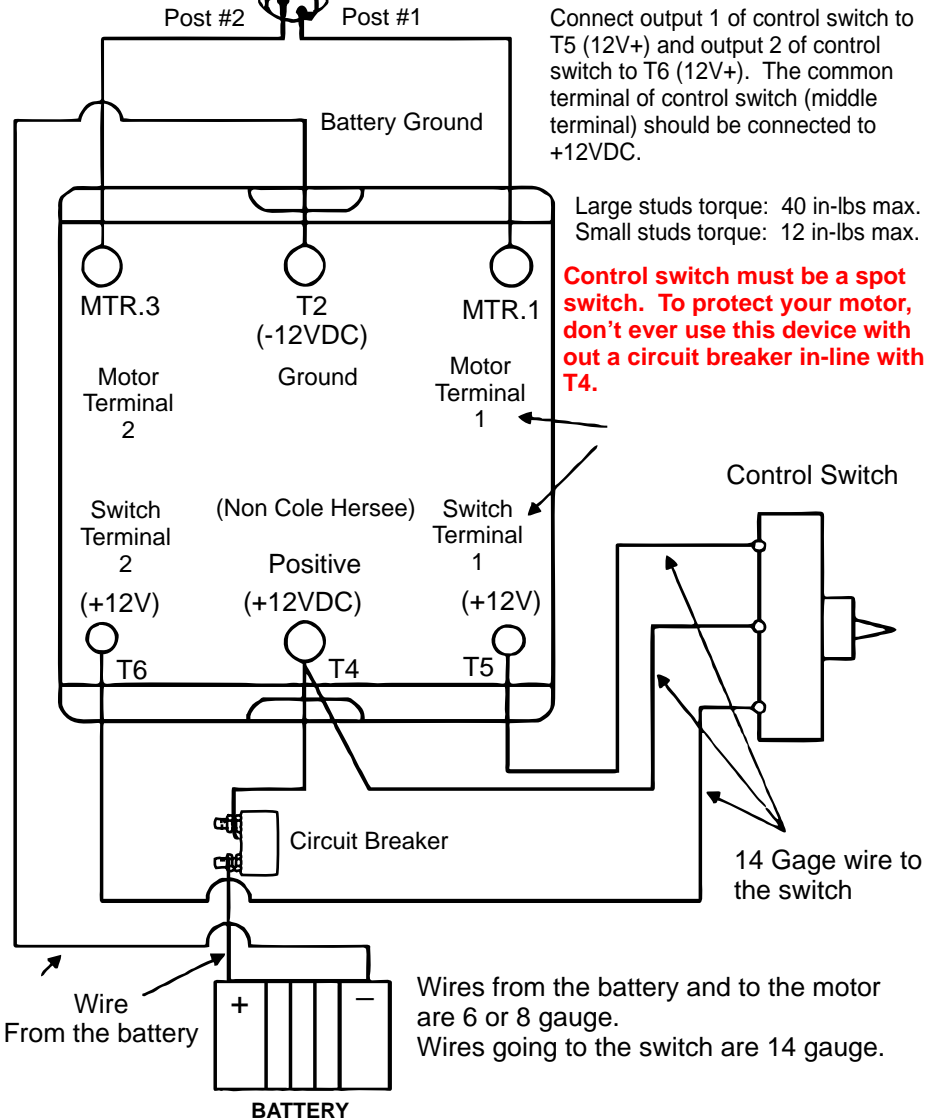


Connect MTR.1 and MTR.3 studs to motor leads. Connect T2 to -12VDC (ground). Connect T4 to +12VDC with appropriate circuit breaker in-line

Connect output 1 of control switch to T5 (12V+) and output 2 of control switch to T6 (12V+). The common terminal of control switch (middle terminal) should be connected to +12VDC.

Large studs torque: 40 in-lbs max.
Small studs torque: 12 in-lbs max.

Control switch must be a spot switch. To protect your motor, don't ever use this device with out a circuit breaker in-line with T4.



Wires from the battery and to the motor are 6 or 8 gauge.
Wires going to the switch are 14 gauge.

