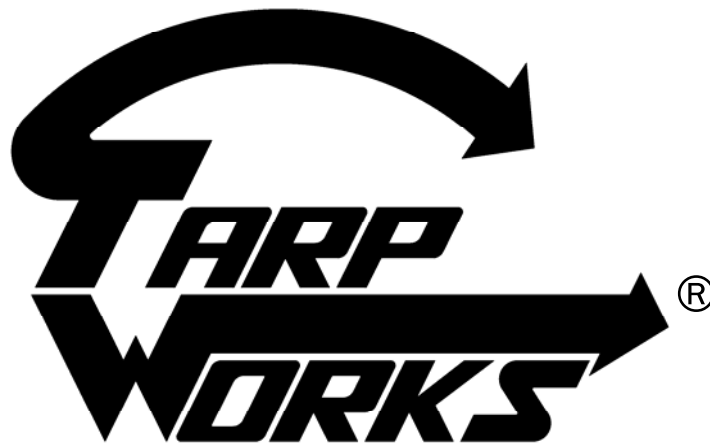




Steel Round Galvanized

INSTALLATION, MAINTENANCE,
& SAFETY INSTRUCTIONS



(800) 272-6276

001-321-757-7611

www.cramarotarps.com

Plants In: Delaware, Florida, Massachusetts, Nevada, Ohio, and Canada

Important: Read before you start

1. The DOT regulated maximum width of a vehicle with a tarp system is 108". That is 102" for the body plus 3" per side. The 3" per side is the maximum and both sides are to be equal.
2. Height limits are set by individual states and can vary from 13'6" to 14'. It is important to make sure you will be in compliance with your state & Federal rules before making any modifications to your vehicle.
3. Read through these instructions and familiarize yourself with the various part of the system. Look at the various types of front roller installations in [figure 1](#) to determine which one best typifies your vehicle
4. Never operate the tarp system under power lines or when the vehicle is moving!

Table of Contents

Step	Description	Page
	Cramaro Warranty	3
	Sample Installation Views	4
Step 1	Determining Placement of the System Prior to Starting	5
Step 2	Roller Plate Assembly & Installation	6
Step 3	Shields (Optional)	6
Step 4	Roller Tube	7
Step 5	Trailer Header (Optional for Radius'd Fronts)	7
Step 6	Manual Drive (See Separate Installation Instructions for the Electric Drive Option)	8
Step 7	Tarp Attachment	8
Step 8	Optional FLIPSOHANDLE Installation	9
Step 9	Pivot Point Placement	10
Step 10	Attaching Pivot Points to the Side of the Body	10
Step 11	Spring—Arm—Elbow for Standard System	11
Step 12	Crossbar—Tarp—Rubber Bumpers	12
Step 13	Rear Arm Supports (Optional)	12
Step 14	Hold Downs (Optional)	12
Step 15	Safety	13
Step 16	Maintenance	13
Step 17	Operating the System	13
Step 18	System Drawing and Parts List	14
Step 19	Adjustable Crank Drawing & Parts List	15

PRODUCT WARRANTY

GENERAL INFORMATION

Prior to returning any part for warranty, customers should contact Cramaro Sales at 800-272-6276 to explain the issue and obtain a Return Goods Authorization (RGA) number. Parts are returned at the customer's expense. After a part has been determined to be covered by warranty, Cramaro will ship the repaired or replaced part to the customer prepaid. Any expedited shipping or special handling is solely the customer's responsibility.

Cramaro products are warranted against defects in quality and workmanship only. They are not warranted for application suitability or any specific application other than what they were designed for. This warranty does not cover any non-Cramaro labor to remove or replace any part found to be defective.

It is also understood that under the terms of sale that Cramaro does not assume responsibility for and is not liable for any consequential losses or damages to equipment or materials; or expenses incurred due to delays, loss of production, vehicle down time, loss of revenue, or costs resulting from a product failure within the limits of this warranty.

For more information contact Cramaro Sales at 800-272-6276. Please have order information and details of the claim available.

TARP SYSTEMS AND RELATED PARTS

Cramaro warrants its tarp systems and parts (excluding tarps and electrical components) to be free of defects for a period of 1 year from the date of shipment. Cramaro's liability is limited to repair or replacement of covered items. See above for exclusions and exceptions. Improper installation will burn out electrical components and may damage the motor. These products should be installed by trained technicians only.

TARPS

Tarp seals and/or stitching that is found to be defective will be repaired by Cramaro. Tarps must be returned to Cramaro for repairs. Tarp fabric is not warranted as it is subject to wind damage if not used properly. Warranty coverage is for 1 year from date of shipment.

ELECTRICAL COMPONENTS

Electrical components (such as wire, breakers, switches, solenoids, relays, etc.) are not returnable nor are they covered under warranty.

ELECTRIC MOTORS

All SuperWinch motor assemblies are warranted for 3 years from date of shipment

All other motors - warranted for a period of 1 year from date of shipment. Motor assemblies must be returned intact. Any attempt to disassemble will void all warranties. Cramaro will repair or replace defective motors upon inspection at our discretion. Cramaro does not warranty motors installed on non-Cramaro systems.

PLASTIC LINERS

Liners are not warranted against wear and tear. We recommend that the "Plastic Bed Liner Usage Chart" be viewed to select the best liner for the material being transported.

