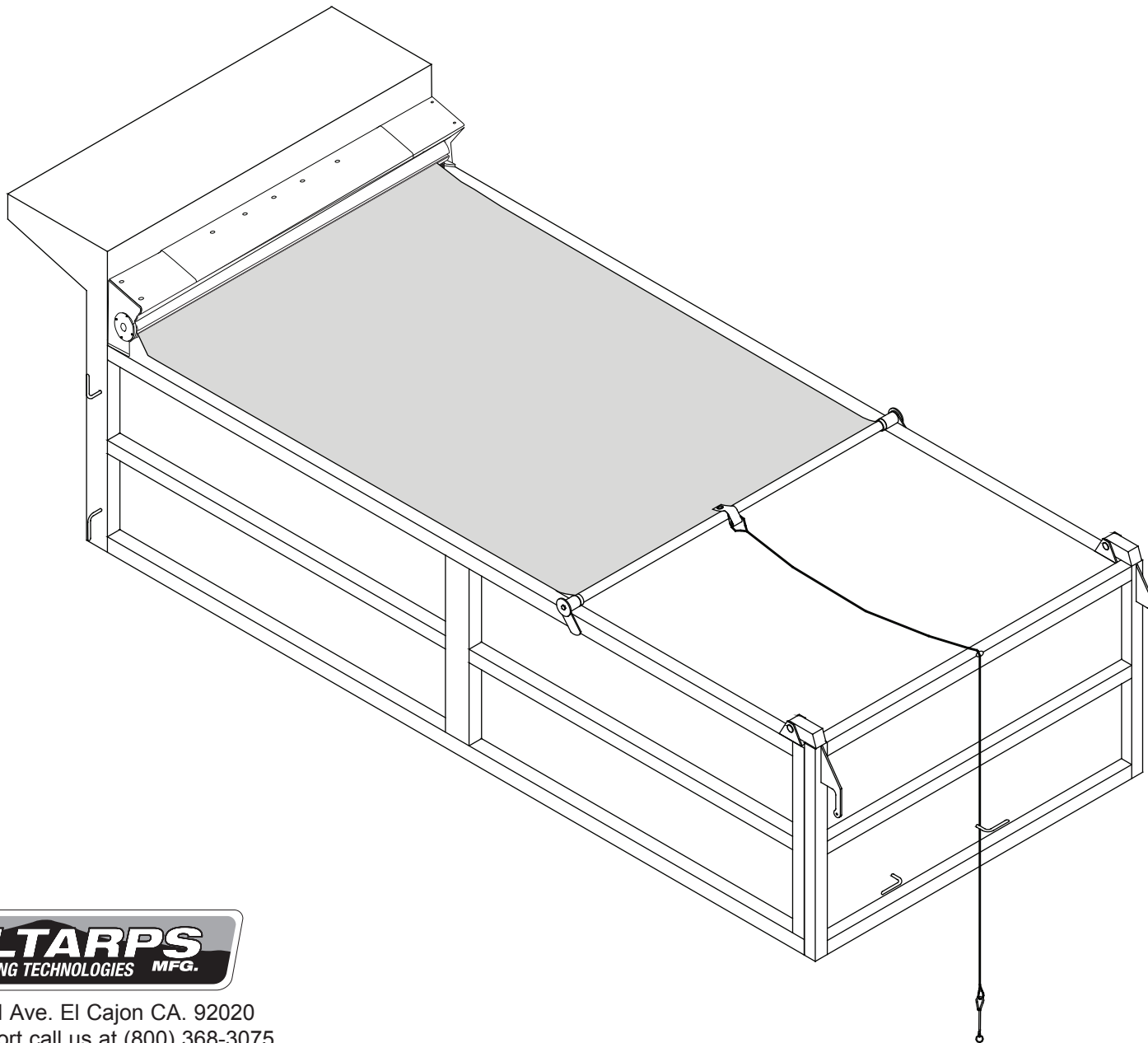


116-3027, 116-3017 X-Pando Adjustable Steel Protector

Installation Instructions



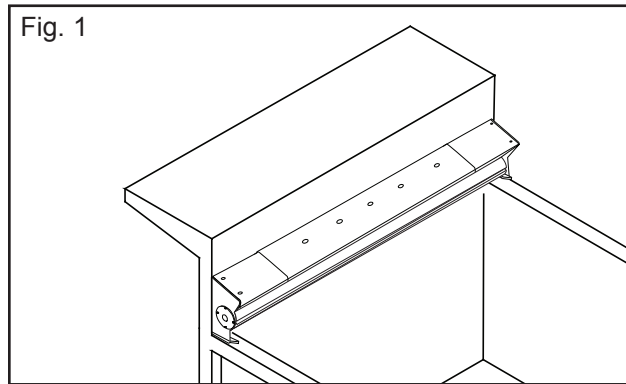
1404 N. Marshall Ave. El Cajon CA. 92020
For technical support call us at (800) 368-3075

607-0112

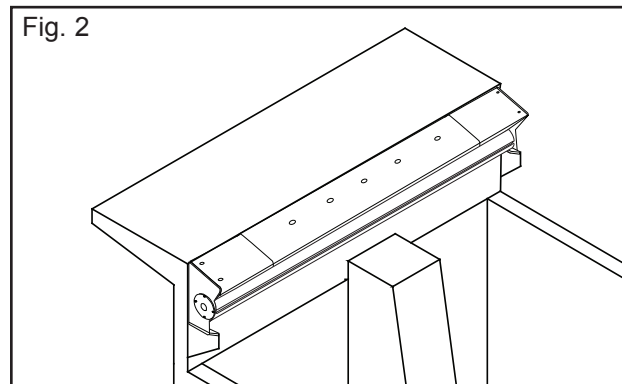
NB 6/28/10

Step 1. Mounting Positions

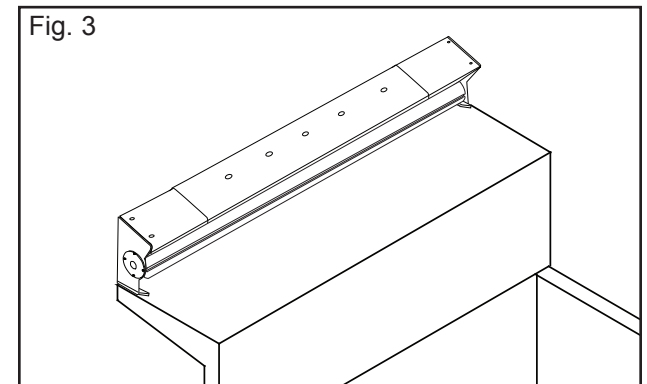
Determine the mounting position for your truck Fig. 1 - Fig. 8.