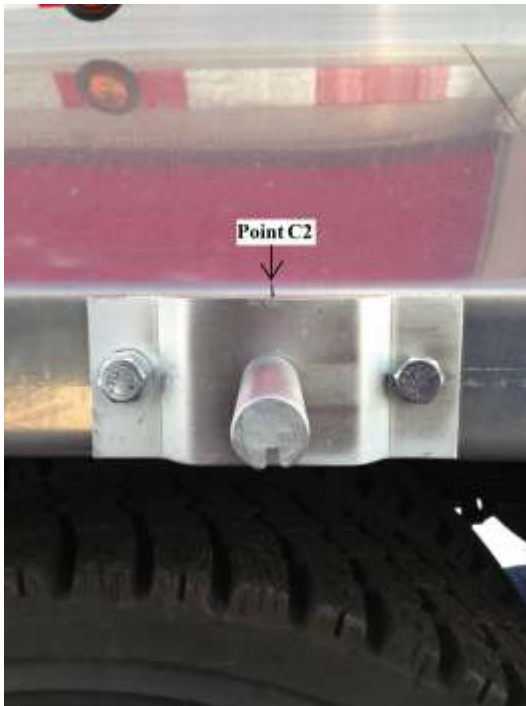
Step #2 External Pivot Mounts

Determining Pivot Point



1. Measure your dump body from **Point A to Point B**. (See **Figure 4**) Divide that number by 2 and make a mark at the top of the bed for **Point C**.
2. Measure from **Point B to Point C**.
3. Bring measurement from **Point C** down to the bottom of your bed. Starting from **Point B2**, Measure out toward the cab until you reach the same measurement from step 2. This will be **Point C2**. (Your Pivot Point).

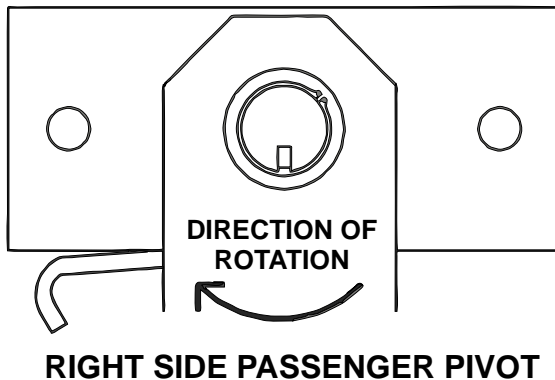
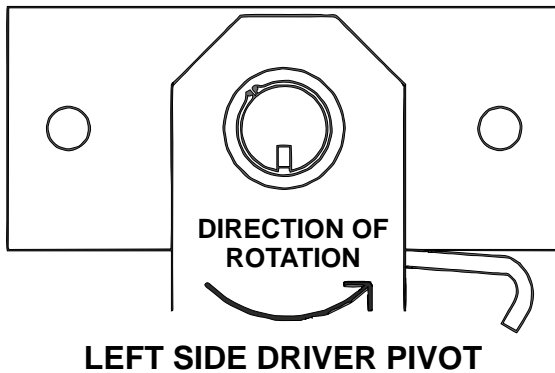
4. Repeat steps 1 through 3 on other side of bed to make sure pivot points are equal.
5. Before moving on to step 6, double check your measurements by measuring from **Point A** (Center Point of Motor Shaft) to **Point C2**. Next, measure from **Point B to Point C2**. Both measurements should be the same. This will be center point of pivot pin.



- 5a. Hold pivot pin on center mark and mark holes for pre-drilling.

6. Bolt the pivots to the box using the 5/8 x 11/2 bolts included in hardware bag. (The head of te bolt must be on the outside, and the washer and nut on the inside). **Note: The pivots are directional** (See **Figure 5** below to determine which is the driver and passenger side pivots).
7. To load the springs, rotate the pivots so that the hooks on the springs will clip over the pin inside the spring guard, as shown in **Figure 5** below.