FOR MORE INFORMATION CONTACT CRAMARO AT (800) 272-6276



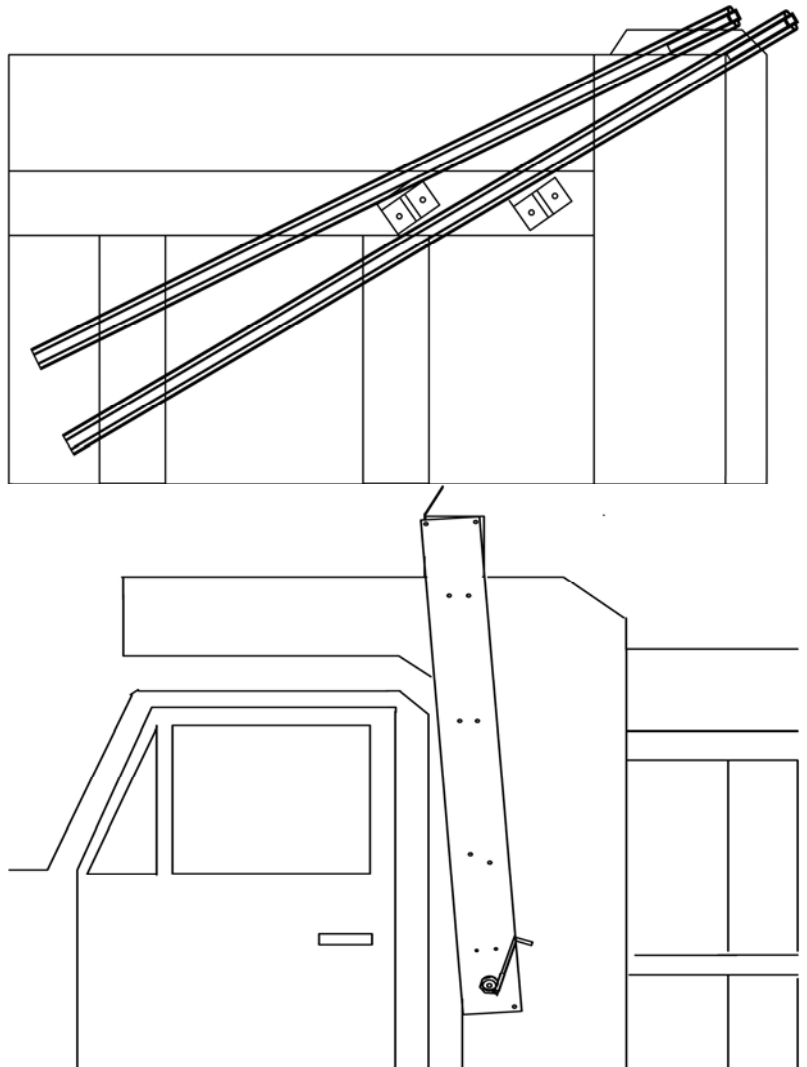
Step 1: Determining Placement of System PRIOR to STARTING

Questions to Answer Before You Start

1. Is the front of the bed radius'd or chamfered? If so the optional Header Assembly will be required. This should have been ordered with the system?
2. If not using the Header Assembly then where do you plan on placing the front drive assembly?

IMPORTANT: THIS IS FOR PLACEMENT ONLY, YOU ARE NOT INSTALLING YET.

1. Decide if you want the upper arm to rest in front of the tailgate or behind the tailgate.
2. If you plan on having the upper arm stop in front of tailgate or on top of tailgate then mark the spot where furthest point of arm will rest. Arms should be 1" (2.54 cm) above the tailgate.
3. If you plan to have the upper arm extend past the tailgate use an imaginary point 3" (7.62 cm) past tailgate as the resting point. If you are positioning the arms past the tailgate you will need to install optional rear arm supports for the arms to rest on.
4. Determine where you want to install the roller assembly. You may want to temporarily tack weld or clamp the roller plate where you will eventually want it to be mounted.



NOTE: DO NOT POSITION THE ROLLER PLATES TOO FAR FORWARD. THE ARMS OR GROUND CONTROL MAY PREVENT THE DRIVER'S DOOR FROM OPENING.

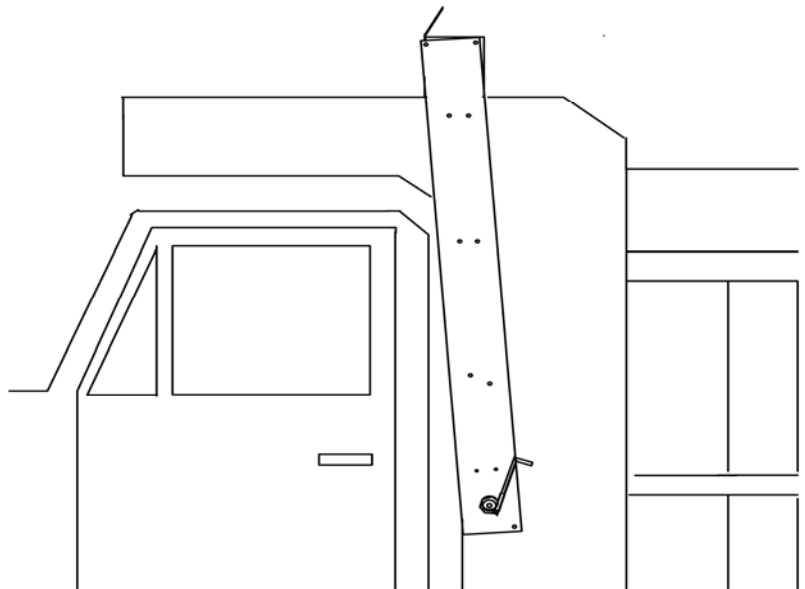
Step 2: Roller Plate Assembly and Installation

The roller plate assemblies should be mounted as far forward as possible on the body to keep the arms and cross-bar clear of the loading area. However do not mount them so far forward that the arms or the chain from the crank assembly might interfere with the cab doors .

Mount the roller plate so the top of the roller plate is approximately 7 1/8" above the body to allow room for the tarp roll up on the roller. Keep in mind DOT height restrictions. Make certain the (2) shield mounting holes are facing forward. When mounting the roller plates look at the cab shield or header to ensure square alignment in relation to the box. If one side is bent a little adjust roller plate position to ensure the roller is mounted square to the box.