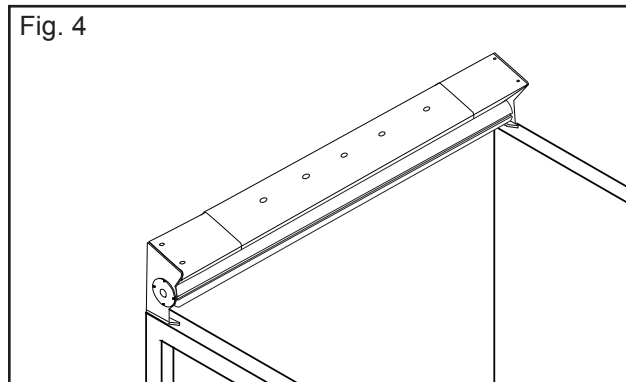
"A" Mount Bottom Roll



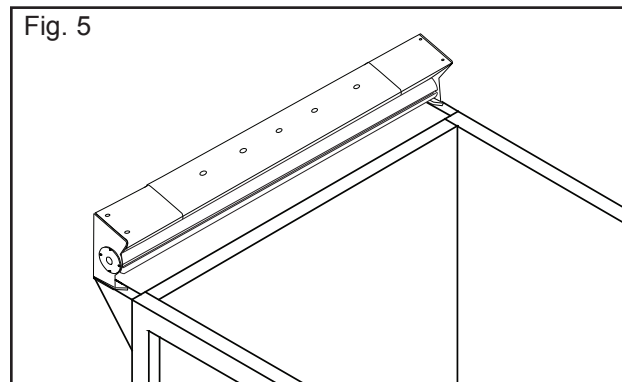
"B" Mount Bottom Roll



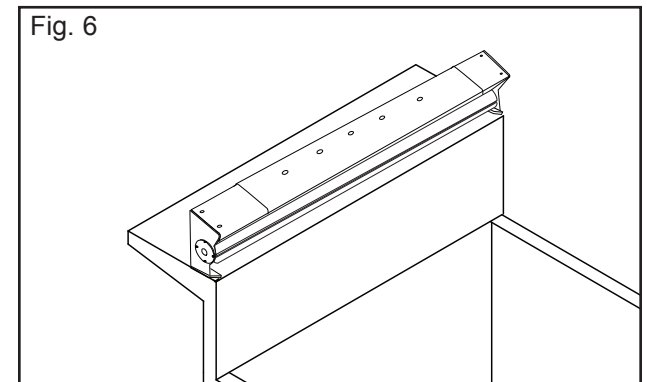
"C" Mount Bottom Roll



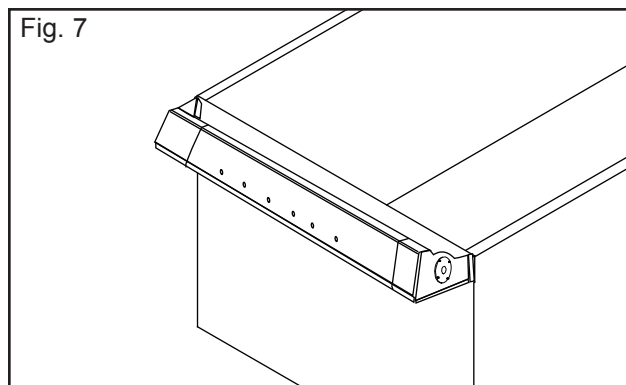
"D" Mount Bottom Roll



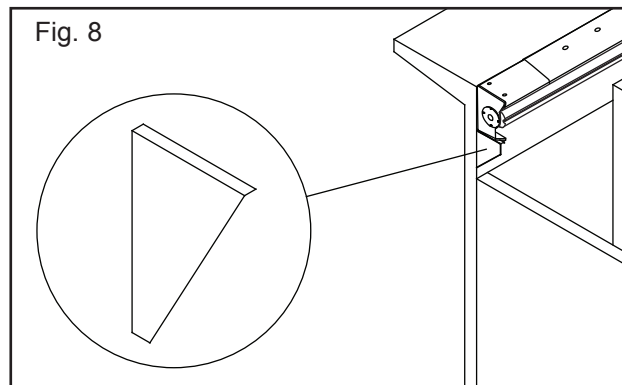
"E" Mount Bottom Roll



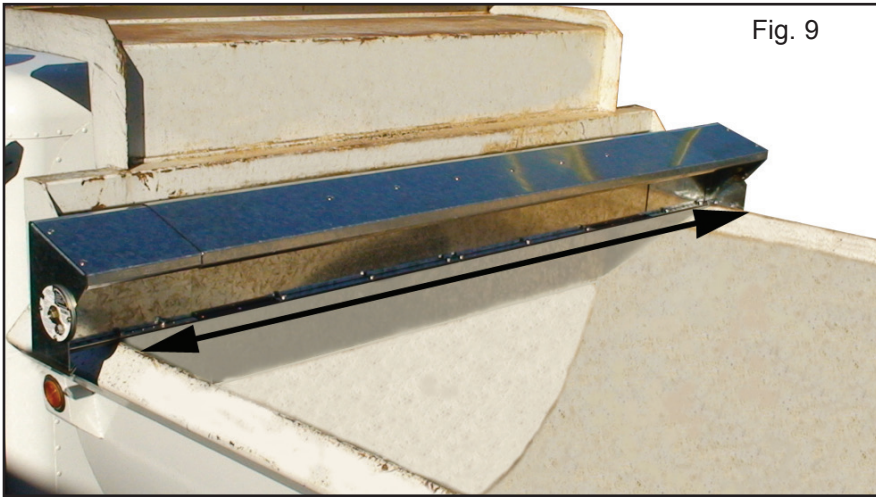
"F" Mount Bottom Roll



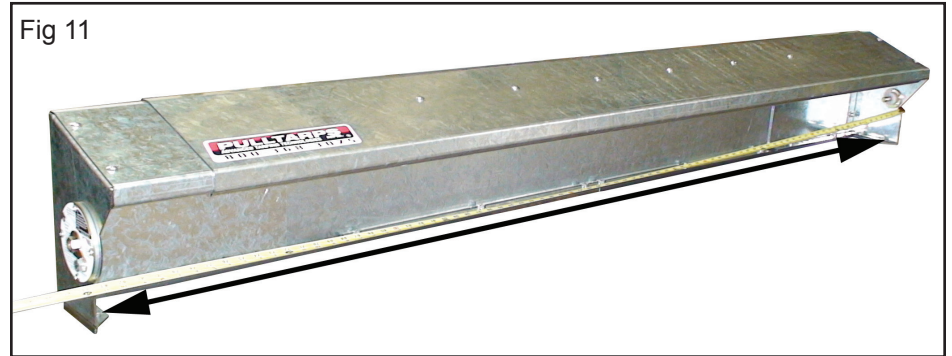
"G" Mount Top Roll



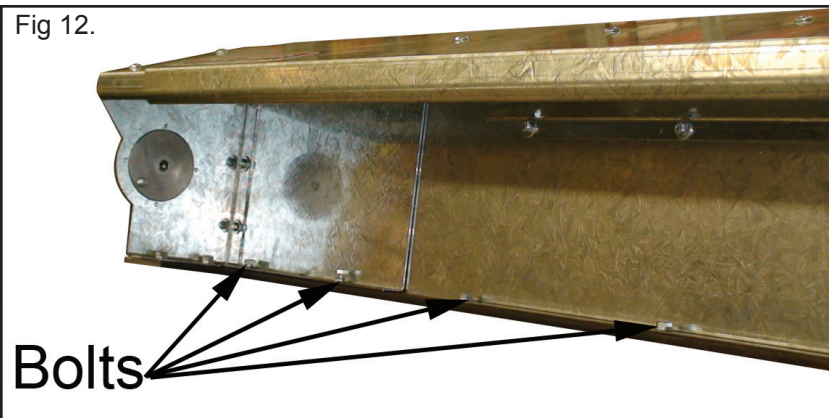
"B" Brackets
NOTE: Use optional "B" Brackets when mounting in position "B" and "E".



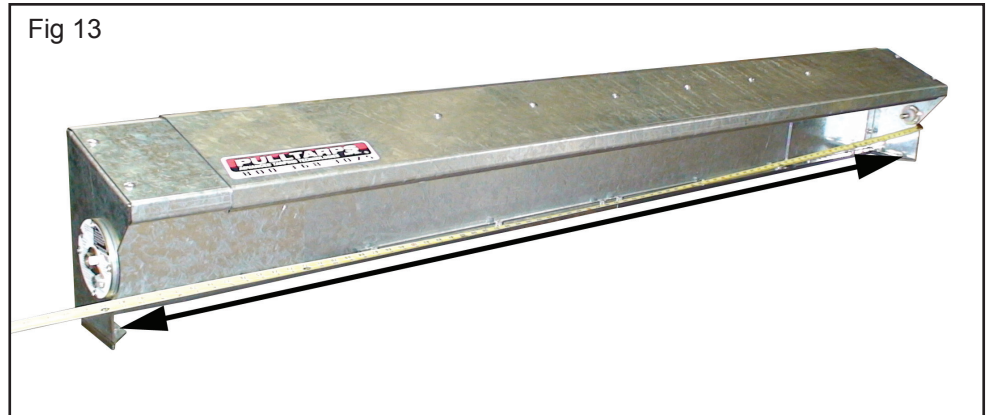
Step 2. Measure body width at mounting location. (Fig. 9)



Step 3. Adjust housing width to match the mounting location (Fig 10-11)



Step 4. Temporarily bolt the long mounting bars to the bottom of the housing to maintain the housing width from step 3. Use only 4 bolts on each side at this time. (Fig. 12)



Step 5. Measure the housing width from end plate to end plate. This is the housing width. (Fig 13) Make sure that it matches the mounting location measurement from step 2.



Step 6. Remove excess mounting bar material. Mark mounting bar even with the outside edge of the end plate. Remove the mounting bar from the housing and cut off the excess material at the mark. (Fig 14) Reinstall the mounting bars on the center section only so that the ends can slide in and out.