(**Figure 5**)



Step #3
Upper Arms
with Crossbar

Installing the Tarp Bow

1. Hold one of the upper arms (tube w/corner) up to the side of the body with the corner against the center of the tarp spool or housing opening and with the end of the tube going past the pivot point. If the bow is in the way of the door, or if it will be in the way of a loader, then the bows should be offset. The bows can be offset by calling your dealer and ordering a 30° or 45° bow insert. If you have any questions regarding the offset of the bows, please contact your local dealer or us at **1-888-838-3229**.
2. Rotate the pivots around toward the front of the truck and back so that the pin inside the spring guard ends up resting on top of the springs. The pivots should now be pointing toward the rear of the body.
3. Slide one of the upper arms into the aluminum / steel pivot arm. Adjust the arm length until the corner rests on the desired landing point at the back of the dump body. (**Point B** from the previous Pivot Installation). If the arm is too long, cut both arms to the correct length. Leave about 2 feet of tube sticking into the pivot tube and make sure that both arms are cut to the same length.
4. Slide both upper arms into the aluminum / steel pivot arms (make sure that both arms end up the same length) and lightly tighten the two bolts that hold each upper arm in the pivots. Final tightening will be done later.

Aluminum Pivot Arm



Steel Pivot Arm

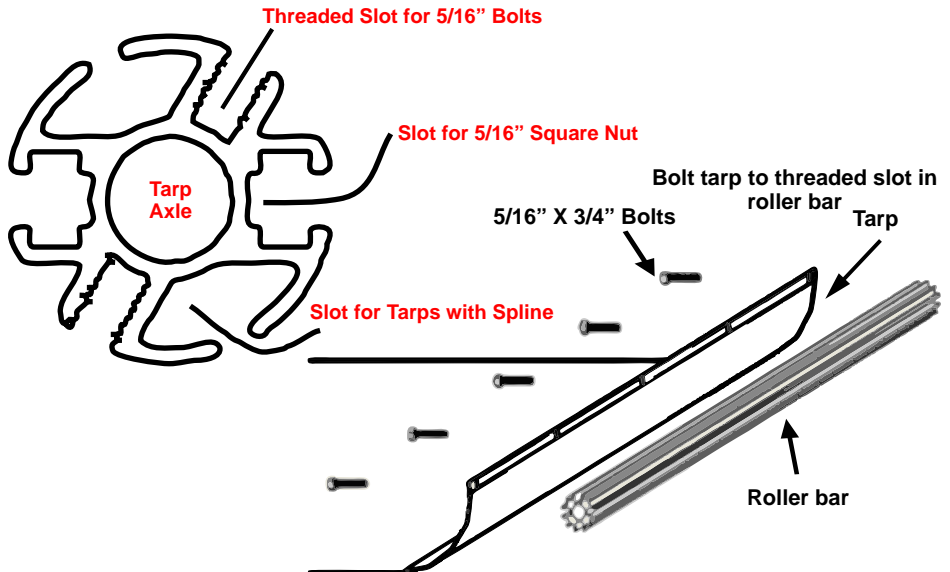


5. Slide the ends of the rear cross tube (w/o corner) over the upper arm covers.
6. Line up the hole in each end of the rear cross tube with the hole in the upper arms and lightly fasten the two included 5/16" x 1 3/4" bolts and 5/16" Nylon nuts.
7. Swing the assembled tarp bow forward until it rests on the tarp spool or housing assembly. The bow should be resting in the center of the tarp spool or housing assembly opening. If the bow is not landing in the center of the opening, loosen the 4 bolts that hold the upper arms in the pivots and adjust both bows. Lightly re-tighten the bolts.
8. Swing the tarp bow back to the rear of the dump body and check the landing position. If it appears that the bow will interfere with the operation of the tailgate, the pivot point may need to be moved.
9. Check for binding or rubbing of the tarp bows against the sides of the dump body. Check both sides of the body, and adjust the pivot brackets or bows as necessary for clearance.
10. Mark both tarp bows upper arms where they slide into the pivot tubes. This will allow you to reassemble the bows without measuring again.