Important: If the final roller assembly is not square to the box the tarp might not retract evenly and cause premature wear and damage to the tarp

1. To mount the roller plates, weld or drill (2) holes to the outside of cab shield and fasten with (2) 3/8" x 1 1/4" bolts, (4) flat washers and nylon lock nuts.
2. The roller plates should be at the same width as the maximum width of the outside of the body. Fabrication may be required if the cab shield is narrower than the outside of the body or if the back of the body is wider than the front.
3. Using the 3/8" x 1 1/4" bolts mount the bearing to the outside of the passenger side roller plate. The bolt head and washer should be on the inside of the plate and the nut against the bearing.



4. If you will be installing shields please continue with the instructions below. If you are using the optional trailer header for radius'd fronts, please skip the shields section and proceed to Step 5.

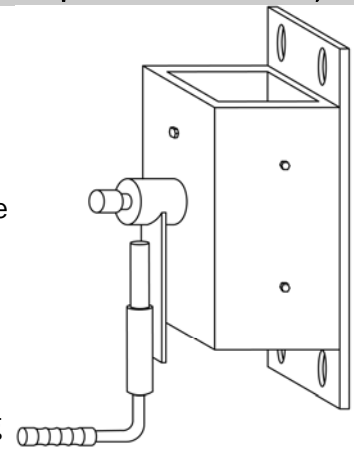
Step 3: Optional Shield Installation

The shield is used to block wind from blowing under the tarp and minimize wind whip.

1. Bolt shield adaptors to the roller plates using 3/8" x 1" bolts, flat washers, and nylon lock nut.
2. Mount the shield to the adaptors using 3/8" x 1" bolts, flat washers, and lock nuts.
3. Overlap the shields together until the desired width is achieved. Drill through both shields at the (4) pre-drilled holes in the middle and bolt shields together using (4) 3/8" x 1" bolt, flat washer, and nylock nut. (The head of the bolts should be on the inside of the shield).

Step 6: Manual Drive Installation (If you are installing the Electric Drive refer to separate instructions)

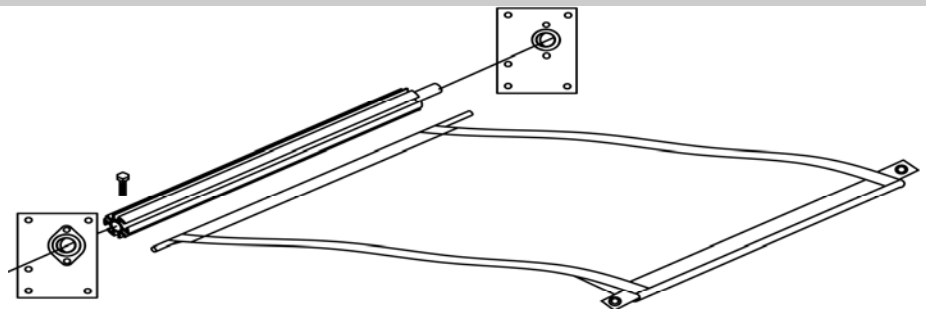
1. Decide where you want to mount the ground control handle assembly. The sprocket and handle assembly will need to line up with sprocket from the roller tube. (Fabrication may be required)
2. Weld or drill (4) holes for handle plate and mount handle assembly using (4) $3/8"$ x $1 1/2"$ bolts, flat washers and nylon lock nuts. You may need to add more chain if the handle is mounted at a greater than 'standard' distance from the drive sprocket. An optional handle adapter plate (Part # 223011) is also available to create a heavy duty mounting surface.
3. Bolt the bearing on the outside of the driver's side plate. Make sure the bolt head is on the outside. Insert the $3/4"$ x $9"$ drive sprocket rod through the bearing and into the roller tube on driver side. Position the roller sprocket onto the drive rod so it is flush with the end of the rod and tighten set screws. Slide the rod into the roller tube until the drive sprocket is parallel with the sprocket of the handle assembly. These must line up to keep the chain from binding. Tighten the bearing collar set screws to hold position.
4. Space the end of the roller tube $1/4"$ from the inside of the driver side roller plate. Using the pre-drilled pilot hole on the roller tube, drill through the $3/4"$ drive rod and bolt through using $5/16"$ x $2 1/2"$ hex bolt, flat washer and $5/16"$ nylon lock nut. Position the hex bolt head to fit into the slot properly and tighten.
5. The distance from the end of the roller tube to inside of the plate on passenger side should be approximately $1/4"$. Drill through the passenger side of the roller tube and roller end (in the same extrusion slot adjacent from the driver side). Bolt through using $5/16"$ x $2 1/2"$ hex bolt, (2) flat washers and $5/16"$ nylon lock nut. Position the hex bolt head to fit into the slot properly and tighten.
6. Install the chain around both the upper drive sprocket and the sprocket inside the handle assembly. Estimate the optimum length to achieve the desired tension on the chain, tight enough to not fall off the sprocket. When mounting the handle assembly make sure the slotted mounting holes are such that later adjustments can be made to keep the proper chain tension.



Step 7: Tarp Attachment

To attach the tarp, slide the plastic spline into the slotted extrusion in the center of the roller tube. Use this "access slot" to feed half of the tarp in first, then feeding the other half in and centering the tarp.

You may additionally attach the tarp to the roller tube by using $1/4"$ x $3/4"$ bolts and washers, not included. You should use at least 5 bolts. Make sure the holes in the tarp are behind the spline to prevent them from tearing loose.



