



INSTALLATION INSTRUCTIONS

Steel Protector (Automatic) Systems for Arm Sets up to 22'

208-0215, 209-0215, 224-0215

Related Instructions,
How-To Videos & More



[PDF: Optional Tarp Tamer](#)



[PDF: Bolt-On Mounting System](#)



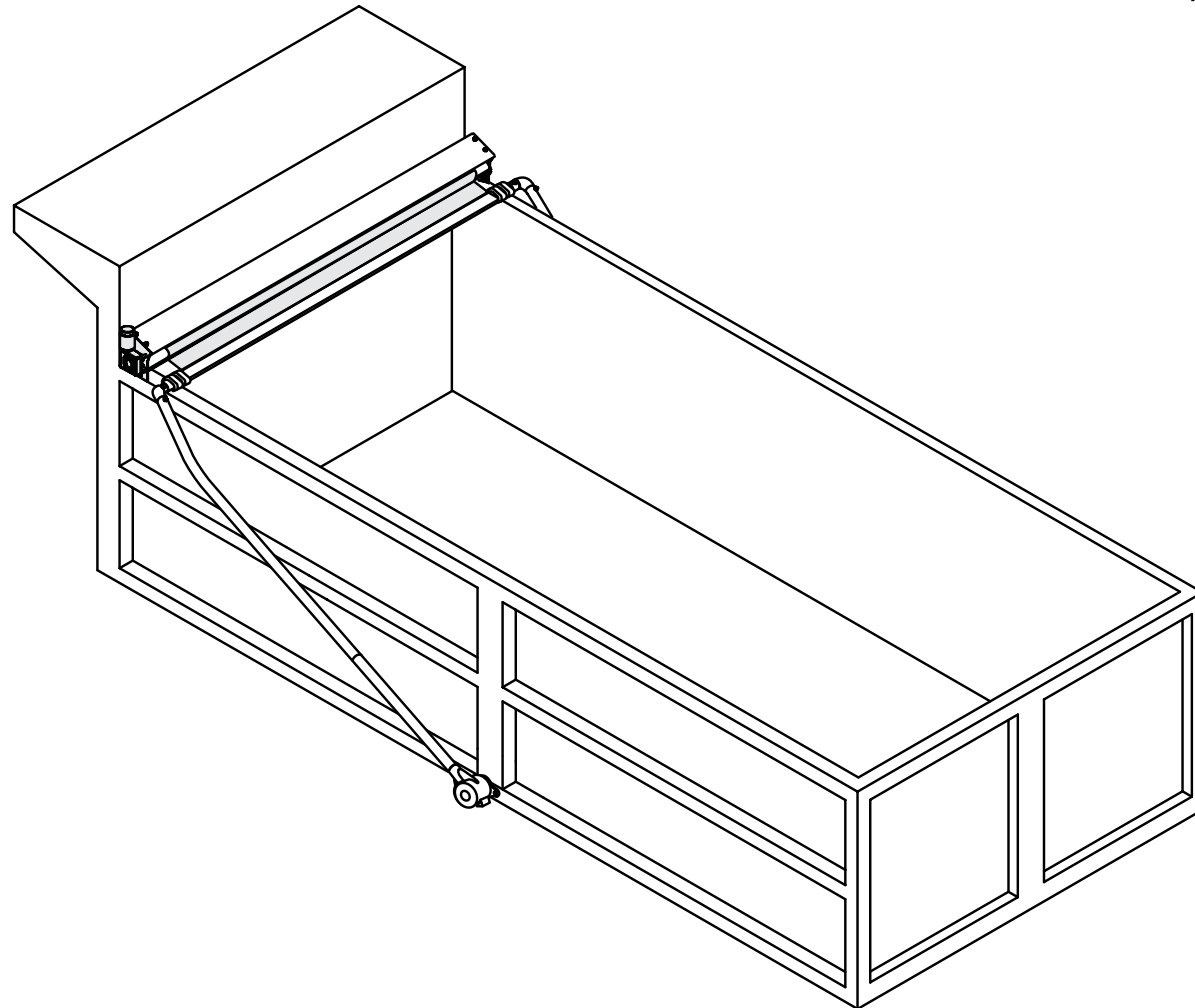
[PDF: Deluxe High Amp Switch - 12Volt](#)



[PDF: Cab External Switch - 12 Volt](#)



[PDF: 12V Smart Switch w/ External Switch](#)



DURING INSTALLATION, SOME FABRICATION MAY BE REQUIRED.

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INSTALLATION INSTRUCTIONS

Steel Protector (Automatic) Systems for Arm Sets up to 22'

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TOOLS, DIAGRAMS & PARTS



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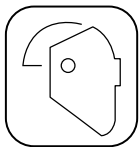
INSTALLATION INSTRUCTIONS

Steel Protector (Automatic) Systems for Arm Sets up to 22'

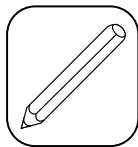
Recommended Tools



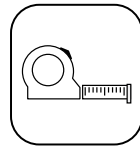
Safety Glasses and Gloves



Welding Equipment & Helmet



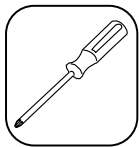
Pencil or Marker



Tape Measure



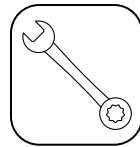
Adjustable Wrench



Philips Screwdriver



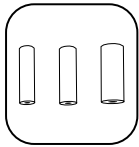
Mallet or Deadblow Hammer



3/4" Box Wrench



Socket Wrench



3/4", 7/16" & 5/16" Sockets



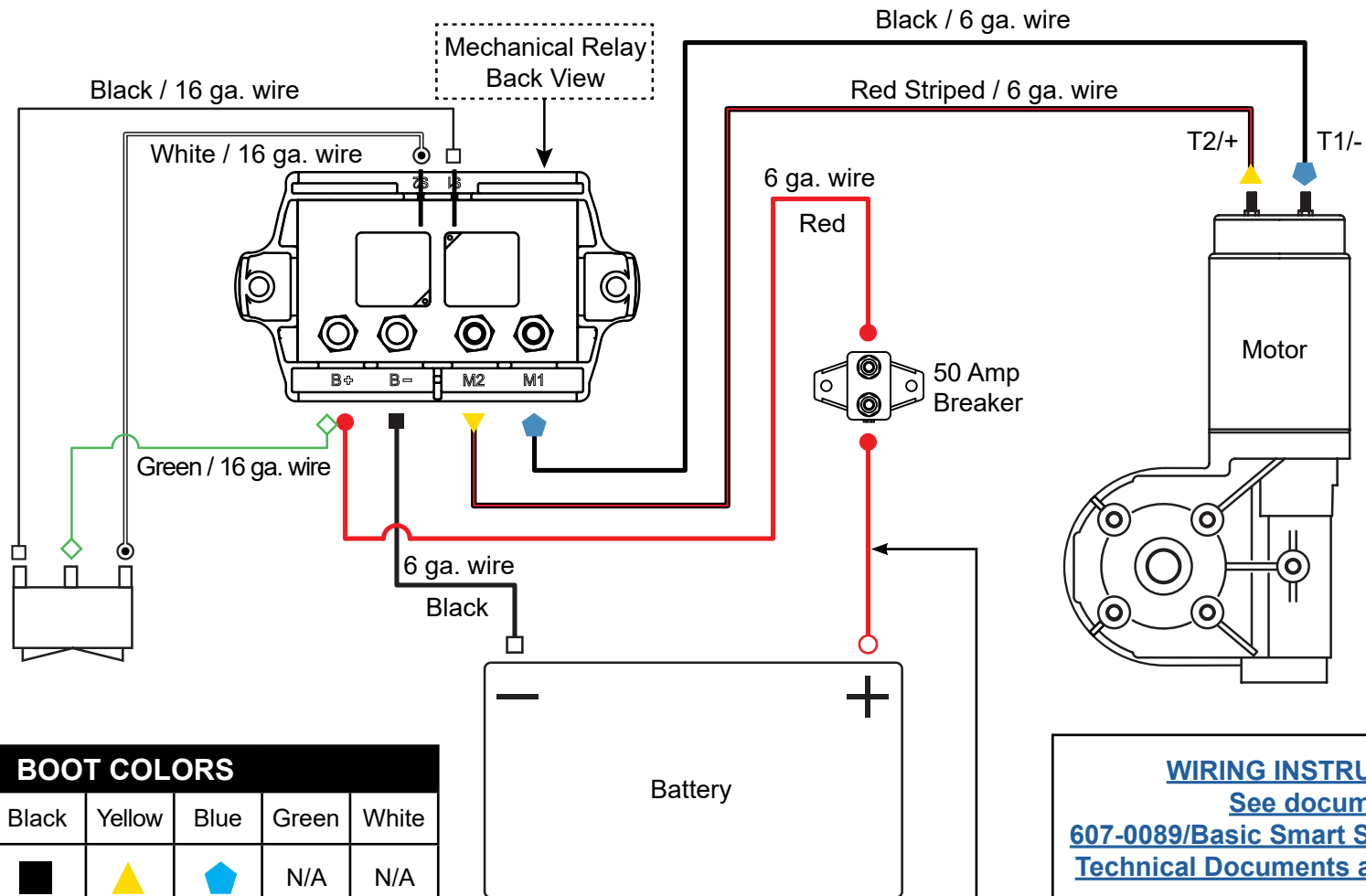
Impact Drill (Optional)











INSTALLATION INSTRUCTIONS

Steel Protector (Automatic) Systems for Arm Sets up to 22'

Smart Switch Basic Kit - Wiring Diagram #514-0114



BOOT COLORS						
	Red	Black	Yellow	Blue	Green	White
With Boot					N/A	N/A
No Boot			N/A	N/A		

Note: 12" Max distance between Battery and Breaker.