Step 7. Subtract 1 1/2 inches from the housing width (from the measurement in step 5.) this will be the roller tube length. Find your housing width on the chart below. Mark and cut the 64.5" tube to the length shown. (Fig 15) Cut the tube squarely and file the edges of the tube to remove any burrs.

ADJUSTABLE ROLLER TUBE CUT SIZES					
HOUSING WIDTH	ROLLER TUBE ASSY. WIDTH	CUT 64 1/2" ROLLER TUBE TO THIS SIZE	HOUSING WIDTH	ROLLER TUBE ASSY. WIDTH	CUT 64 1/2" ROLLER TUBE TO THIS SIZE
INCHES	INCHES	IN INCHES	INCHES	INCHES	IN INCHES
78	76.5	40	91	89.5	53
79	77.5	41	92	90.5	54
80	78.5	42	93	91.5	55
81	79.5	43	94	92.5	56
82	80.5	44	95	93.5	57
83	81.5	45	96	94.5	58
84	82.5	46	97	95.5	59
85	83.5	47	98	96.5	60
86	84.5	48	99	97.5	61
87	85.5	49	100	98.5	62
88	86.5	50	101	99.5	63
89	87.5	51	102	100.5	64
90	88.5	52			



Fig 16

Step 8. Slide the end that you cut over the torque block on the spring shaft and over the roller tube sleeve. (Fig 16)

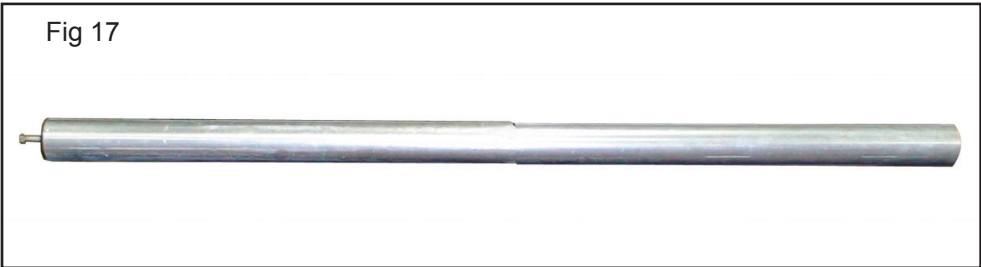


Fig 17

Step 9. Measure the roller tube assembly to make sure the length is the same as the measurement taken from the chart in step 8. (Fig 17) Tap the end of the tube on the floor if necessary to make the tube slide in all the way.



Fig 18

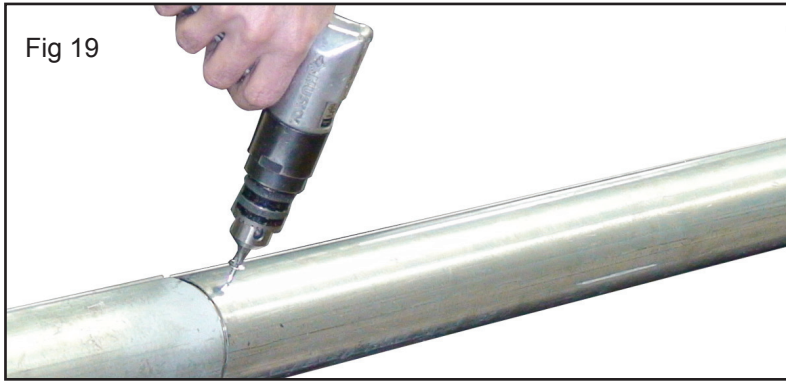


Fig 19

Step 10. Line up the hem tube grooves in the two roller tubes sections so that the tarp will slide on to the roller tube assembly easily. Fasten the two roller tube sections together using the three self drilling truss head screws provided. (Fig 18-20)
Install the plastic end cap in the roller tube, making sure that it is fully seated.