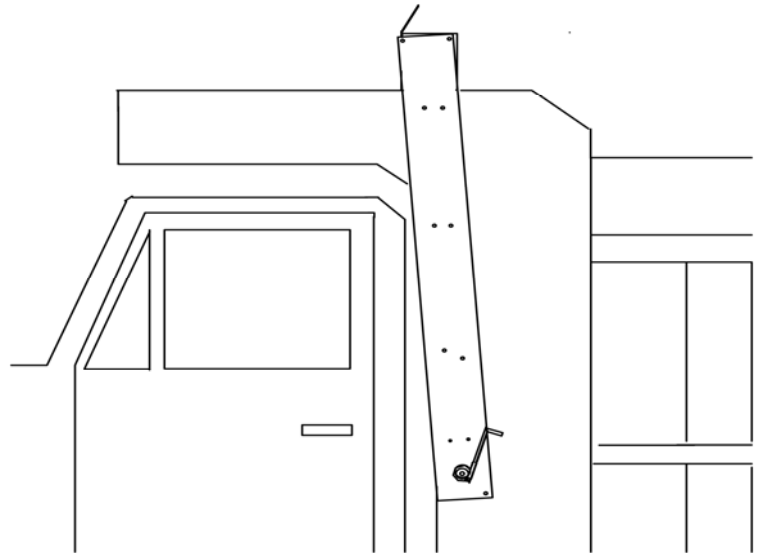
To prevent the tarp from 'walking' from side to side on the roller tube, simply put (1) self-drilling $1/2"$ k-lath screw through both the tarp and roller on each side.

Step 8: Optional FNG Handle Upgrade

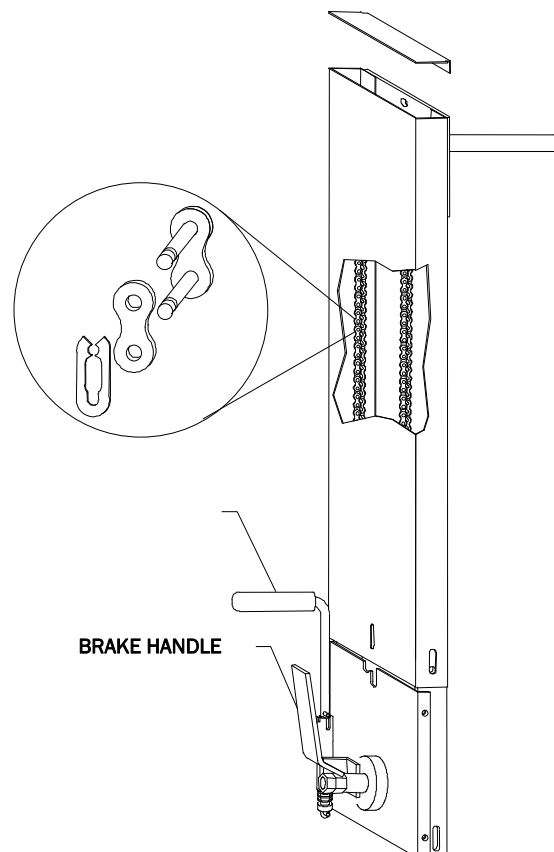
When using the adjustable crank unit you will need to determine what length you need the assembly to be. The distance from shaft on the crank unit when it is positioned in the roller assembly, down to where you want the crank handle placed for easy cranking.

Lay the handle assembly on the floor or a stable work surface. Extend the unit to the desired length. Temporarily clamp the unit together so it cannot extend or retract.

1. Drill a 3/8" hole through the slot on both sides and front of the top box. Make certain the hole is in the top of the slot to facilitate tightening of the chain in a later process.
2. Temporarily bolt the sections together using 3/8" x 3/4" bolts, flat washer and nylon lock nut. Position the two side bolts with the head of the bolt on the inside, nuts on the outside. Position the front bolt with the head of the bolt on the outside, and nut on the inside. Release the clamps.
3. Take the top box lid off if needed to facilitate looping the chain around the top sprocket and bottom sprocket. Cut off any excess chain to reach the desired length and connect with the master link provided. Make certain to position master link in the position shown. Once the chain is together properly, tighten the chain by extending the two telescoping boxes by loosening the (3) bolts and retighten. The chain should not have more than 3/4" (19.05 mm) play from side to side. Replace the top box lid. CAUTION: the lower handle has 2 sprockets the smaller inside one is for the chain.
4. Slide the upper crank box shaft through the driver side bearing and into the roller tube until the bearing on crank unit and bearing on the roller plate meet. Tighten the set screws on the roller plate bearing.
5. Fasten the crank box to the body with the brackets attached to the box by drilling 11/32" hole and fastening with 3/8" x 1" self-tapping bolts with 3/8" lock washers. Make sure the chain is not binding.
6. If using the manual crank unit: Space the end of the roller tube 1/4" (6.35 mm) from the inside of the driver side roller plate. Using the pre-drilled pilot hole on the roller tube, drill a 5/16" hole through the 3/4" shaft on the crank unit and bolt through using 5/16" x 2 1/2" bolt, (2) flat washers and 5/16" nylon lock nut. If using the electric motor option: line up the pre-drilled hole in the roller tube and the hole in the shaft on the motor and bolt through using the 5/16" x 2 1/2" bolt, (2) flat washers and 5/16" nylon lock nut.