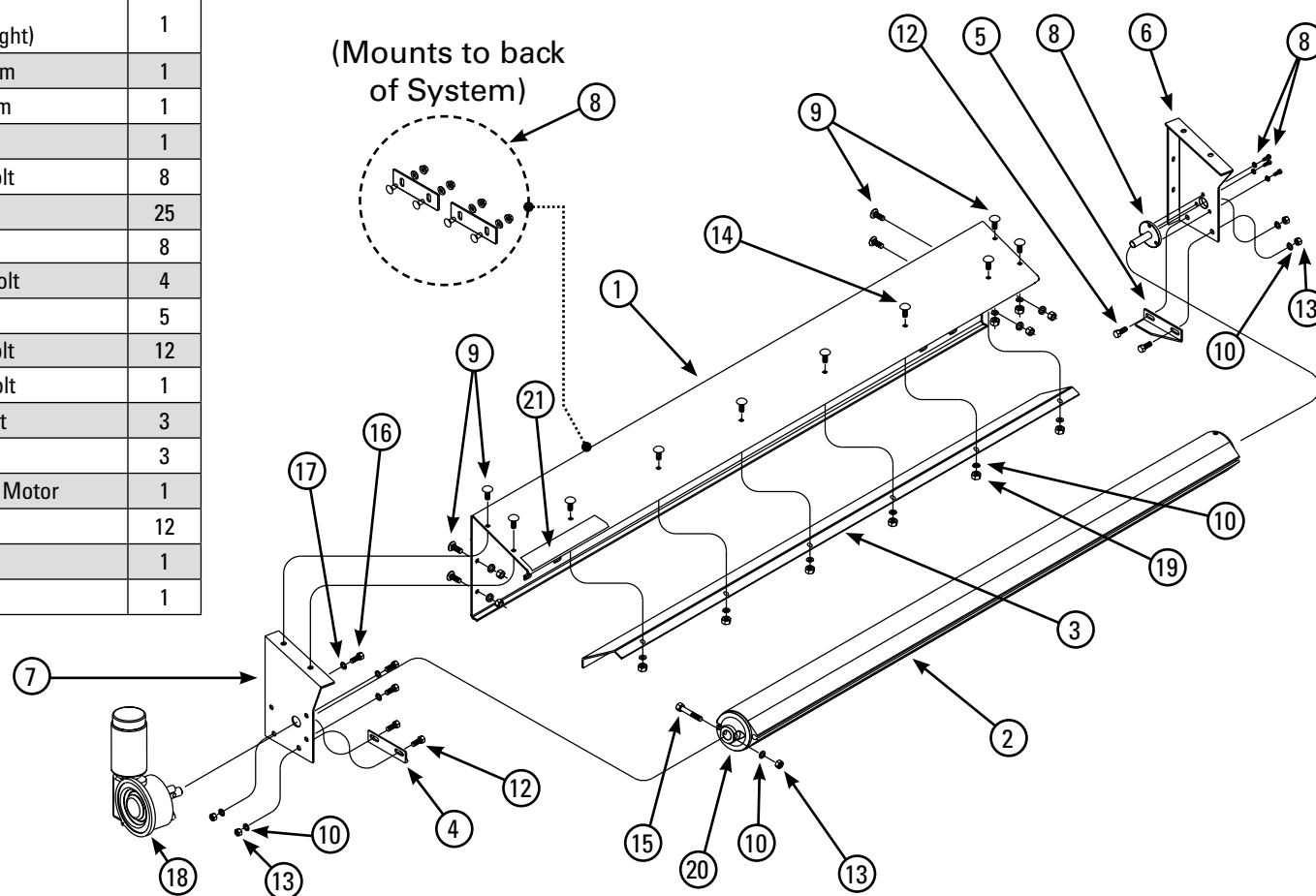
INSTALLATION INSTRUCTIONS

Steel Protector (Automatic) Systems for Arm Sets up to 22'

Steel Protector™ #208-0215

ITEM	PART #	DESCRIPTION	QTY
1	501-01XX	Galv. Steel Protector Hsg. 80, 84, 87, 89, 96, 96, 100"	1
2	501-13XX	Roller Tube Assy. 80, 84, 87, 89, 93, 96, 100"	1
3	501-0138	48" x 5 1/2" Galvanized Insert	1
4	501-152X	System Mount Bracket (Specify Steel or Aluminum - Left)	1
5	501-152X	System Mount Bracket (Specify Steel or Aluminum - Right)	1
6	501-0254	Right End Plate for "N" System	1
7	501-0255	Electric End Plate "N" System	1
8	501-0633	Universal Bolt In Stud Kit	1
9	503-2505	1/4" - 20 x 3/4"lg. Carriage Bolt	8
10	505-2502	1/4" Flat Washer USS	25
11	504-2503	1/4" - 20 Nyloc Nut	8
12	503-3104	5/16" - 18 x 3/4"lg. Carriage Bolt	4
13	504-3103	5/16" - 18 Nyloc Nut	5
14	503-2501	1/4" - 20 x 1/2"lg. Carriage Bolt	12
15	503-3108	5/16" - 18 x 1-3/4"lg. HHCS Bolt	1
16	503-3103	5/16" - 18 x 3/4"lg. HHCS Bolt	3
17	505-3102	5/16" Lock Washer	3
18	517-5909	Pulltarps® 1.3 HP 12V DC Electric Motor	1
19	504-2506	1/4" - 20 x Nyloc Nut (Thin)	12
20	501-9915	Driver Aluminum End Cap	1
21	607-0061	Pulltarps Decal	1

ITEM	PART #	DESCRIPTION	QTY
22	501-06XX	Steel Protector System Hardware (Specify Steel or Aluminum)	1



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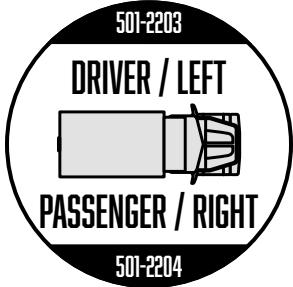
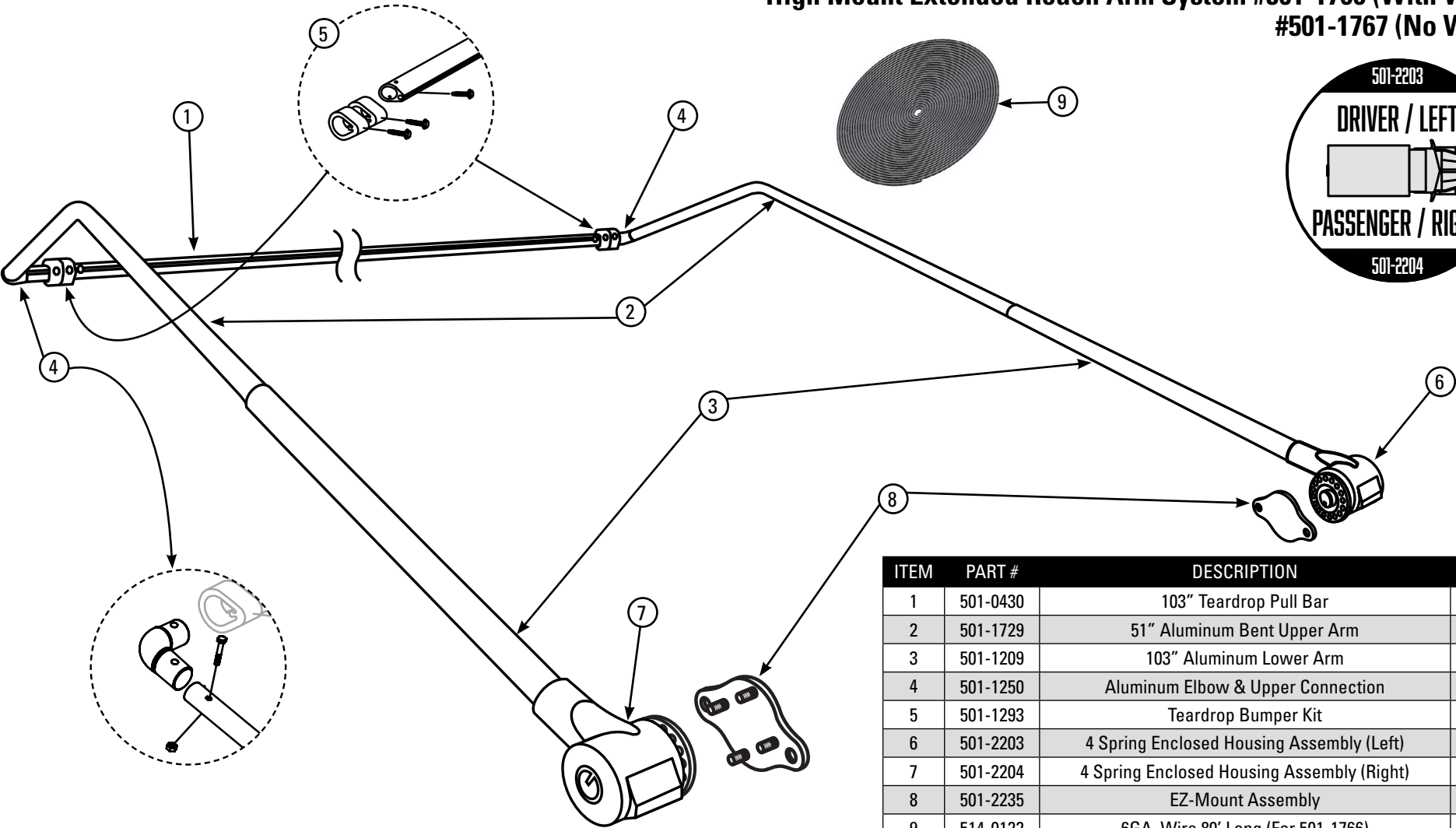


INSTALLATION INSTRUCTIONS

Steel Protector (Automatic) Systems for Arm Sets up to 22'

High Mount Extended Reach Arm System #501-1766 (With Wire)

#501-1767 (No Wire)



ITEM	PART #	DESCRIPTION	QTY
1	501-0430	103" Teardrop Pull Bar	1
2	501-1729	51" Aluminum Bent Upper Arm	2
3	501-1209	103" Aluminum Lower Arm	2
4	501-1250	Aluminum Elbow & Upper Connection	2
5	501-1293	Teardrop Bumper Kit	1
6	501-2203	4 Spring Enclosed Housing Assembly (Left)	1
7	501-2204	4 Spring Enclosed Housing Assembly (Right)	1
8	501-2235	EZ-Mount Assembly	2
9	514-0122	6GA. Wire 80' Long (For 501-1766)	1

Illustration view shown looking from passenger side to rear of vehicle.