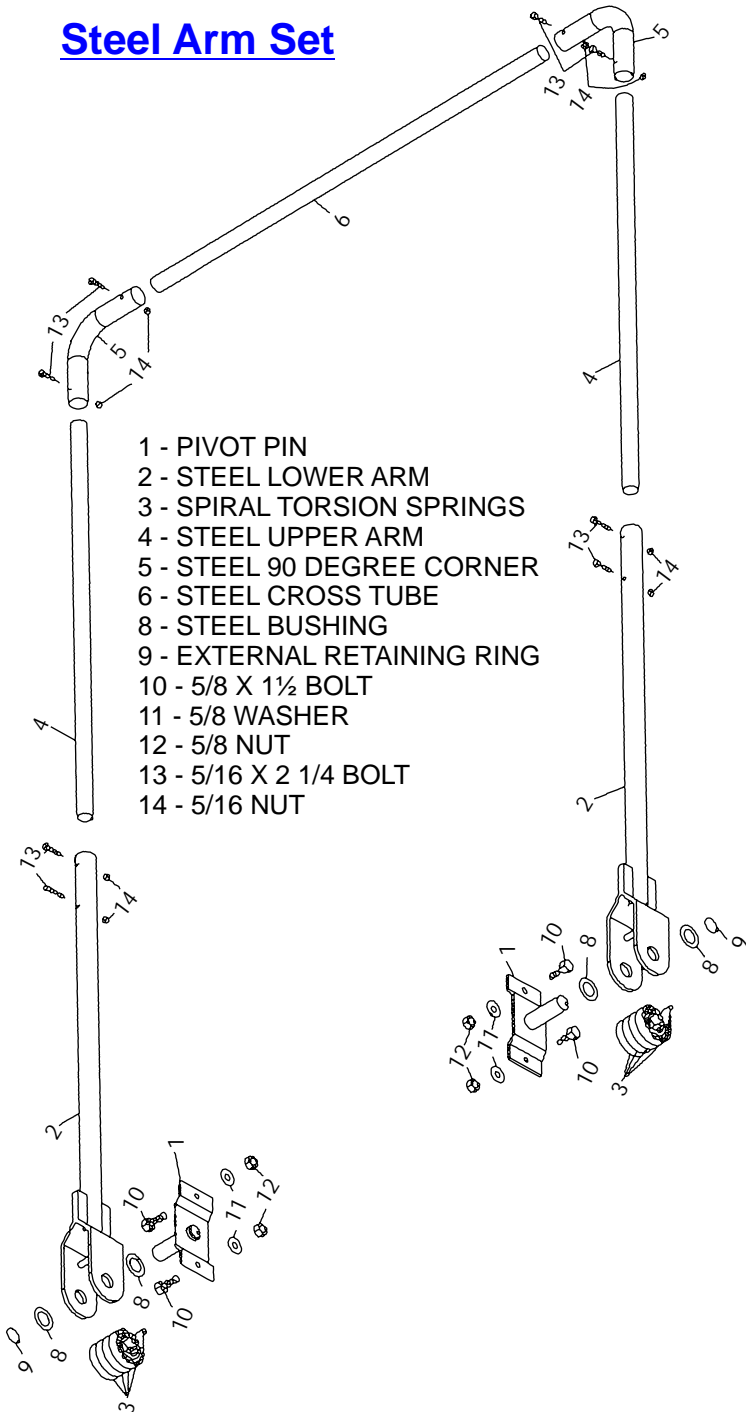
11. Remove the rear cross tube and upper arms so that you may load the pivot springs again.
12. Rotate both pivots forward and down so that they are left hanging straight down.
13. Pre-load the pivot springs by rotating the pivots one at a time toward the front of the body, down and around, and up until you are able to reinstall the tarp bow upper arms. You may need to lift bed to make clearance for the arms. Slide the upper arms down into the lower tube to the mark made in Step 10 and tighten the bolts that hold them in place. Make sure that the hook ends of the springs have clipped over the pin in the spring guard
14. Set the rear cross tube across the back of the body, but do not re-install until you have installed your tarp.