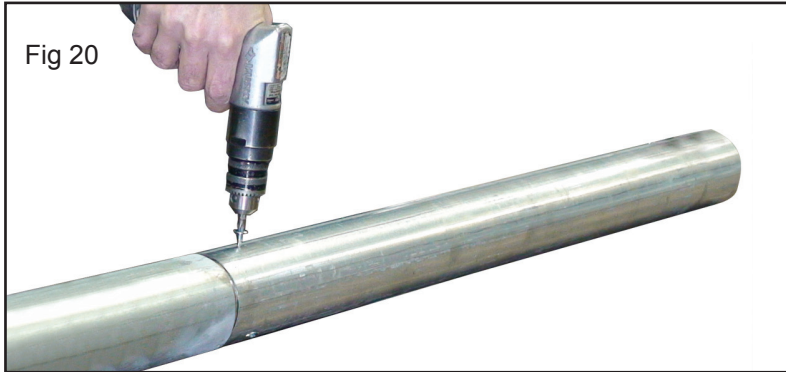


Fig 20

Fig 21



Fig 22

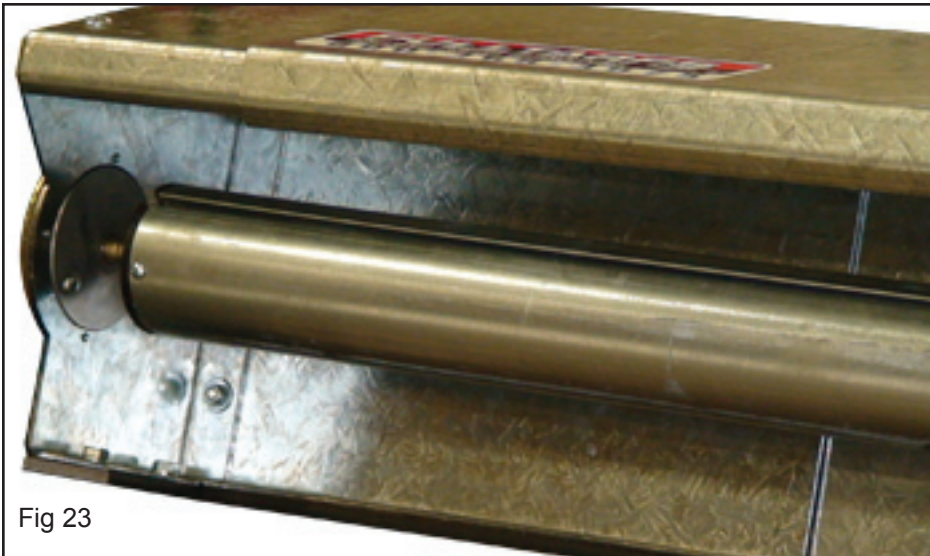
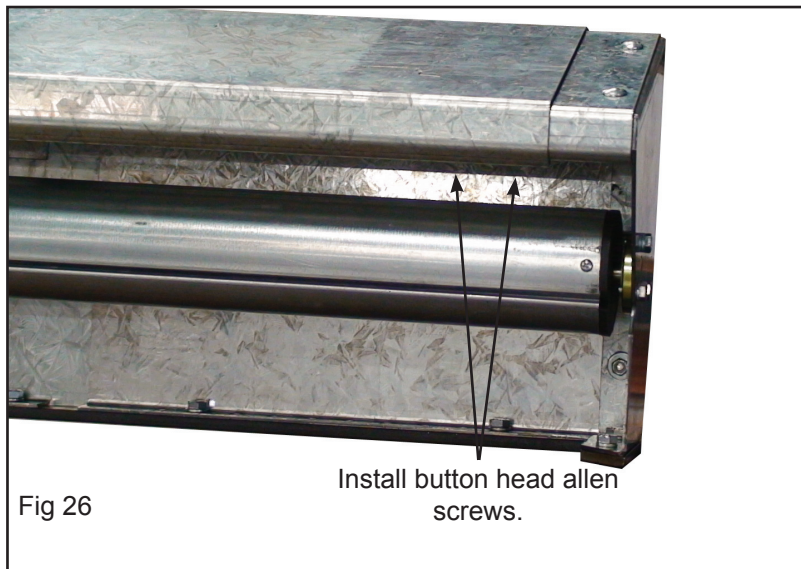
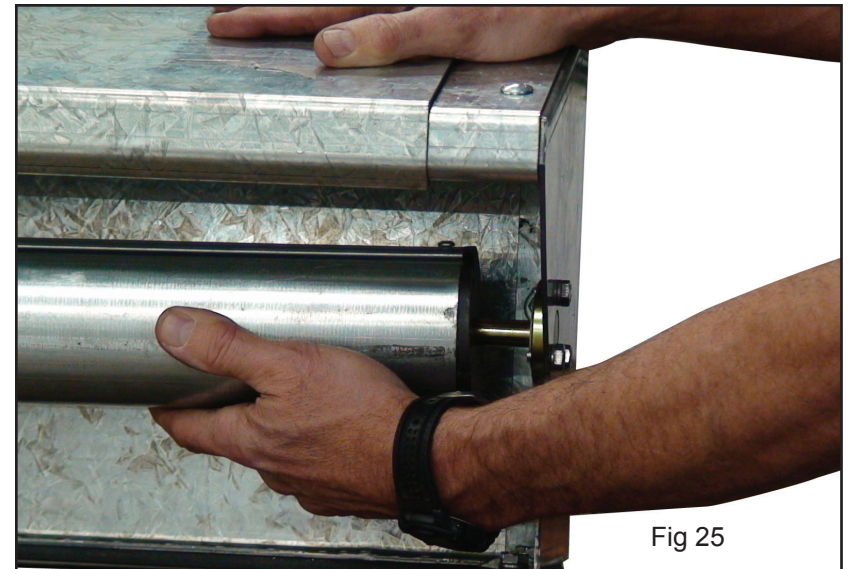
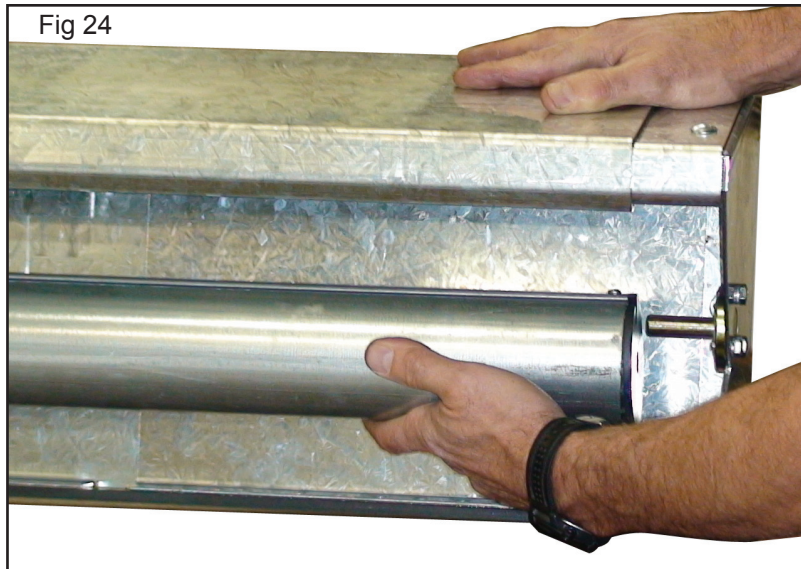