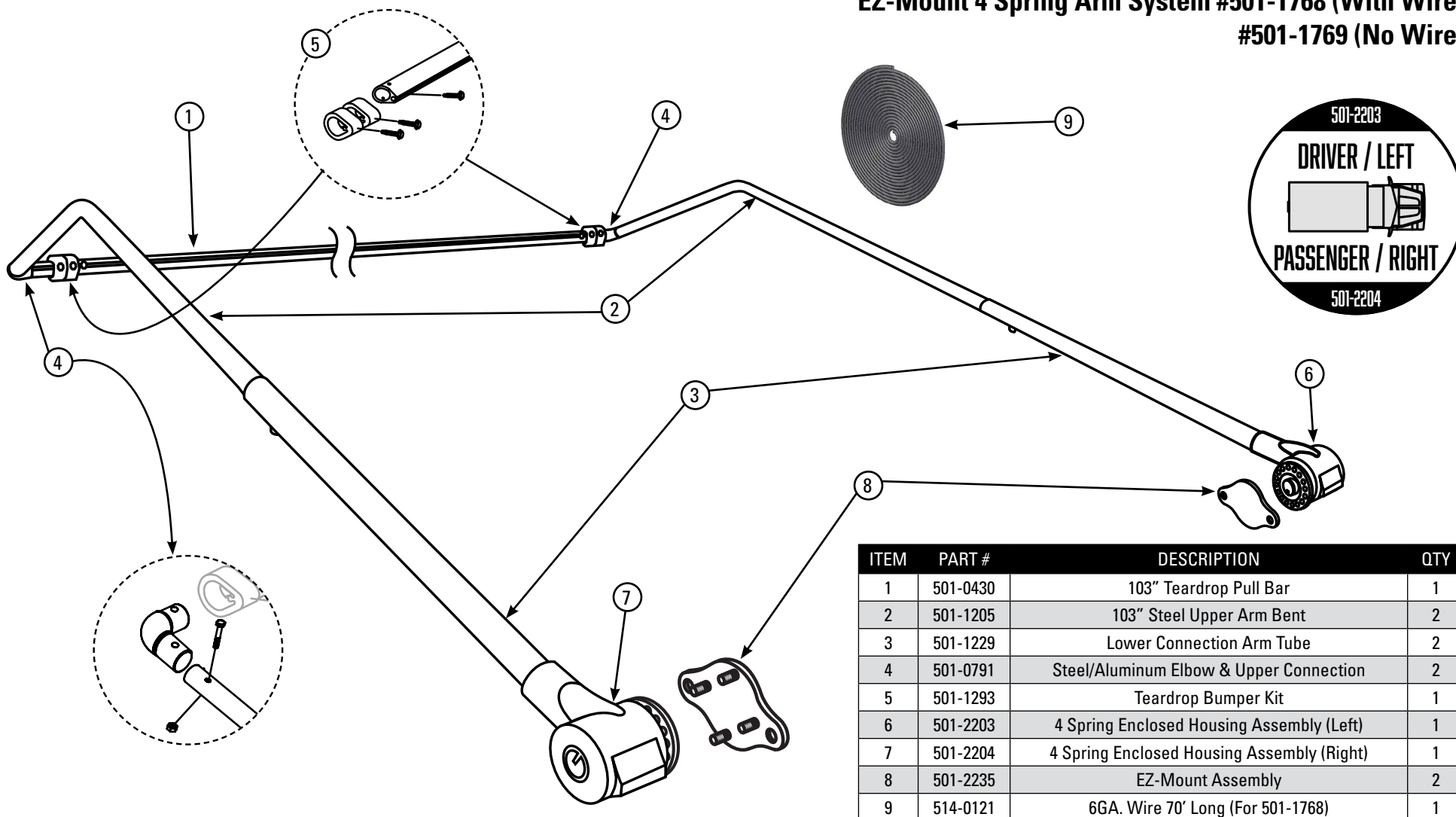
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INSTALLATION INSTRUCTIONS

Steel Protector (Automatic) Systems for Arm Sets up to 22'

EZ-Mount 4 Spring Arm System #501-1768 (With Wire) #501-1769 (No Wire)



ITEM	PART #	DESCRIPTION	QTY
1	501-0430	103" Teardrop Pull Bar	1
2	501-1205	103" Steel Upper Arm Bent	2
3	501-1229	Lower Connection Arm Tube	2
4	501-0791	Steel/Aluminum Elbow & Upper Connection	2
5	501-1293	Teardrop Bumper Kit	1
6	501-2203	4 Spring Enclosed Housing Assembly (Left)	1
7	501-2204	4 Spring Enclosed Housing Assembly (Right)	1
8	501-2235	EZ-Mount Assembly	2
9	514-0121	6GA. Wire 70' Long (For 501-1768)	1

Illustration view shown looking from passenger side to rear of vehicle.

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INSTALLATION INSTRUCTIONS

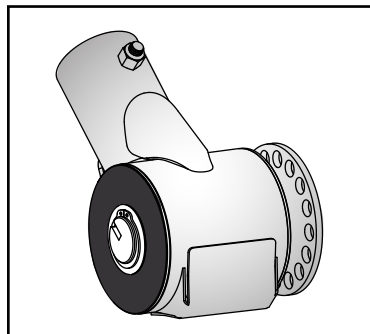
Steel Protector (Automatic) Systems for Arm Sets up to 22'