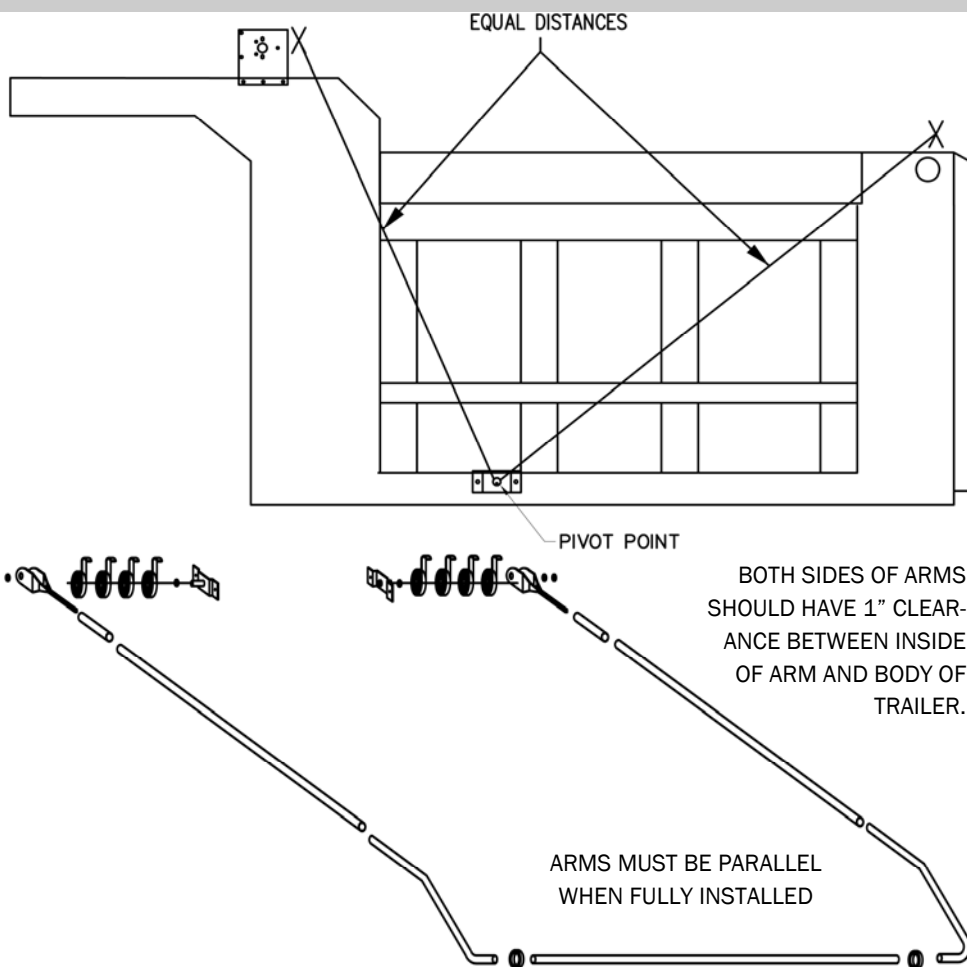


Important: Do not position the roller plates so far forward that they interfere with driver's door.



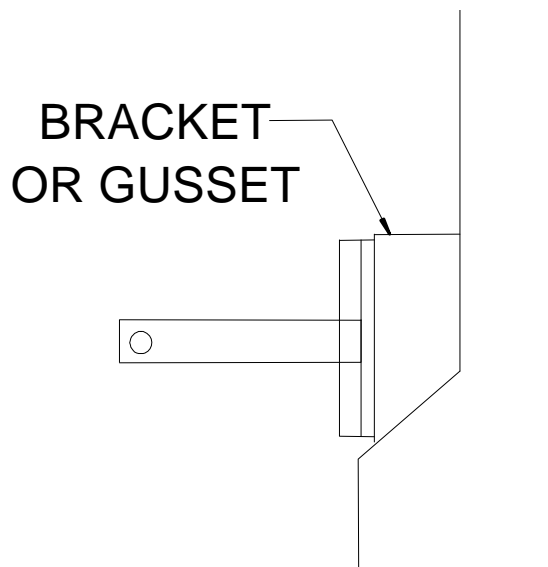
Step 9: Pivot Point Placement

The pivot point is the center of the shaft on the pivot plate.



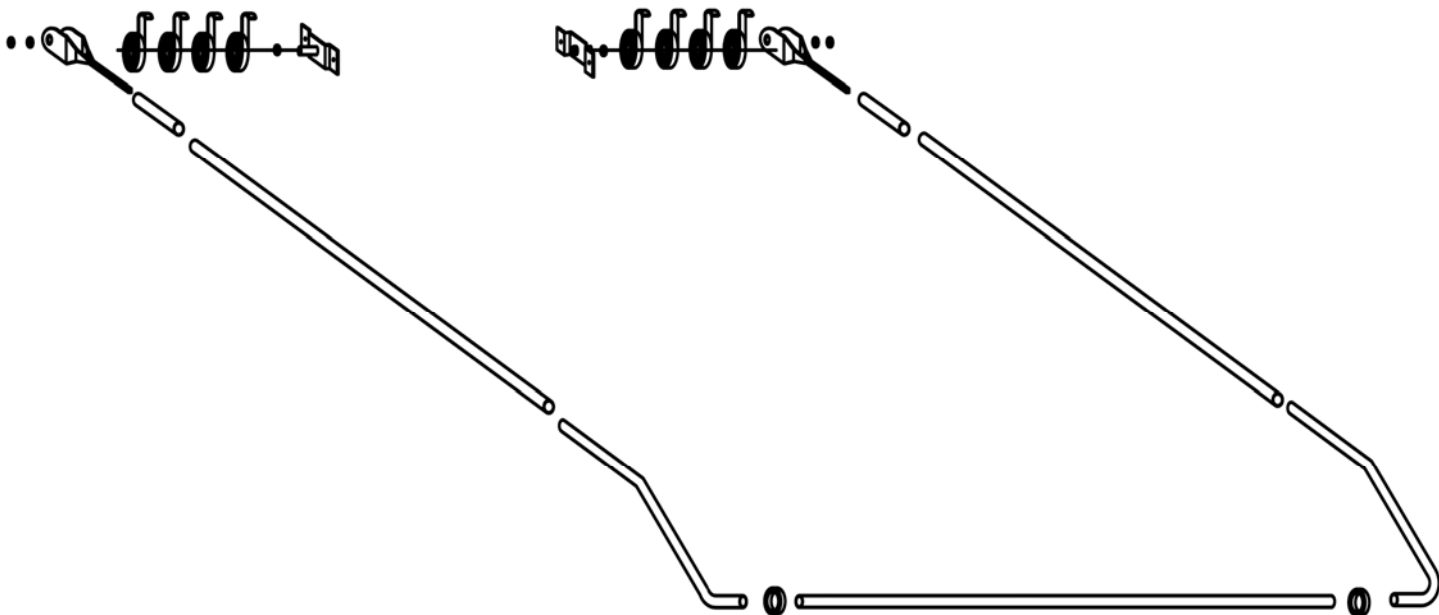
Step 10: Attaching Pivot Points to the Side of the Body