Fig 23

- Step 11.** Slide the ratchet end of the housing far enough open to fit the roller assembly into the housing.(Fig 21)
Rotate the spring shaft to thread it into the ratchet gear from the back side (Fig 22).
The shaft only needs to thread into the ratchet gear. It will fully tighten down later when the spring tension is added.(Fig 23)

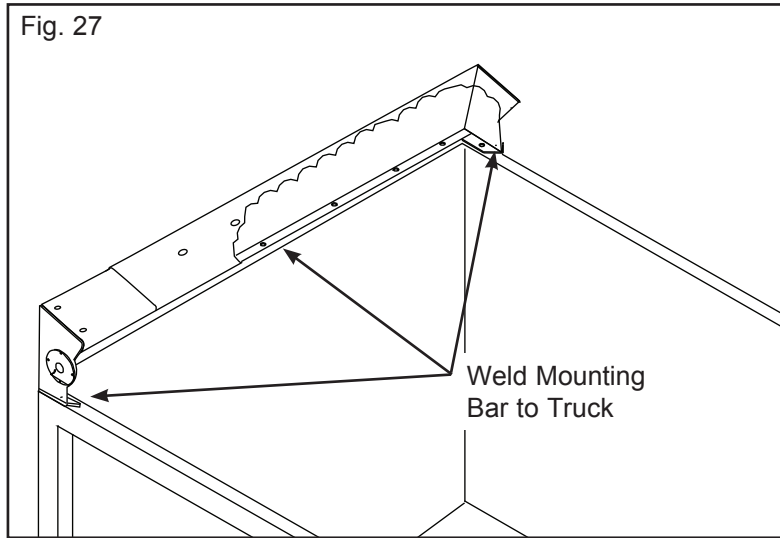


Step 12. Slide the ratchet end, (left side) back in place while installing the roller assembly on the stub shaft on the right side end plate (Fig 24 & 25). Re-install the bolts into the mounting bars to hold the assembly together.(Fig 26)
Measure the overall width. It should be the same as in step 5.

Step 13. Place two weld nuts on the inside lip of the housing end and line them up with the holes in the center housing section. Thread the two button head allen screws up through the housing and into the weld nuts. (Fig 26).

Step 14. Weld System To Truck

Stitch weld system mounting bar to truck every 6" as shown in (Fig. 27)

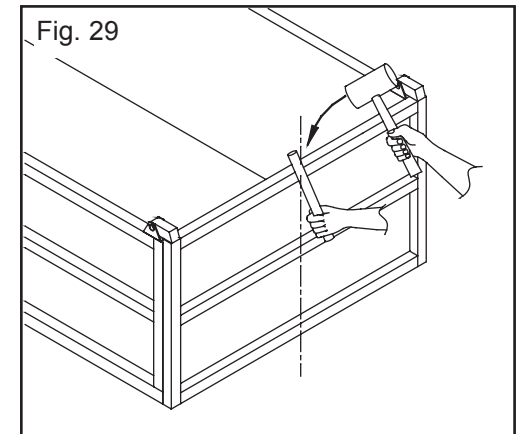
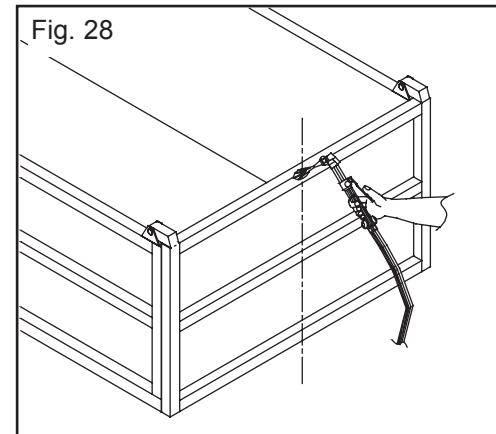


Step 15. Dimple Tailgate for Rope Guide

Check the top of the tailgate where your tarp goes over for any obstructions that may interfere with the tarp laying flat all the way across the tailgate area.

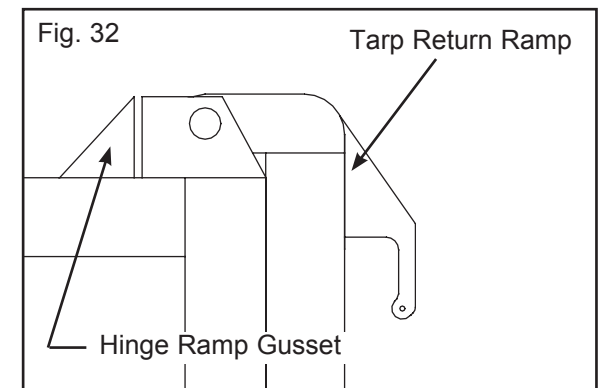
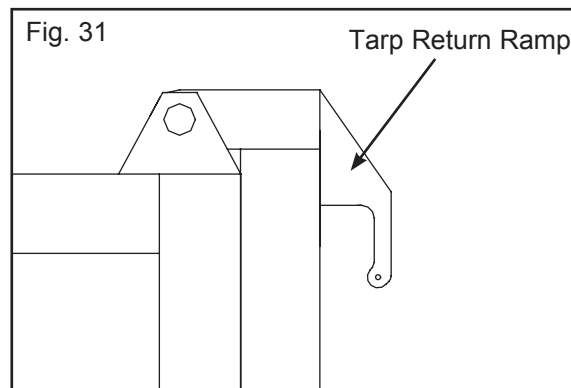
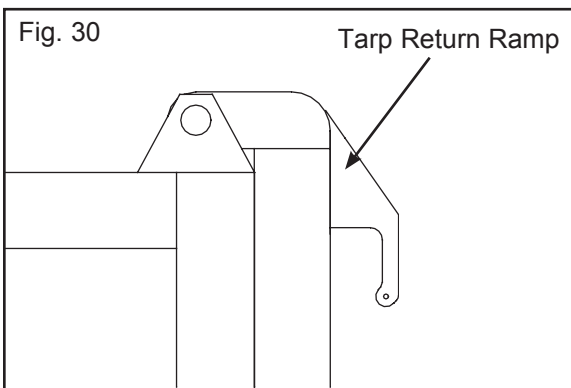
WARNING: Sharp Edges May Cut Tarp.