4 Spring Enclosed Housing Assembly Right #501-2204 (not shown) & Left #501-2203 (shown)

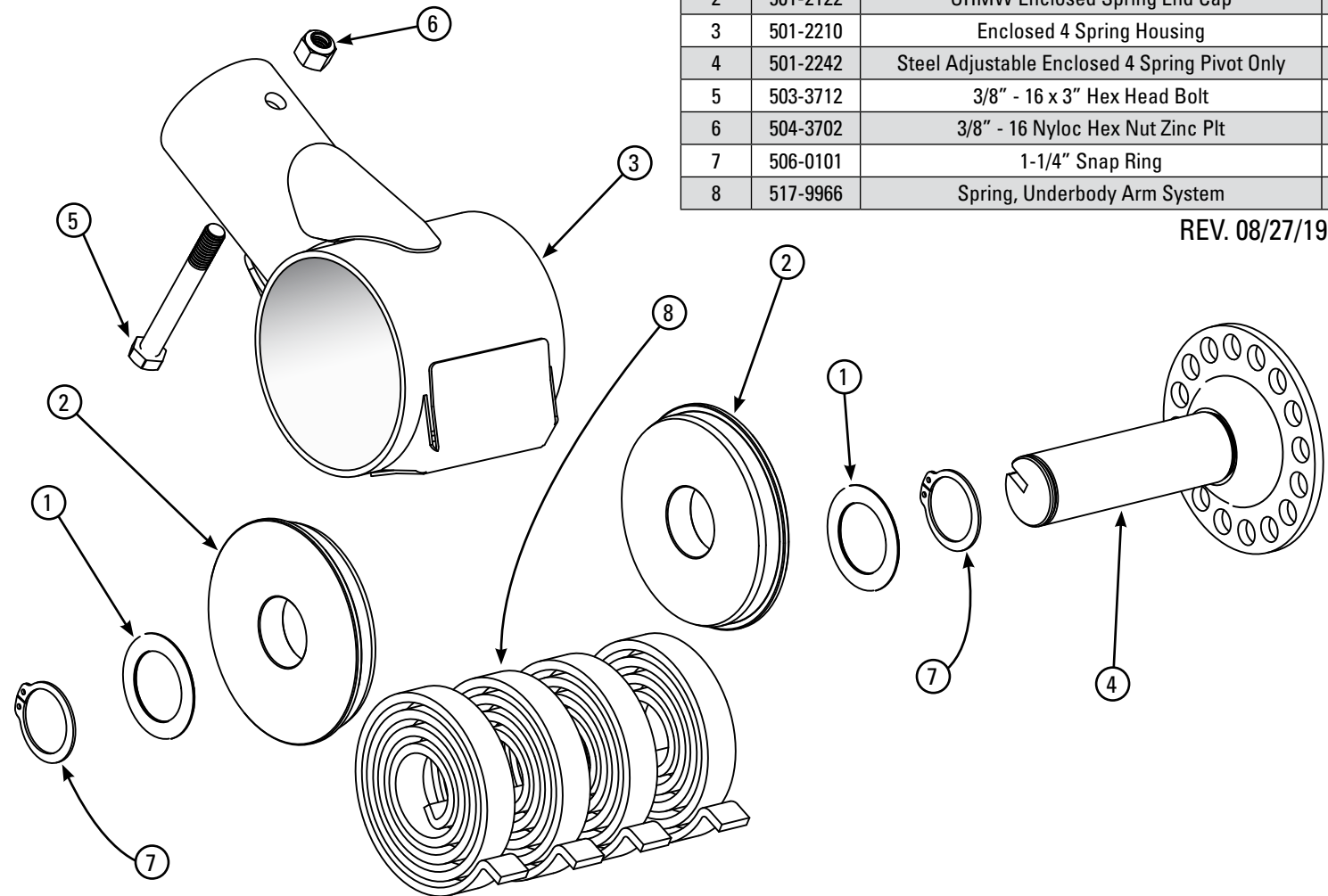


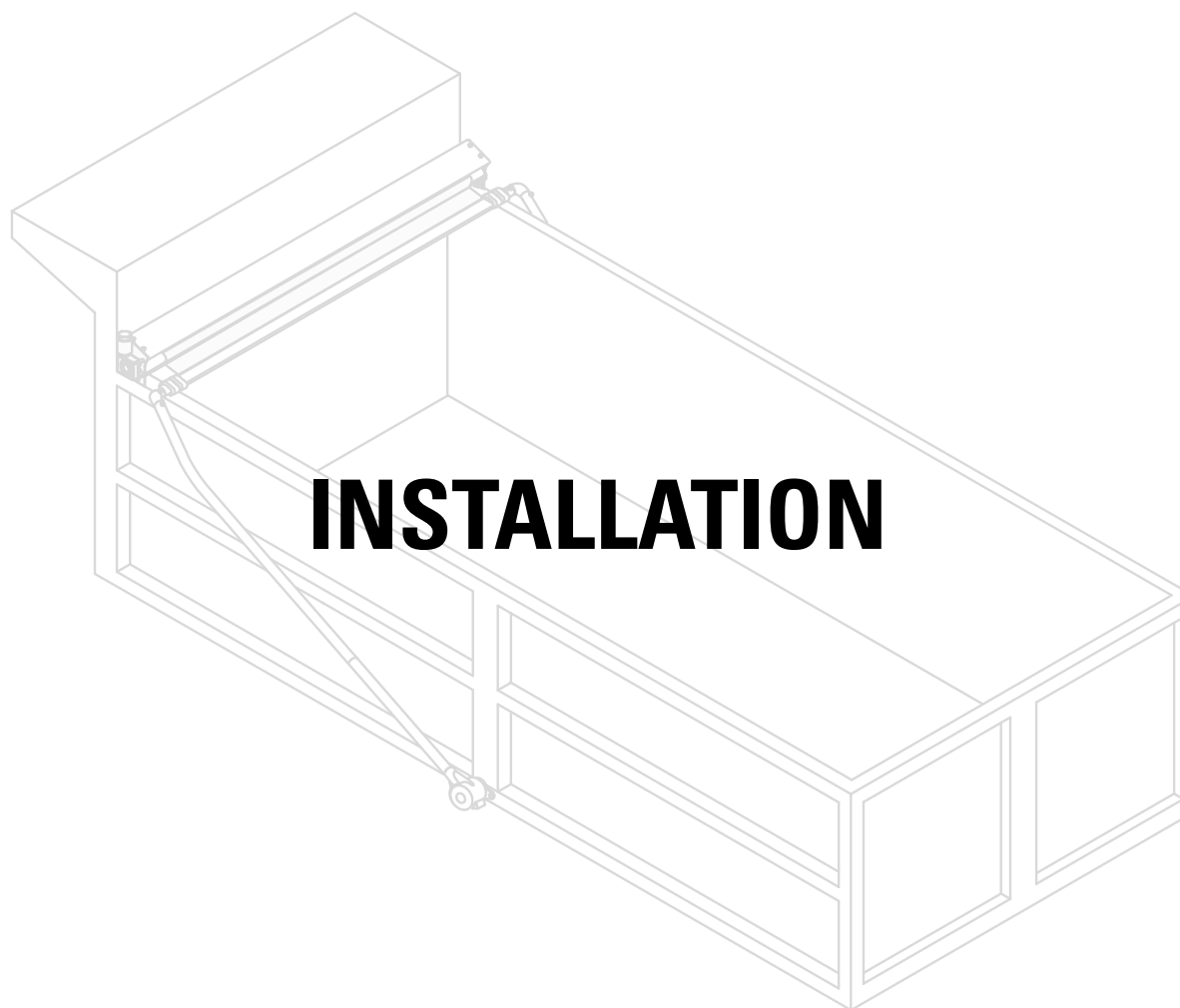
ITEM	PART #	DESCRIPTION	QTY
1	501-1162	Washer 1-7/8" x 1-1/4" Narrow Rim Bushing	2
2	501-2122	UHMW Enclosed Spring End Cap	2
3	501-2210	Enclosed 4 Spring Housing	1
4	501-2242	Steel Adjustable Enclosed 4 Spring Pivot Only	1
5	503-3712	3/8" - 16 x 3" Hex Head Bolt	1
6	504-3702	3/8" - 16 Nyloc Hex Nut Zinc Plt	1
7	506-0101	1-1/4" Snap Ring	2
8	517-9966	Spring, Underbody Arm System	4

REV. 08/27/19 WLH



Assembled View of 501-2203





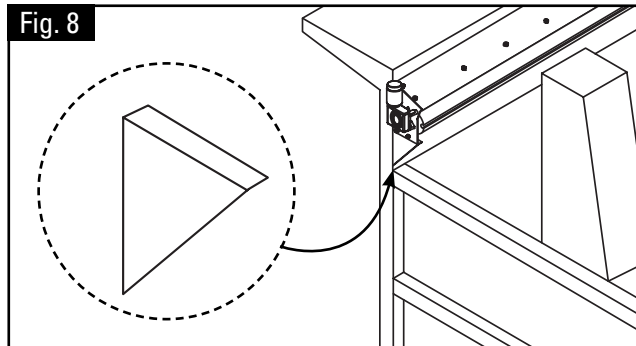
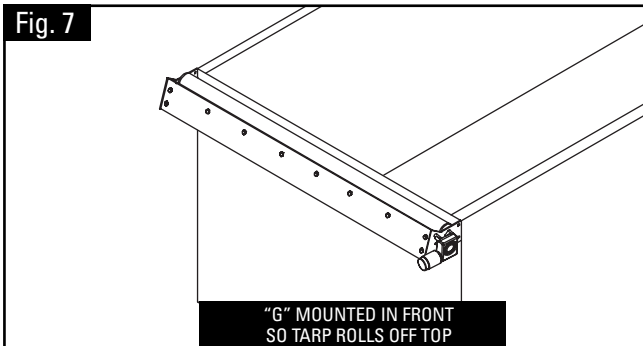
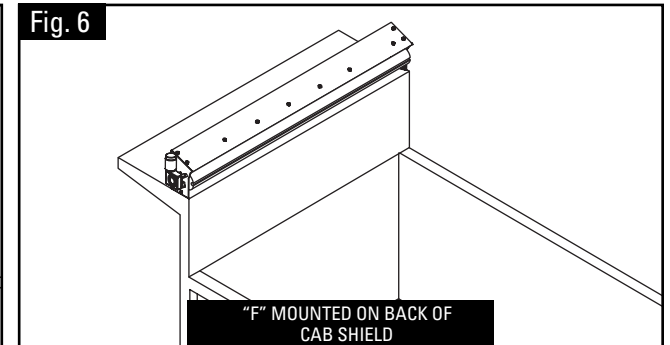
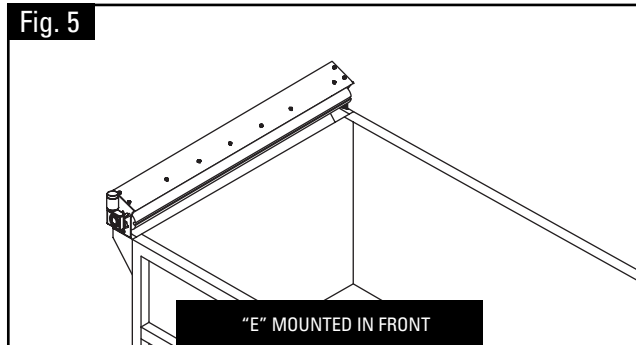
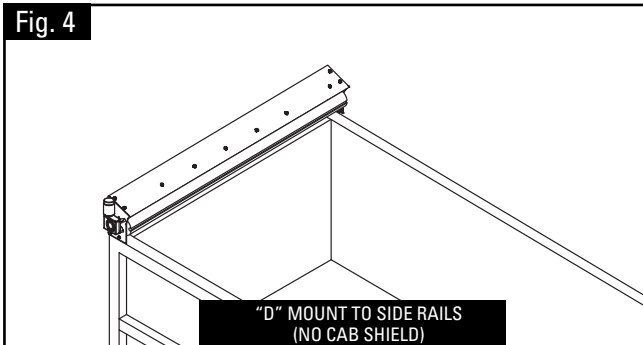
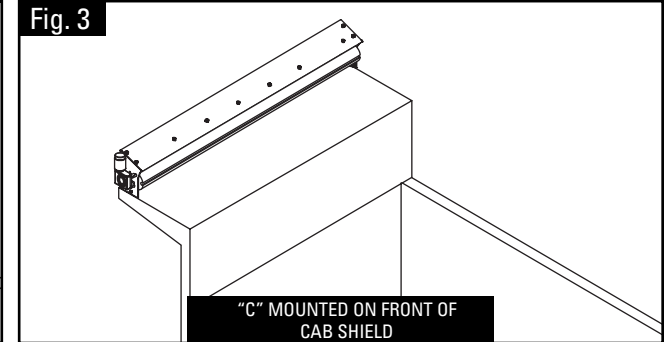
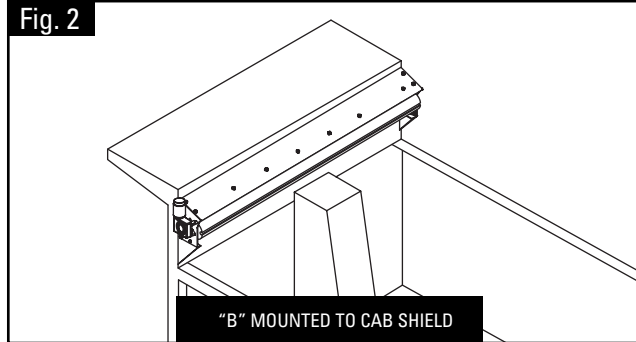
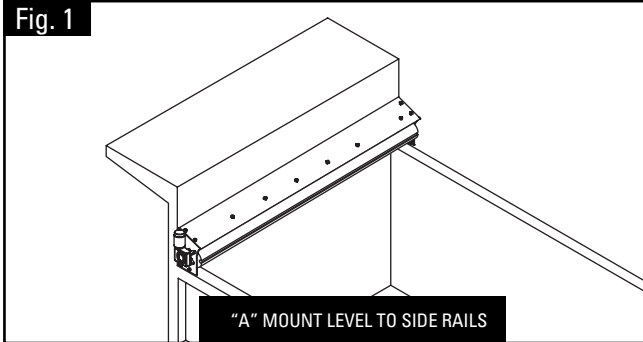


INSTALLATION INSTRUCTIONS

Steel Protector (Automatic) Systems for Arm Sets up to 22'

Mounting Positions

Step 1: Determine the mounting position for your truck Fig. 1 - 7.



"B" BRACKETS

NOTE: Use optional "B" brackets when mounting in position "B" and "E" (Fig. 8).