1. Installation of pivot plates may require the fabrication of custom brackets or gussets (not supplied). These brackets may be necessary so that the pivot plates are mounted out from the body to achieve the 1" (2.54 cm) minimum.
2. of clearance for the lower arms. Gussets must be welded to insure that the pivot plate has no vertical movement.
3. Use 1/2" x 1 1/2" bolts, flat washers and nylon lock nut s to mount pivot plates to the brackets.



Step 11: Spring—Arm—Elbow for Standard Systems

1. Place a 3/8" x 3 1/2" Grade 5 bolt through the steel pivot arm hole near the pivot point and a 3/8" nylon lock nut. Tighten the bolt until the plates are perfectly parallel to each other. Do not over tighten; it could restrict spring movement.
2. Slide one special stainless steel flat washer onto the pivot point. The pivoting arm should be facing downward and to the rear in order to not apply tension on the springs when you perform the next steps.
3. Slide the "inner plate" of the pivoting arm onto the pivot shaft. Slide four (4) springs on to the pivot shaft so that the springs are between the inner and outer plates of the pivoting arms. The bend on the innermost part of the each spring fit into the "key-way" of the pivot point. The extended end of the spring should be pointing toward the rear of the truck with the curl facing downward so it will catch the tension bolt.
4. With the springs in place, slide the "outer plate" on to the pivot shaft. Place one (1) special stainless steel flat washer onto the protruding end of the pivot point shaft and secure it by placing one (1) retaining ring into the groove at end of the pivot shaft.
5. Now slide the lower arm over the pivoting arm with the pivot arm adapter shim inserted and bolt through using a 3/8" x 2 1/2" bolt a 3/8" flat washer on each side of the arm, a 3/8" washer and nylock nut. The bolt head should be on the inside and the nuts facing to the outside of the arm assembly in order to prevent creation of a catch point.
6. Repeat the above steps for other side



Step 12: Cross Bar—Corner Elbows—Tarp—Rubber Bumpers

For the proper cut length of the crossbar; make sure the arms are parallel to each other.

1. Insert the appropriate left and right elbow section into the lower arm with the 90 degree bends upward and the end pointing towards the bed.
2. Measure the distance between the elbows; make sure the measurement includes the distance for the cross bar to “bottomed out”. Remove the elbows. Cut the crossbar to the desired length. Smooth edges inside and out for easy insertion.
3. Take the crossbar and slide through pocket in tarp.
4. Place a Rubber Bumper (Optional) on each end of the crossbar before attaching the crossbar to the elbows and assembling to the lower arms. Slide in the Bumpers so they are resting on the tailgate or the top rails and to the outside of the tarps’ grommet tabs. To get optimum use of these bumpers, the crossbar should rest on top of the tailgate.
5. Once the tarp and bumpers are inserted, connect the crossbar to the elbows and reinsert the elbows into the lower arms. Drill 13/32” holes through the crossbar and the 90 °elbow. Bolt through using (2) 3/8” x 2 1/2” bolts, flat washers, and nylon lock nuts. Bolt from underneath, so the nylon lock nut is on the outside of the arms. Tighten all bolts securely.
6. Repeat connection of crossbar to the other side.
7. Extend the elbows from the lower arms until the desired operational height is obtained. Drill holes and bolt the elbow and lower arms together. Using 3/8” x 2 1/2” bolts, washers, and nylock nuts, repeat for the opposite side.
8. Center tarp on crossbar and drill 9/32” diameter hole through the two grommet tabs then fasten with 5/16” x 1” self-tapping screws with lock washers and flat washers.

Step 13: Rear Arm Supports (Optional)

1. Typically used when extending the crossbar past the tailgate
2. Install ears with 3/8” x 5 1/2” bolts provided, at an angle to match resting position desired. You may need to build out from the trailer for the ears to be lined up with the arms.

Step 14: Hold Downs (Optional)

Hold downs are used to prevent “wind whip”. They are used with vinyl tarps and longer tarps . Vinyl tarps will not be warranted when hold downs are not used.

1. Drill through the upper arm approximately 12” down from the 90 degree elbow (or 6” below 148 degree elbow if they are being utilized).
2. Fasten the 5/16” x 2 1/2” (thread length) eyebolt through the hole with the eyelet on the outside of arm, using a 5/16” flat washer, lock washer and nut. Or use the 3/8” x 2 3/4” bolts, washers, and nylock nuts provided in the FLIPSOHOLDDOWN Kit.
3. Feed the 3/16” nylon cable through the eyelet and clamp off with cable clamp.
4. Mount the ratchet with 24” strap straight below the eyelet at the bottom of the trailer. Use the 3/8” x 1” self-tappers and lock washers to fasten the ratchet holder. They are to be mounted at the front and back of the body on both sides with the tarp and arms in the fully “covered” and fully uncovered positions.

Safety

1. When installing your system, use OSHA approved ladders or scaffolding when working above ground level
2. Be careful of existing wires in or on the truck bed
3. Disconnect battery terminals before doing any welding.
4. Use “helpers” when necessary to hold or help lift.
5. Keep clothing and body parts clear of any moving parts while operating system.
6. Vinyl tarps are required to be secured at rear in windy conditions.
7. Do not dump with load covered.
8. When operating system, BEWARE OF OVERHEAD WIRES.
9. When operating system, make sure there is no one in the swing path of the arms.