Measure tailgate to find center and mark. Heat at mark with torch until area is red hot. Use a 3/4" diameter solid bar and lay it on the spot and strike it a few times. A smooth indentation should be left that will keep the rope centered. (Fig. 28) & (Fig. 29)



Step 16. Weld on Tarp Return Ramps

The Tarp Return Ramps hold the pullrod in place once the tarp has been deployed. The ramps should be welded as high as possible. See (Fig.30 & Fig.31 for your application). Make sure all rough edges are ground smooth. If you have a raised hinge you will need to add a Hinged Ramp Gusset (NOT SUPPLIED) see (Fig.32).

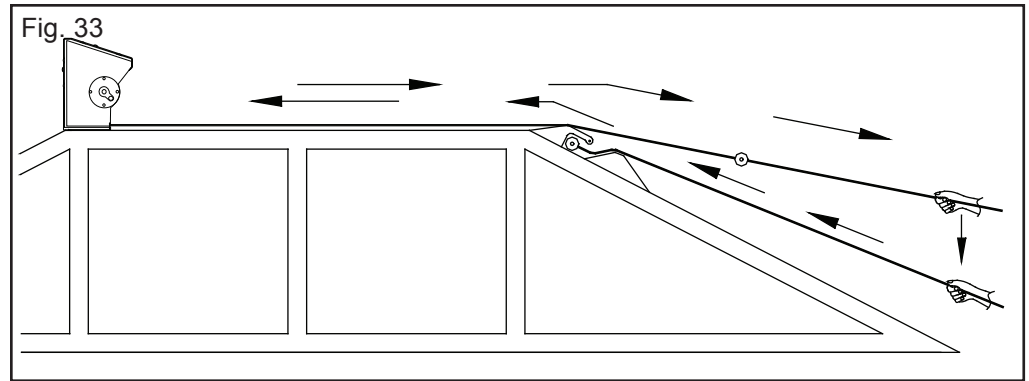


Step 17. Tarp Return Ramps for Belly Dumps

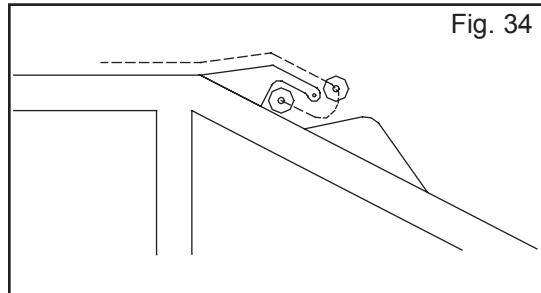
All belly dumps require special tarp return ramps. If you are not sure which type to use, call us at Pulltarps (800) 368-3075 for technical support.

Jump Ramp

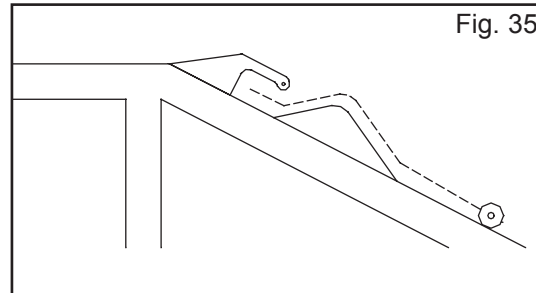
On longer single units, you are too far from the return ramp to unlatch the Pullrod by hand so we developed the easy to operate Jump Ramp (Fig. 33). Pull the tarp out all the way. Lower your arm. Release some rope slowly and allow the Pullrod to slide forward and drop down into the Tarp Return Ramp.



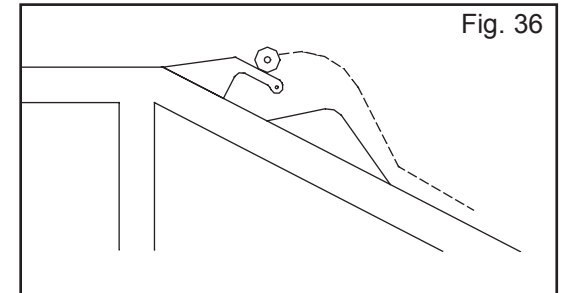
1. Pull out and hook. (Fig. 34).



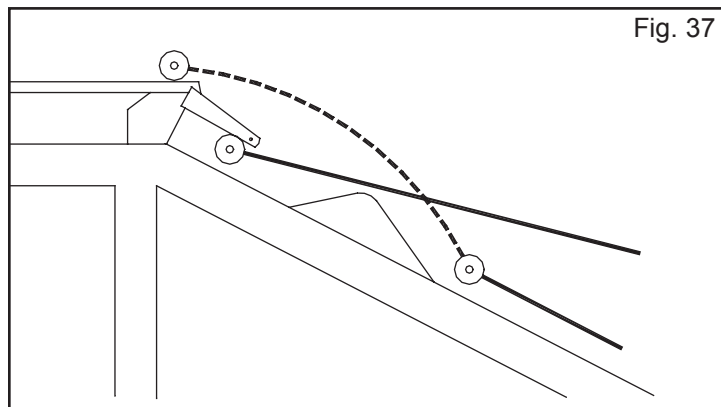
2. To retract, pull the pullrod up over the jump-ramp gusset and down a few inches (Fig. 35).