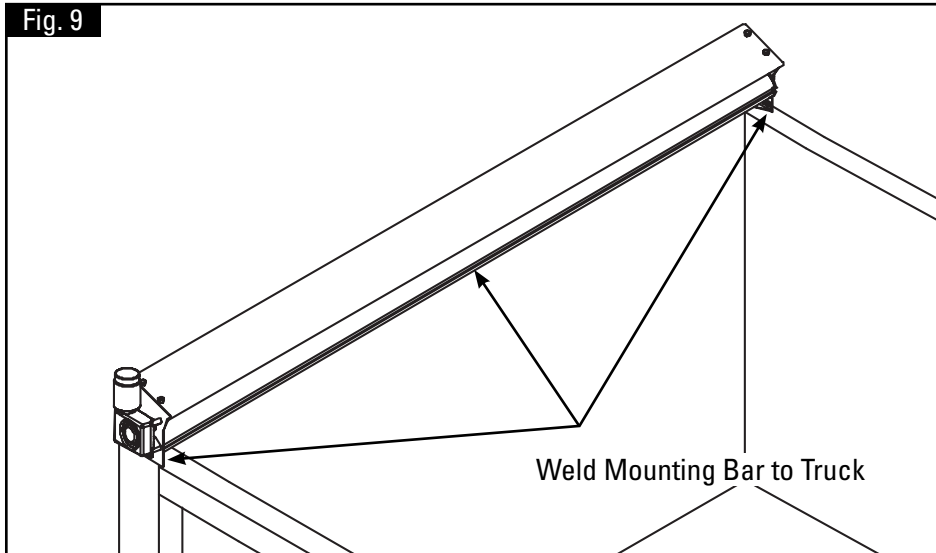
INSTALLATION INSTRUCTIONS

Steel Protector (Automatic) Systems for Arm Sets up to 22'

Welding System to Truck

Step 2: Weld system mounting bar to truck (Fig. 9).

Fig. 9



Step 3: If needed, remove tarp before welding to avoid damage (Fig. 10). To remove tarp slide the tarp out of the slotted end of the housing and remove from work area.

Fig. 10

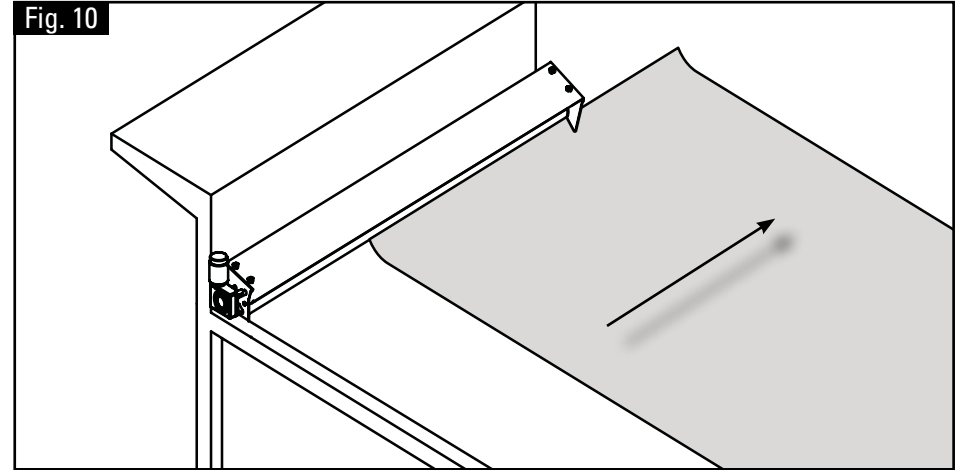
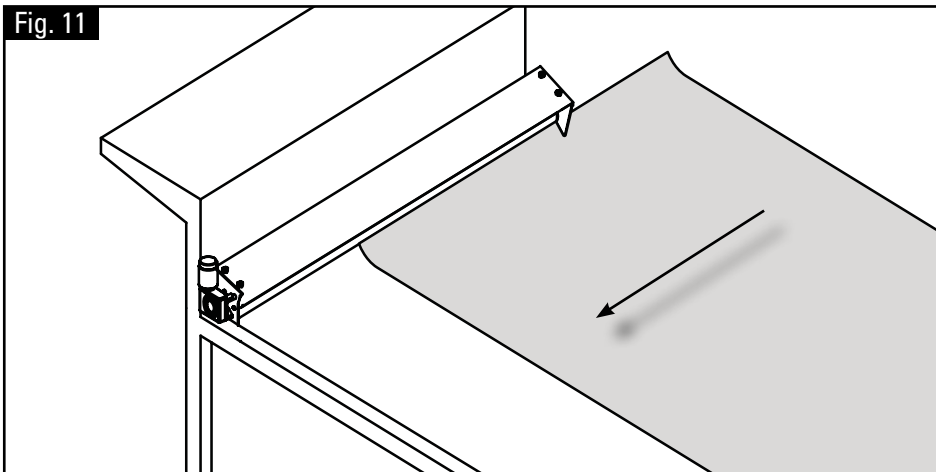


Fig. 11



Step 4. Reinstall Tarp - If arms already installed:

Slide the front end of tarp (with beaded rod) into the slot of the roller from the opposite side of the locking bolt. If needed, lubricate the edge of the tarp with soapy water so it will slide into the roller slot easy (Fig. 11).

After the tarp is in place, make sure that it is centered on the roller with an equal amount of space on each end, and that the bead tubing is also equally spaced. If the tarp rolls up consistently off to one side or the other, you can offset the tarp to the opposite side on the roller to start with, this way the tarp will roll up as centered as possible. **Note: See Step 14 & 15 for installing tarp into pullbar.**

TARP MUST BE IN THE OPEN POSITION WHEN DUMPING!

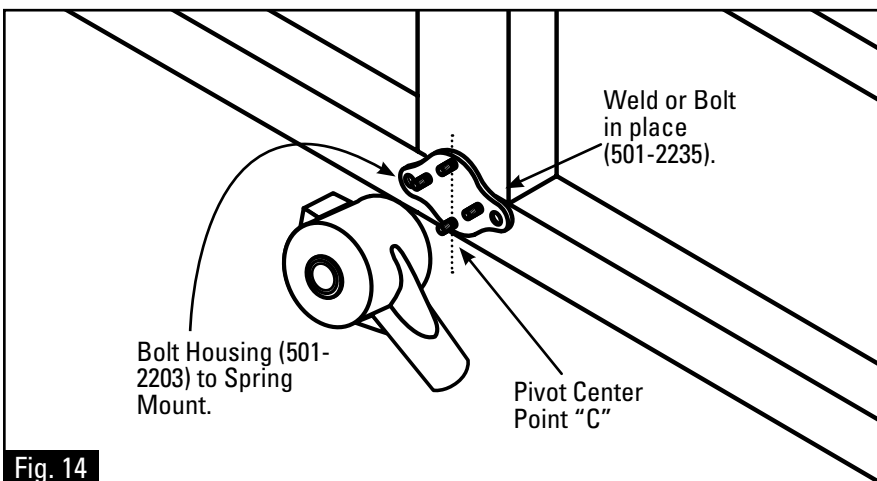
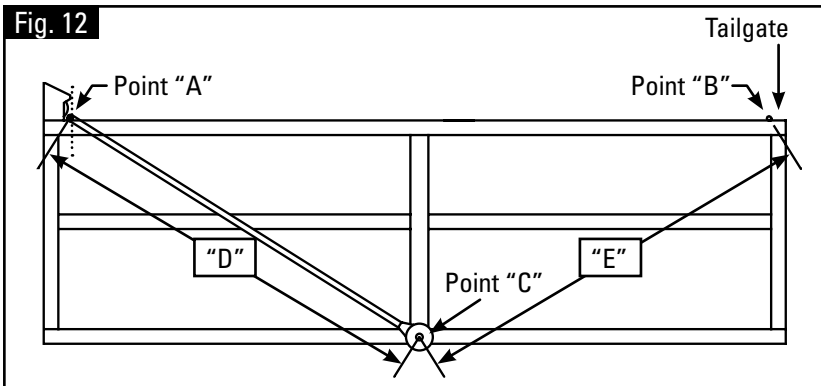


INSTALLATION INSTRUCTIONS

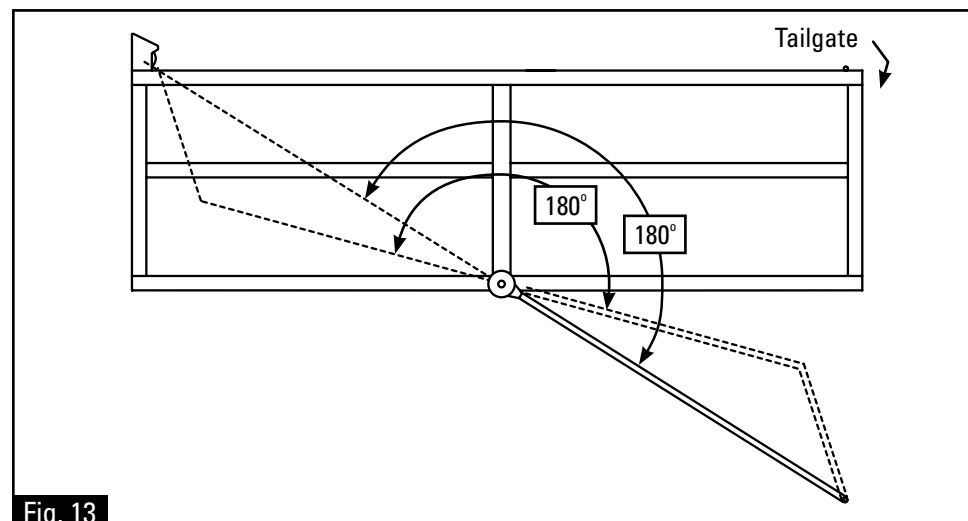
Steel Protector (Automatic) Systems for Arm Sets up to 22'

Pivot Points and Mounting Locations (Low Mount)

Step 5: Determining the Pivot Points and Mounting Locations on each side, careful measurement must be taken to insure that the arm and pivot assemblies are mounted square and parallel to the truck or trailer body. Locate the proper mounting positions by determining Point "A" and Point "B" and insuring measurement "D" and "E" are equal (Fig. 12). Point "C" must be located as low as possible and be the same on both sides.



Step 6 - Arm Preload: Install Arm and Pivot assemblies with Arm indexed (Fig. 13). Arms must be indexed with no spring load on pivots. Index Arm at 180 degrees of travel from the Roller Mechanism for proper preload of the spring. The dotted lines represent proper 180 degree preload position for applications with Bent Arms. Mark pivot pin location on box.



Step 7 - Mounting the Pivot Mount:

Locate the 4 Spring Housing with marks made in Step 5. Weld the Spring Mounting in place and then bolt on the Spring Housing 180° from Housing Location (Fig. 14).
Note: Applies to Lower Mounting.