Maintenance

1. Perform the following every week for the first month after installation, then monthly thereafter:
2. Grease bearings on roller plate assemblies.
3. Remove handle cover and check chain tension. If chain is too tight or too loose the system will not operate properly.
4. Check tarp for any abnormal wear. Small holes can become big problems if not fixed soon enough.
5. Check all bolts and tighten if necessary
6. Immediately fix/replace any parts that are damaged.
7. Use oil similar to WD40 to oil the chain.

Do not oil near the crank mechanism because it may cause the friction disk to ‘slip’ and not work properly.

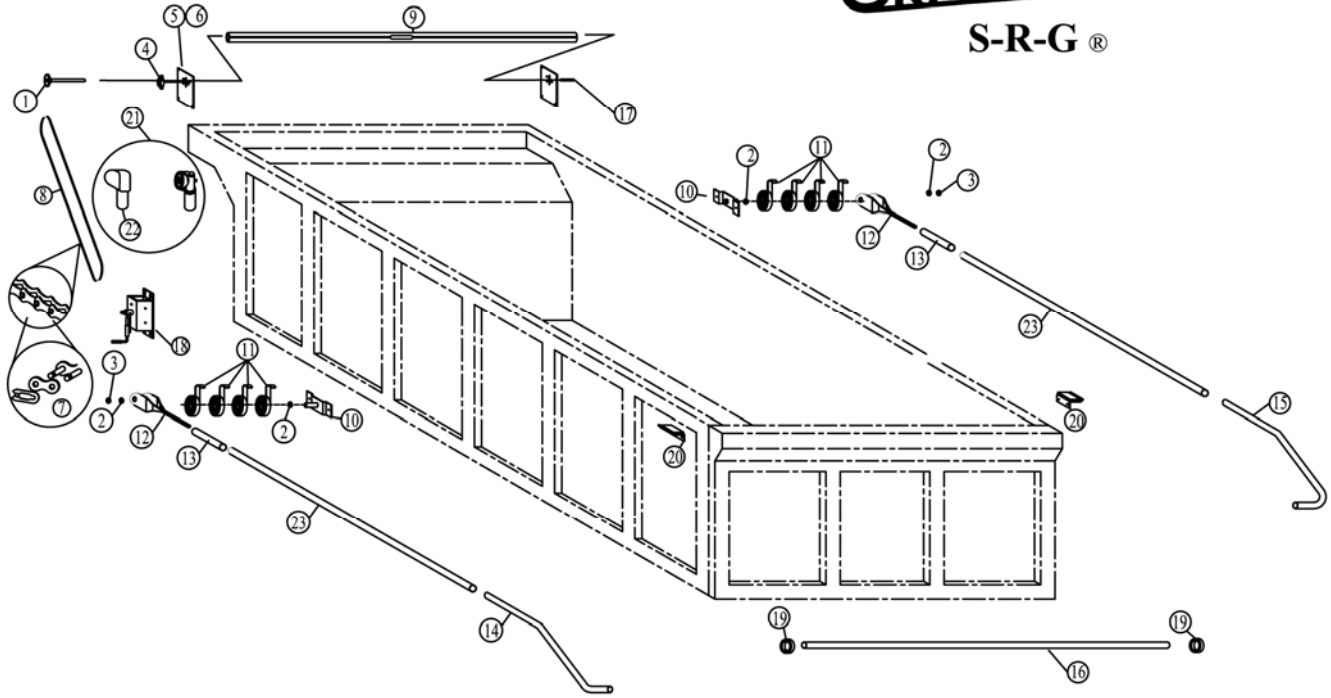
Operating the System

SPECIAL NOTE: The first time the tarp is rolled up onto the roller; make sure that it rolls evenly on both sides. If not, make certain all installation steps were followed correctly. You may need to ‘shorten’ one side of the tarp by repositioning the tarp on the roller tube in order to have both sides roll evenly.