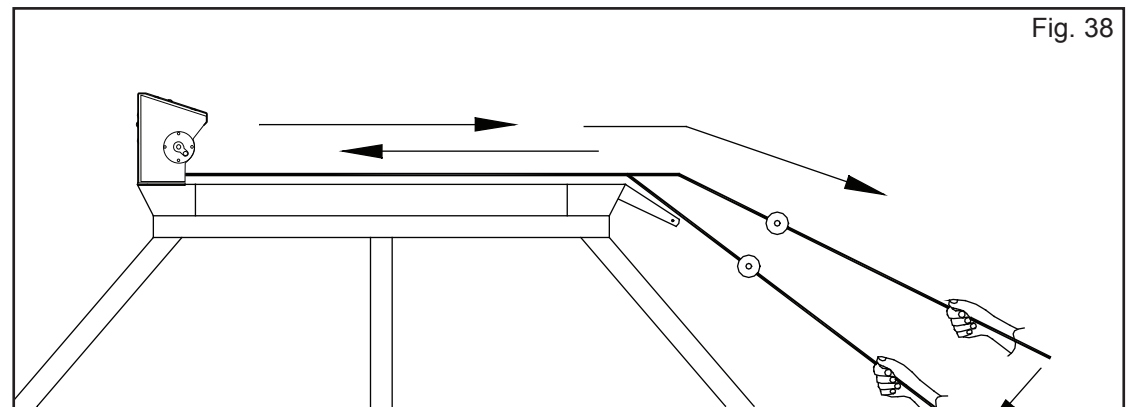
3. Release a few feet of rope quickly and the spring in the roller will cause the Pullrod and tarp to jump over the return ramp and retract back to the system (Fig. 36).



On long belly dumps with short vertical sideboards, use the finger tarp return ramps. Weld the provided gussets to the box to create a Pullrod jump ramp (Fig. 37).



On short belly dumps, pull the tarp all the way out. Raise and lower to hook and unhook the Pullrod over the finger tarp return ramps (Fig. 38).



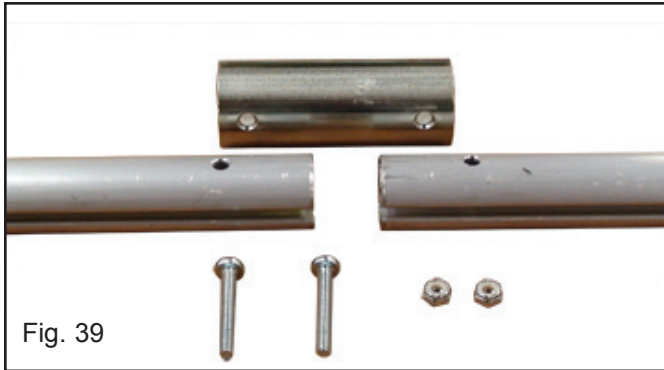


Fig. 39

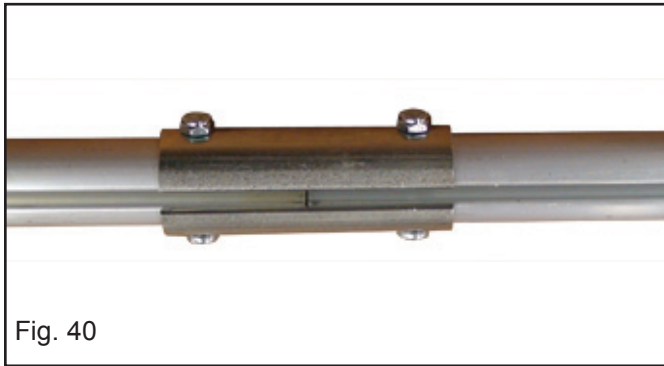


Fig. 40

Step 18. Slide the pull rod sleeve over the end of the pull rod that has the pre-drilled holes. Insert the machine screws through the bottom of the pull rod sleeve and attach the nuts on the rod. (Fig 39- 40)

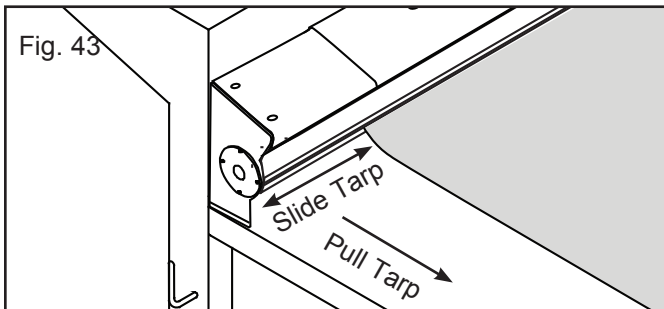


Fig. 43

Step 20. Install Tarp

Slide the tarp into the groove in the roller tube from the right side. Center the tarp on the roller tube. If needed, lubricate the edge of the tarp with soapy water so it will slide into the roller slot easy. (Fig. 43)

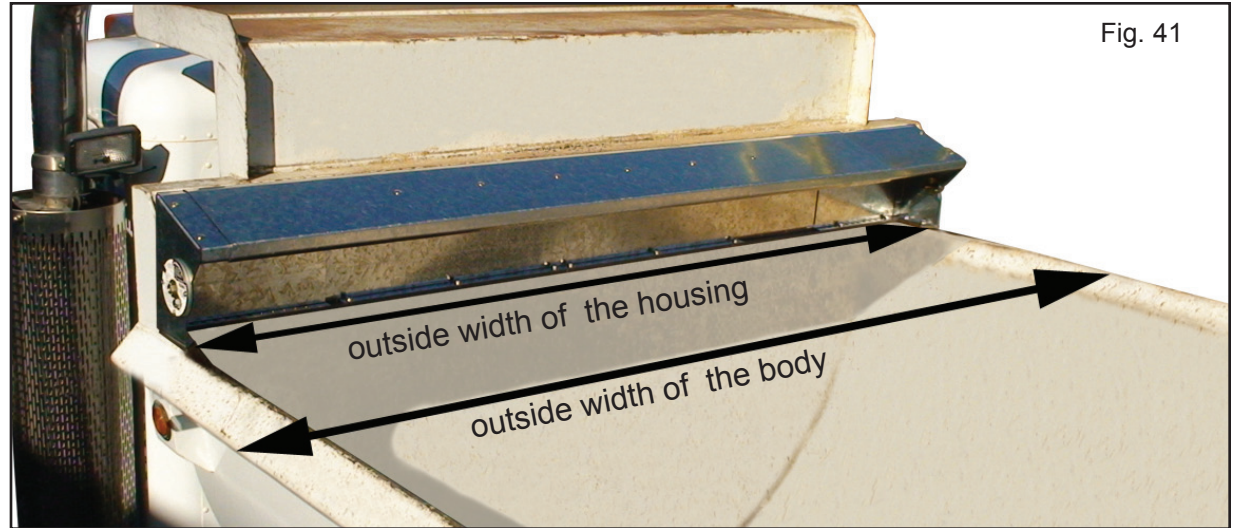


Fig. 41

Step 19. Install Tarp

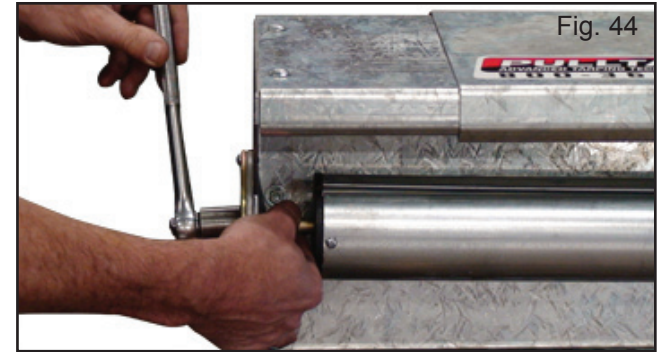
The pull rod assembly will need to be two inches wider than the outside width of the body at its widest point, or the outside width of the tarp housing **which ever is greater**. Adjust pull rod length by cutting equal amounts from each end of the pull rod (Fig. 41)