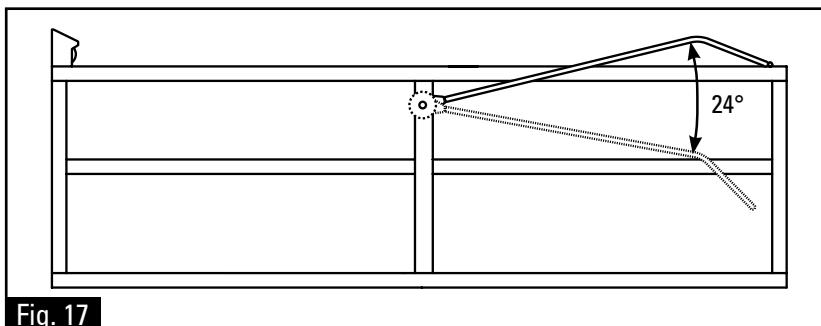
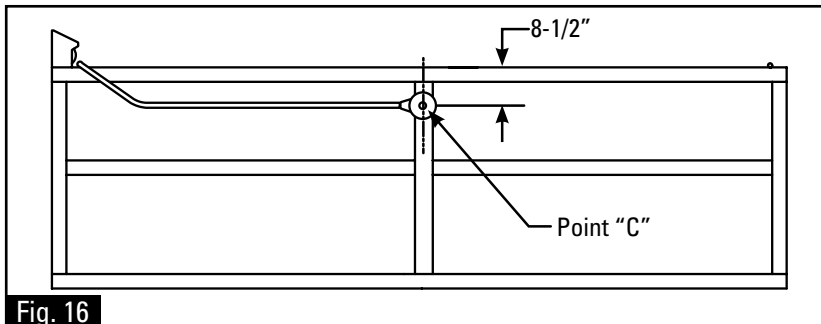
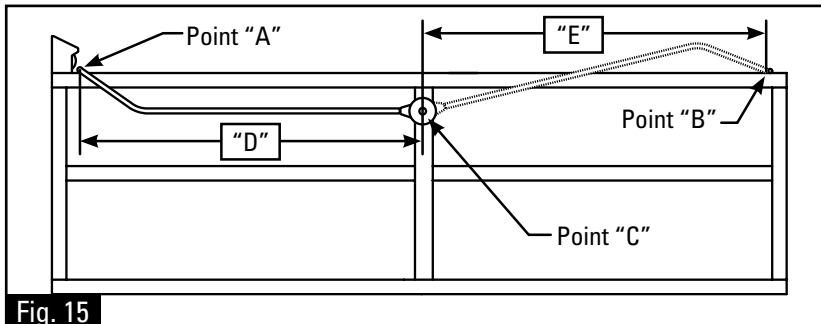


INSTALLATION INSTRUCTIONS

Steel Protector (Automatic) Systems for Arm Sets up to 22'

Pivot Points and Mounting Locations (High Mount)

Step 8: Careful measurements must be taken to insure that the arm and pivot assemblies are mounted square and parallel to the truck or trailer body. Locate the proper mounting positions by determining Point "A" and Point "B" and insuring measurement "D" and "E" are equal (Fig. 15). The pivot "C" should be 1/2 way between Point "A" and Point "B" and 7" below the top rail on both sides (Fig. 16).



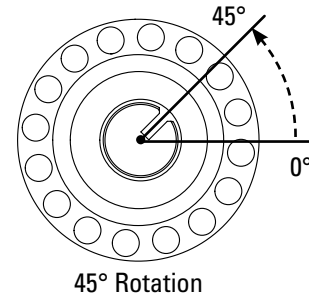
Step 9 - Arm Preload:

Arm must be indexed with no load at 24 degrees to top rail for proper preload of springs (Fig. 17).

Step 10 - Setting the Index for EZ-Mount System (High Mount Only):

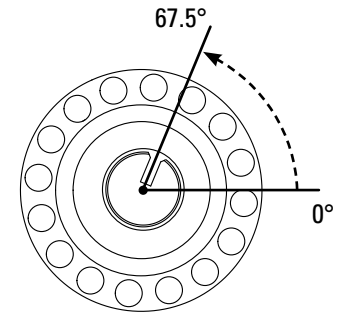
Indexing illustrations are for DRIVER SIDE index (Fig 18A, 18B, & 18C).

Fig. 18A



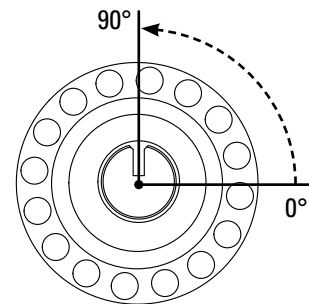
(Highmount starting rotation to front of cab body)

Fig. 18B

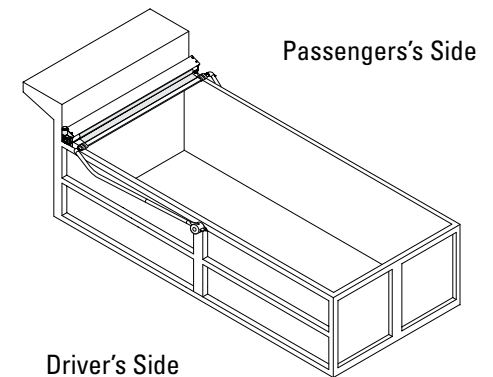


(Highmount starting rotation to front of cab body)

Fig. 18C



(Maximum rotation point to front of cab body)



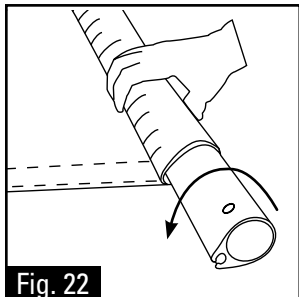
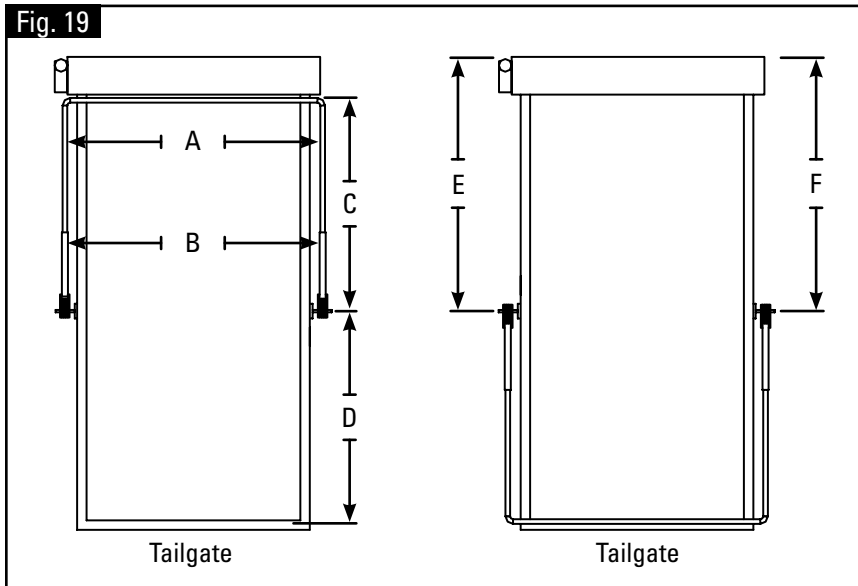


INSTALLATION INSTRUCTIONS

Steel Protector (Automatic) Systems for Arm Sets up to 22'

Arm Alignment, Tarp and Pullbar Installation

Fig. 19



Step 14 - Installing The Pullbar:
Cut the pullbar to length making sure the arms remain parallel and square to the body.

Slide the tarp into groove in the pullbar and center the tarp.

Roll the tarp up on the pullbar two revolutions (Fig. 22).

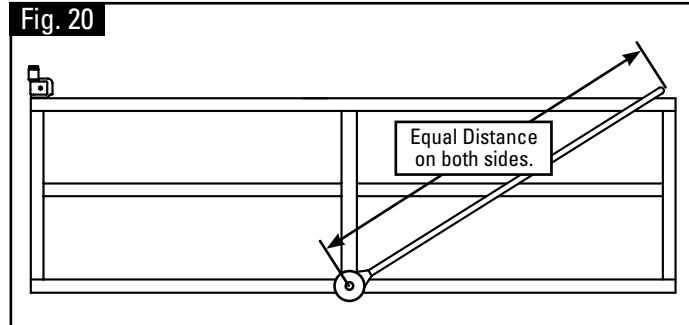
Note: Tarp must be retracted when dumping.

Step 11 - Correct Alignment of arm to truck:

Arms and pivots must be square and parallel to truck (Fig. 19).

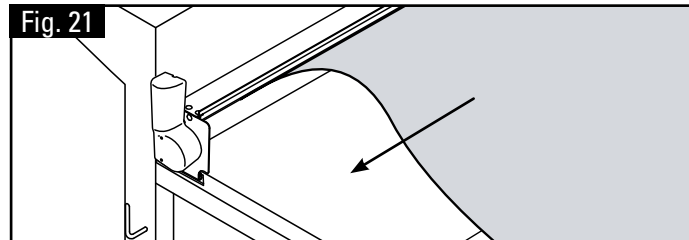
(Dimension "A" must equal "B" - Dimension "C" must equal "D" - Dimension "E" must equal "F")

Fig. 20



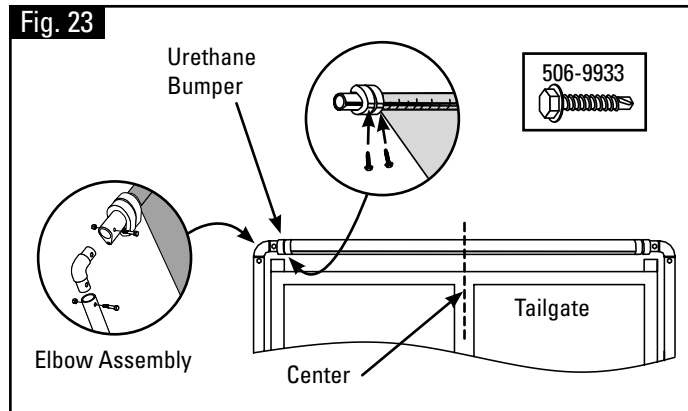
Step12: Adjust the Arms on both sides to be the same length (Fig. 20).

Fig. 21



Step 13 - Tarp Installation:
Slide Tarp into Groove on roller tube and center (Fig. 21).