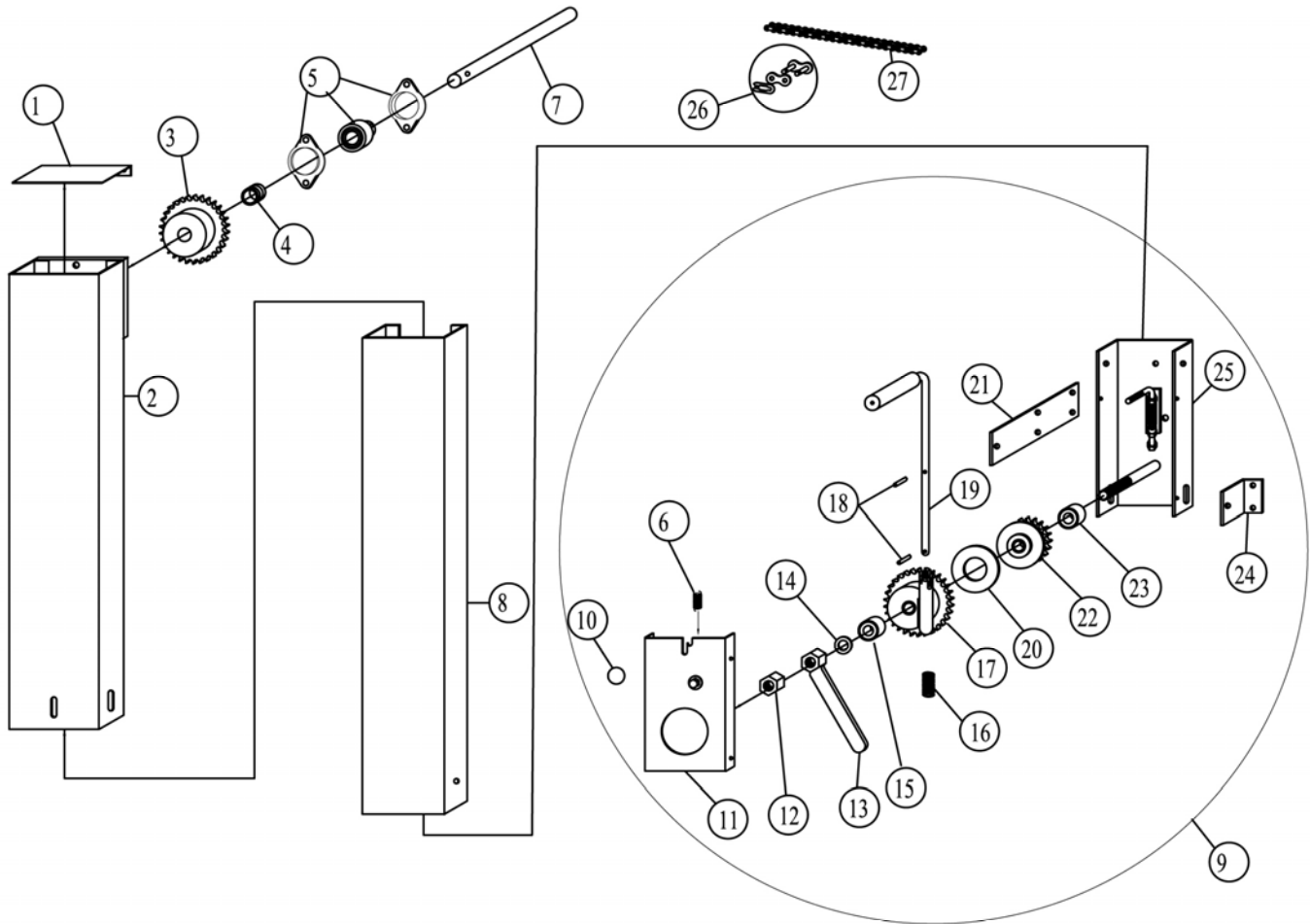
In order to avoid damage to the system always slow down the arms as much as possible before they hit the rear arm supports. The arms should not 'slam' on the rear arm supports; the arms should be gently lowered.

CRAMARO

S-R-G®



ITEM #	PART #	DESCRIPTION	QTY
1	224005	ROLLER DRIVE SPROCKET AND SHAFT	1
2	223205	WASHER, SPECIAL THIN SS 1.27"ID	4
3	223210	EXTERNAL RETAINING RING	2
4	116355	SIDE MOUNT 3/4" CAST BEARING	1
5	227400	ROLLER PLATE STEEL	2
6	118951	ROLLER PLATE ALUMINUM	2
7	105076	CHAIN MASTER LINK #40	1
8	105075-13	#40 CHAIN WITH MASTER LINK. 13'	1
9	118317	ROLLER TUBE EXTRUDED 101 5/16" X 2"	1
10	224650	4 SPRING PIVOT MOUNT SHAFT ASSEMBLY	2
11	224200	SPRINGS	8
12	227600	SRG 4 SPRING PIVOT ARM	2
13	226098	PIVOT ARM ADAPTOR	2
14	228305	CORNER ELBOW LEFT	1
15	228300	CORNER ELBOW RIGHT	1
16	226250	CROSSBAR GALVANIZED 96"	1
17	118710	ROLLER END 3/4" X 6" ROD	1
18	229000	GROUND CONTROL HANDLE ASSEMBLY	1
19	114453	RUBBER TARP STOPS	2
20	118210	REAR ARM SUPPORT (EARS) W/ FOAM PAD	2
21	164905	600W 90:1 MOTOR ASSEMBLY W/ COVER 12V	1
22	164902	PLASTIC MOTOR COVER	1
23	226099	96" LOWER ARM	2
N/A	220002	SRG BOLT BOX	1



ITEM	PART #	DESCRIPTION	QTY.	ITEM	PART #	DESCRIPTION	QTY.
1	114226	ADJUSTABLE TELESCOPING BOX LID	1	16	111040	SPRING SS 3 1/2"	1
2	114209	ADJUSTABLE TELESCOPING UPPER BOX	1	17	114205	ADJUSTABLE LOWER SPROCKET 40B30	1
3	119150	ADJUSTABLE UPPER SPROCKET 40B30-3/4B	1	18	410050	7/32" x 1" ROLL PIN PLATED	2
4	406645	FLAT WASHER 3/4" USS	3	19	116105	HANDLE ASSEMBLY (C/W P/NS 116101, 111040, & 410050)	1
5	113040	DOUBLE FLANGE AND 3/4" BEARING	1	20	113020	ADJUSTABLE CLUTCH PAD	1
6	110021	ADJUSTABLE CLICKER SPRING	1	21	114208	ADJUSTABLE MOUNT PLATE	1
7	228110	ADJUSTABLE ROLLER END OUTPUT SHAFT 3/4"	1	22	114206	ADJUSTABLE LOWER SPROCKET 40B20	1
8	114210	ADJUSTABLE TELESCOPING LOWER BOX	1	23	114211	ADJUSTABLE THRUST BEARING	1
9	114215	ADJUSTABLE LOWER BOX ASSEMBLY	1	24	114207	ADJUSTABLE MOUNT BRACKET	1
10	114213	ADJUSTABLE PLUNGER KNOB	1	25	114201	ADJUSTABLE LOWER BOX	1
11	114202	ADJUSTABLE LOWER BOX COVER	1	26	105076	CHAIN MASTER LINK #40	1
12	114204	ADJUSTABLE SAFETY NUT	1	27	105075	CHAIN #40 NICKEL PLATED	1
13	114203	ADJUSTABLE TENSION HANDLE	1				
14	114212	ADJUSTABLE THRUST WASHER	1				
15	114211	ADJUSTABLE THRUST BEARING	1				