INSTALLING THE TARP

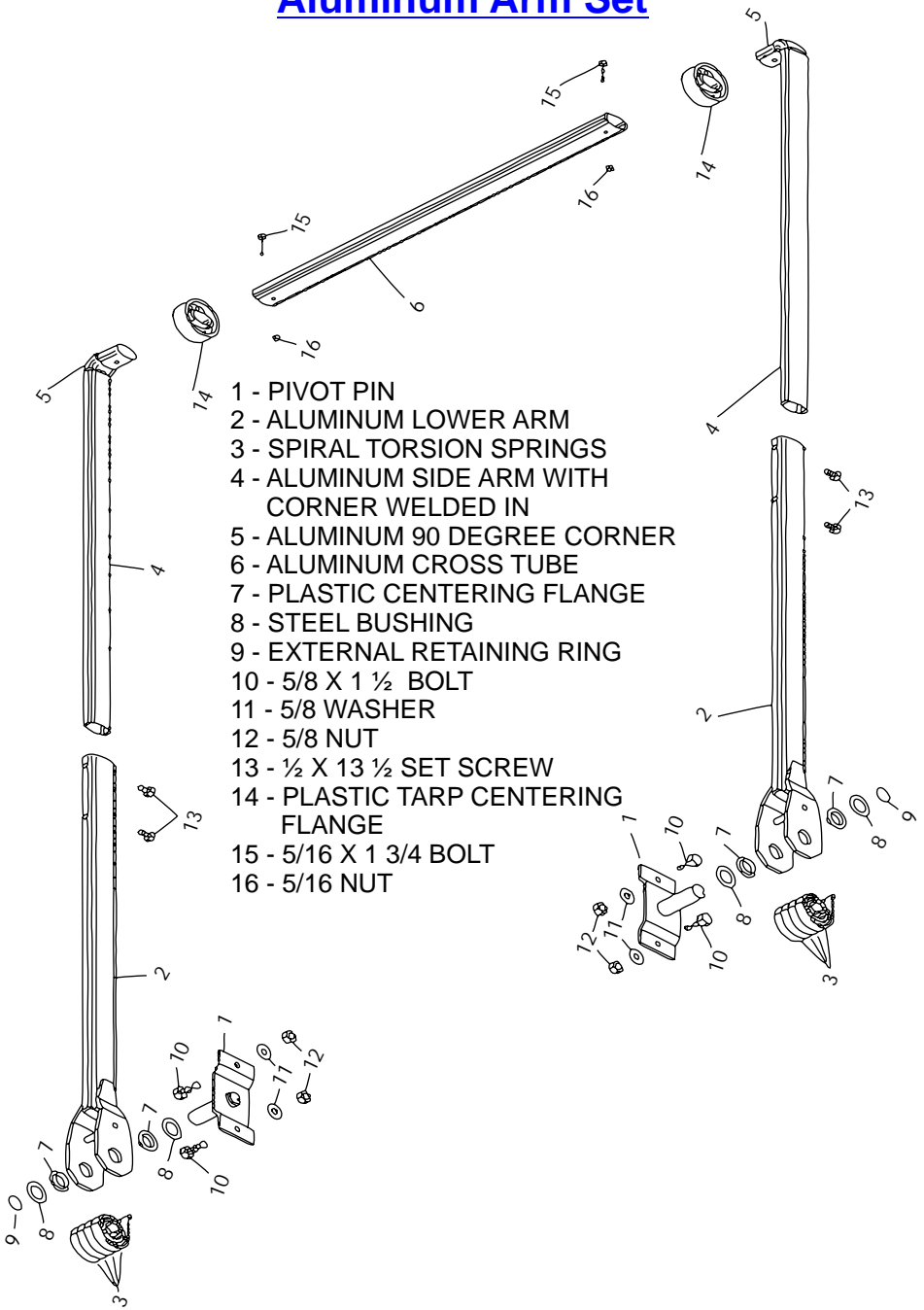
1. Line the five (5) grommets on the front edge of the tarp up with one of the threaded grooves in the front of the aluminum tarp axle
2. Attach the tarp to the front axle with 5/16" x 3/4" button head bolts.
3. Slide the rear cross bar through the pocket in the back of the tarp and center.
4. Slide (1) plastic tarp centering flange included in the system kit on each end of the rear cross bar and then reattach the cross bar to the upper arms.
5. Slide the inside set of plastic tarp flanges up against the tarp and tighten the set screws securely. These flanges will help keep the tarp centered on the rear cross bar.
6. Adjust and secure the set of outside plastic flanges near the upper arms so that they will act as bumpers between the rear cross bar and the dump body and/or tarp spool assembly.



Steel Arm Set



Aluminum Arm Set



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