Fig. 23



Step 15: Fasten the tarp in place by sliding the two urethane bumpers on to the pullbar far enough to touch the edges of the tarp. Lock in place by installing a 1-1/2" long (506-9933) self drilling screw through the bumper and into the hem tube groove of the pullbar (Fig. 23).

For elbows, use the long bolts provided in the kit, when deployed to catch the rope on flap tarps.



INSTALLATION INSTRUCTIONS

Steel Protector (Automatic) Systems for Arm Sets up to 22'

Quick Disconnect Plug Assembly

Step 16: Assemble the Quick Disconnect (Fig. 24, 25 & 26).

Option #1, Plug Assembly - Part # 514-0505.

Fig. 24

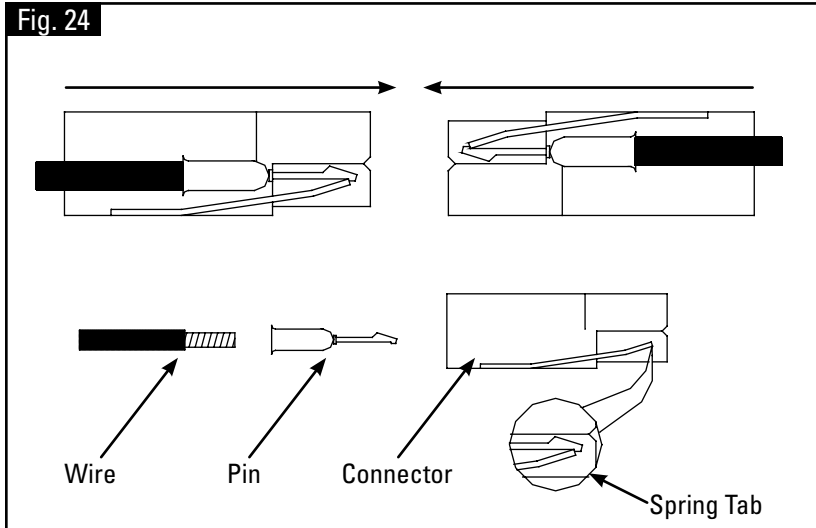
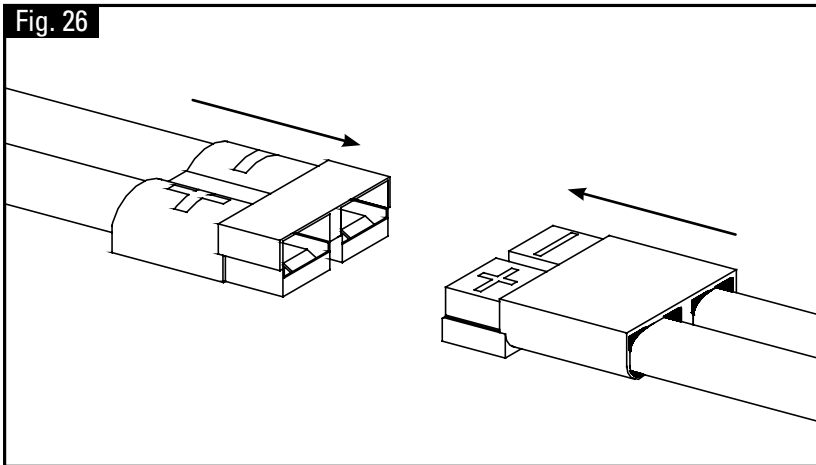
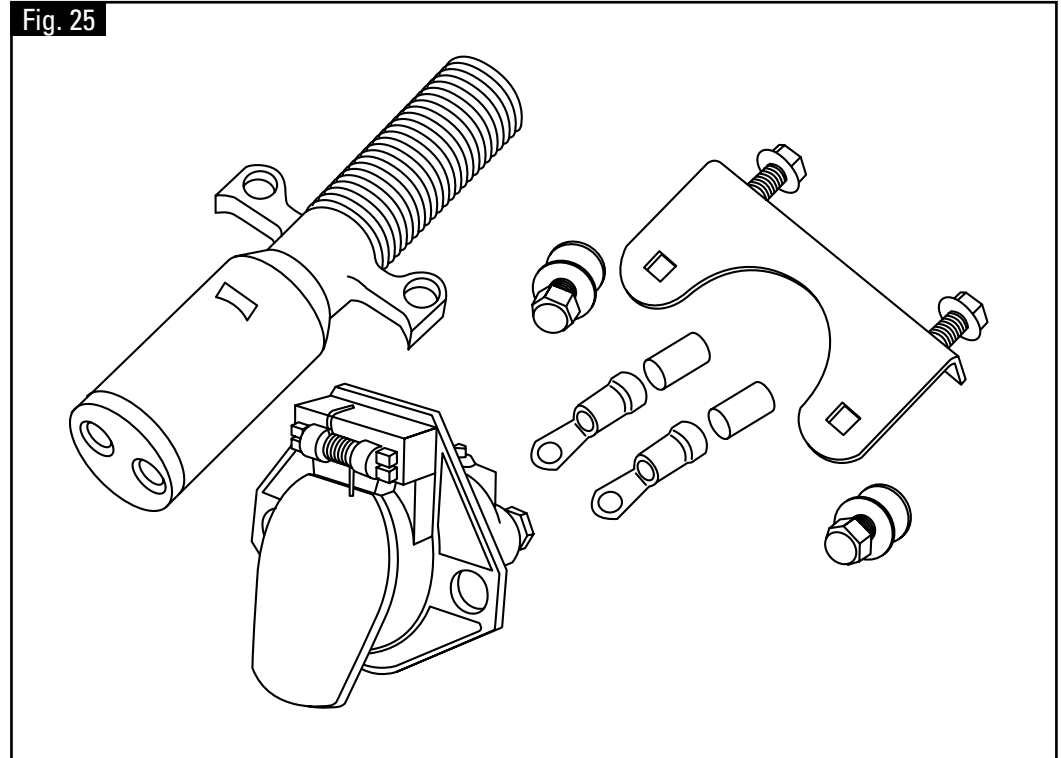


Fig. 26



Option #2, Plug Assembly - Part # 514-0501.

Fig. 25





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INSTALLATION INSTRUCTIONS

Steel Protector (Automatic) Systems for Arm Sets up to 22'

A line drawing of a truck's rear section, showing the bed and the installation of a flap tarp system. The tarp is held up by a series of ropes and hooks connected to the truck's frame and the tarp's edge.

FLAP TARP, ROPE & HOOK INSTALLATION



INSTALLATION INSTRUCTIONS

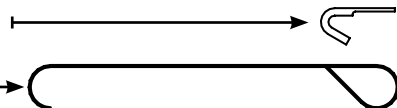
Steel Protector (Automatic) Systems for Arm Sets up to 22'

Optional Flap Tarp, Rope and Hook Installation

Parts:

Tie Down Hooks (Steel or Alum.)

Pull Down Hook



Note: The Location Of The Tie Down Hooks Is Critical!

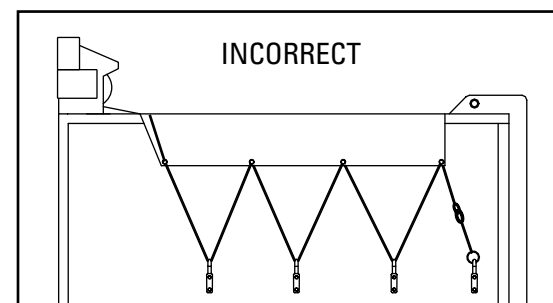
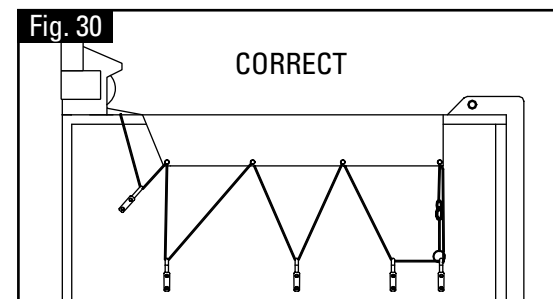
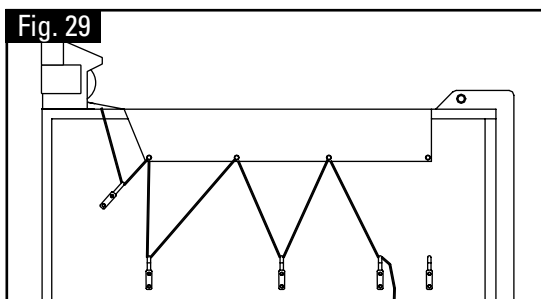
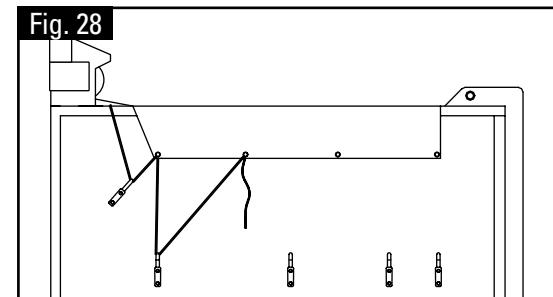
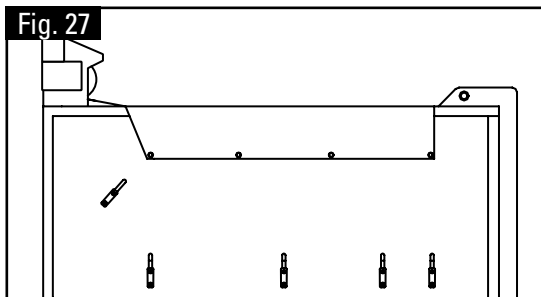
Step 1: Flip the braided rope over the corner so that the flaps and tie down ropes hang over each side of the box. The number of tie down hooks vary depending on the length of your tarp. One pull down hook is included with your Pulltarp system. If needed. Use the hook to pull the braided rope and flaps over the side of the box.

The tie down hooks must be positioned so that:

1. The tie down rope can be reached from the ground.
2. The bungee cord has to be stretched to reach the last hook (see Step 2 in **Bungee Cord Installation** section).
3. The rope has no slack.
4. The tie down hooks are level with one another.

To ensure proper hook placement, first duct tape the rope to the box in place of the tie down hooks. Start with hook closest to the cab.

1. Position the first hook 6" (15.24cm) down and 12" (30.48cm) forward (toward the cab) from the first grommet (Fig. 27).
2. Position 2nd hook straight down from 1st grommet. This hook should be reached from ground (Fig. 28).
3. Place middle hooks equal distances from grommet (Fig. 29). These hooks should be placed at the same height as the second hook.
4. Position last hook (closest to the tailgate) below the last grommet at the same height as the others (Fig. 30).
5. Weld hooks in place.



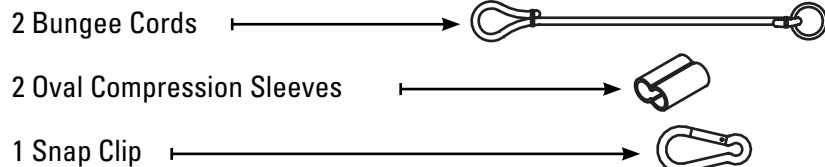


INSTALLATION INSTRUCTIONS

Steel Protector (Automatic) Systems for Arm Sets up to 22'

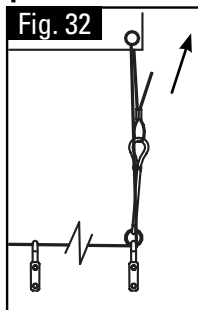
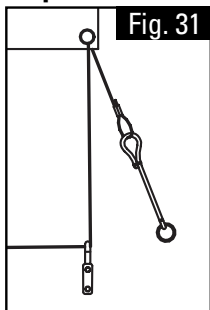
Bungee Cord Installation

Parts:



Step 2: After side hooks are installed, the tie down rope must be installed and cut to proper length. It is important to get all of the slack out of the rope to prevent blowing and rubbing of flaps in windy conditions.

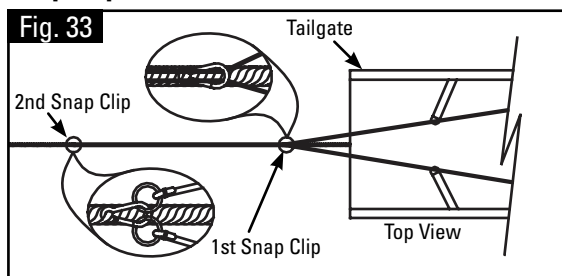
Tarps with Side Flaps



To tighten, pull loose end of rope through the Oval Compression Sleeve (Fig. 31). Stretch the bungee cord making sure all slack is taken out of the rope, crimp compression sleeve (Fig. 32). Be sure to keep flaps even on sides so Tie Down Ropes remain equal in length.

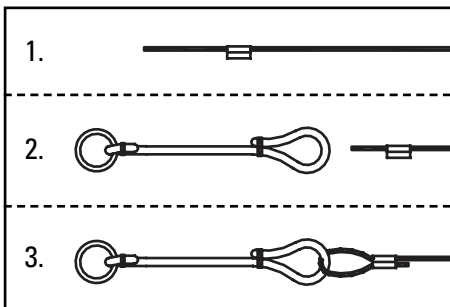
Note: Check for proper placement of rope through the last two hooks.

Snap Clip Installation



Note: First snap clip should not be used on long wheel base belly dumps.

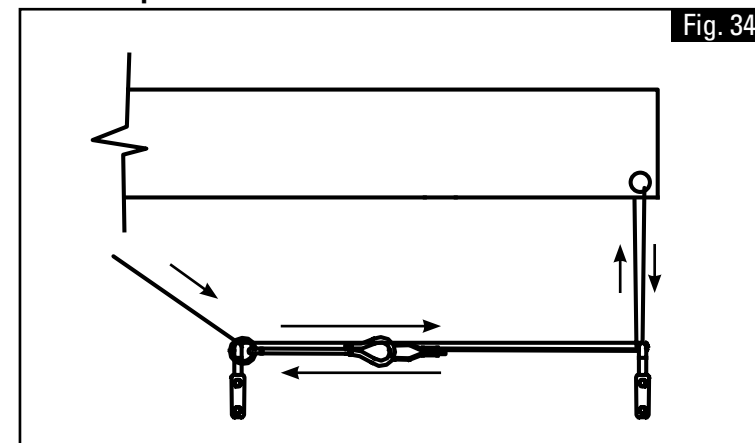
Flip the rope back on top of the tarp, making sure to hold the bungee at all times. The first snap clip is factory installed 5'-6" from the pullrod. Open the clip and enclose the rope. Weave the second clip through the main pullrope where the ends of the bungee cords meet the main pullrope. Make sure the rope is taught when clipped (Fig. 33).



Connect Bungee Cord to Rope

1. Thread braided rope through Oval Compression Sleeve.
2. Feed rope through the eye of the bungee cord.
3. Thread the rope back through the oval compression sleeve. Adjust for proper length. Crimp compression sleeve.

Excess Rope



You may need extra rope to keep the side flap system ground operated. If your application requires extra rope, the slack needs to be taken up by tucking the end of the bungee cord to an alternate hook (Fig. 34).



INSTALLATION INSTRUCTIONS

Steel Protector (Automatic) Systems for Arm Sets up to 22'

Flap, Rope and Rope Hook Placement

Step 3 - Flap / Tie Down Rope Placement and Installation (Fig. 35).

Fig. 35

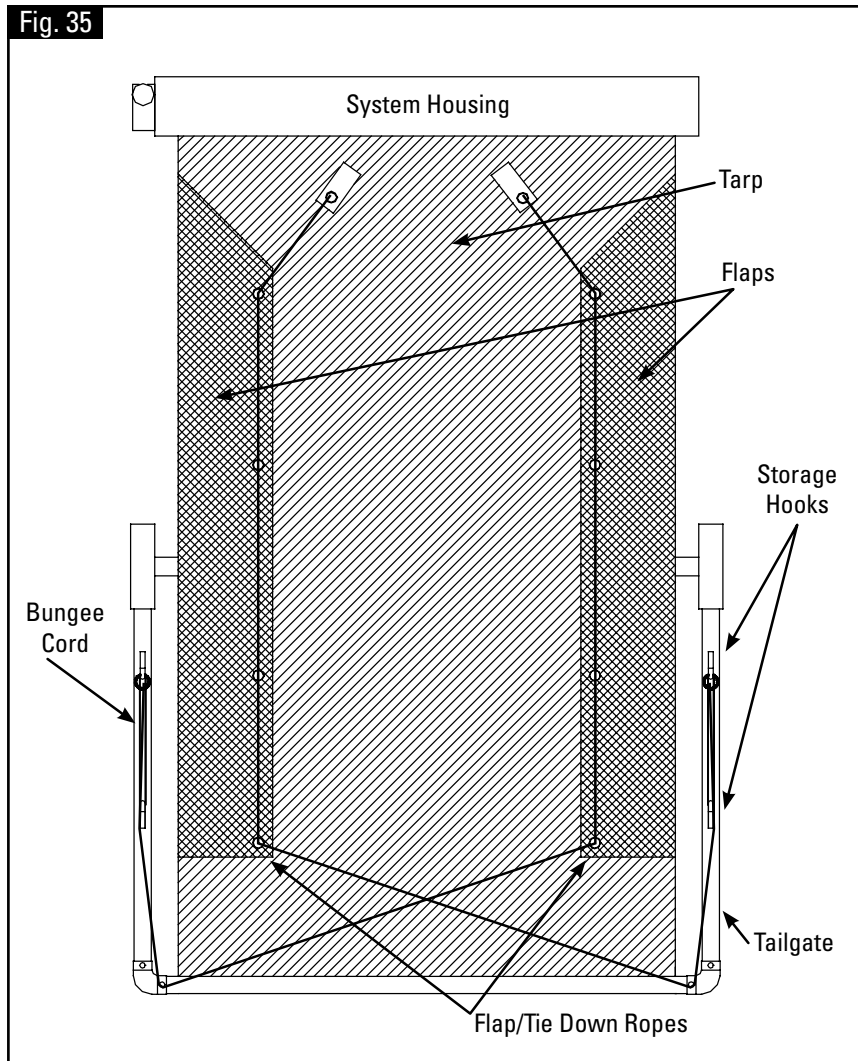
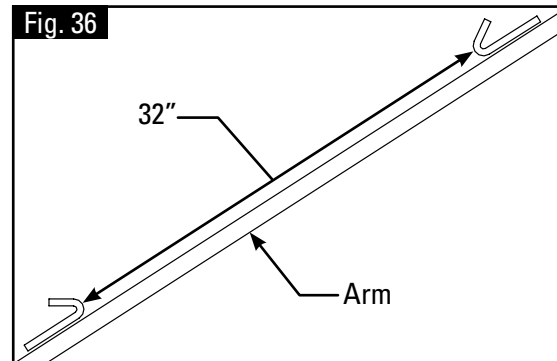
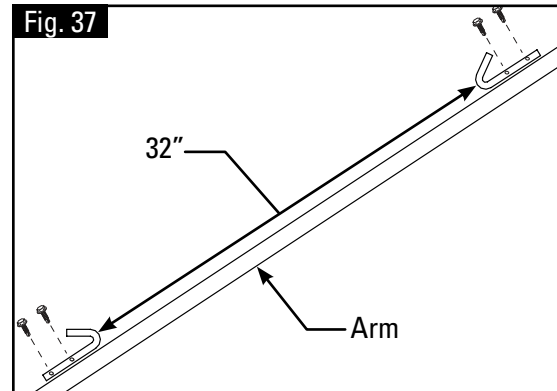


Fig. 36



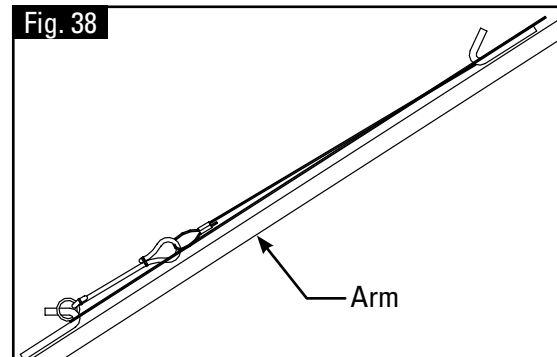
Step 4 - Rope Hook Placement: Weld rope storage hook on the top of the arms approx. 32" apart (Fig. 36).

Fig. 37



Step 5 - Rope Hook Placement For Aluminum Arms: Use Self Drilling screws (part #506-9933) to install hooks (Fig. 37).

Fig. 38



Step 6 - Rope storage on Arms (Fig. 38).