Fig. 42

Step 21. Slide the pull rod on to the end of the tarp so that the sleeve is centered with the webbing for the pull rope. Install the pull rope on the tarp . Put the loop of the rope through the webbing and then pass the bungee end of the rope through the open loop of the rope. Pull the rope through until the loop closes tightly around the webbing strap.(Fig. 42)

- Step 22.** Pull the tarp out as far as possible and tie off at tailgate. Remove ratchet lock and turn ratchet clockwise 25 turns (Fig. 44). Release pull rope from tail gate and cycle the tarp in and out 2 or 3 times. The tarp must be pulled out all the way before additional spring tension can be added. Turn ratchet nut clockwise 5 turns at a time to add more tension if necessary. Test tension setting after every adjustment reinstall ratchet lock



SETTING SPRING TENSION

To Increase Tension

1. Pull Tarp out as far as possible and tie off at tail gate.
2. Remove Ratchet Lock. Turn ratchet nut clockwise 5 turns at a time.
3. Test operation and repeat steps 1 through 3 if necessary.
4. Reinstall the Ratchet Lock

To Decrease Tension

1. Remove Ratchet Lock. Place box and wrench on ratchet nut. Turn ratchet nut slightly to the right and don't let go
2. Insert screwdriver to disengage lever. Hold wrench with both hands slowly unwind spring pressure.
3. When desired tension is achieved remove screw driver allowing release lever to reengage ratchet gear.



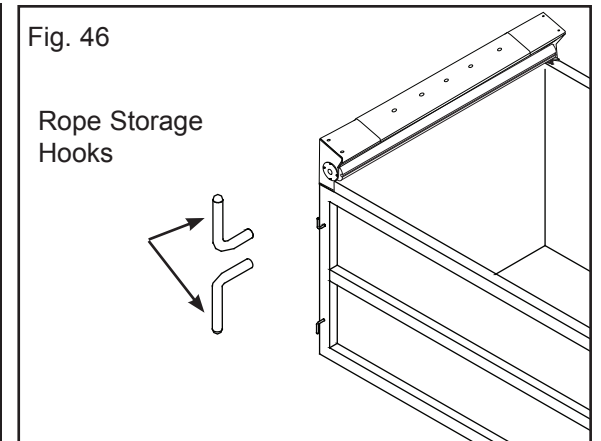
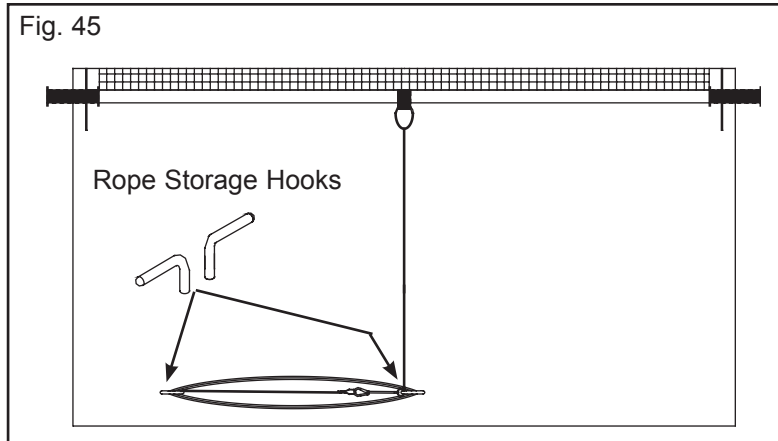
- Step 23.** Release pullrope from tailgate and cycle the tarp 2 or 3 times. This will ensure the tarp rolling up straight. If the tarp rolls up consistently off to one side or the other, you can offset the tarp to the opposite side on the roller to start with, this way the tarp will roll up as centered as possible. If you have side flaps or tie downs proceed to page 12 through 14.

Step 24. Rope Storage Hook

Installation

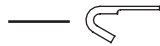
Mount the rope as low as possible. The rope should come straight down and wrap around the center hook and then coil off to the side. When the tarp is not in use (Fig. 45). Space the hooks far enough apart to store the full length of rope (Fig. 46).

Note: Tarp must be retracted when dumping.



Step 25. Optional Tie Down Tarp, Rope and Hook Installation

Parts: Tie Down Hooks (Steel or Alum.)



Pull Down Hook



The Location Of The Tie Down Hooks Is Critical !

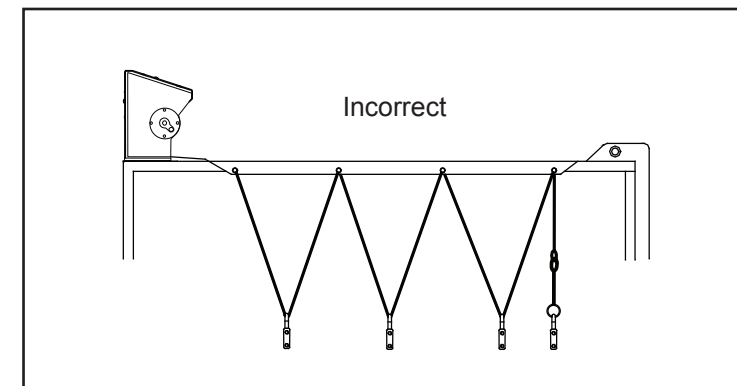
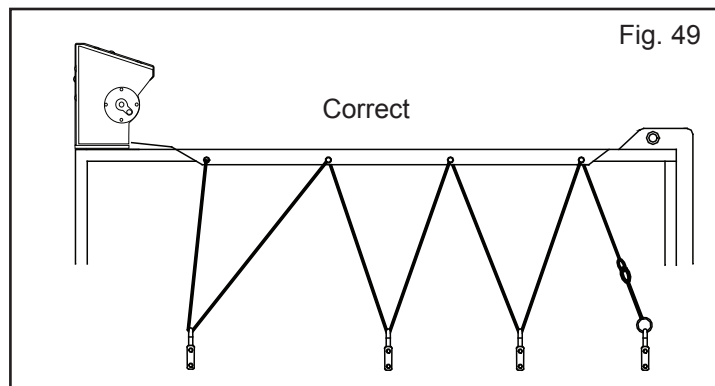
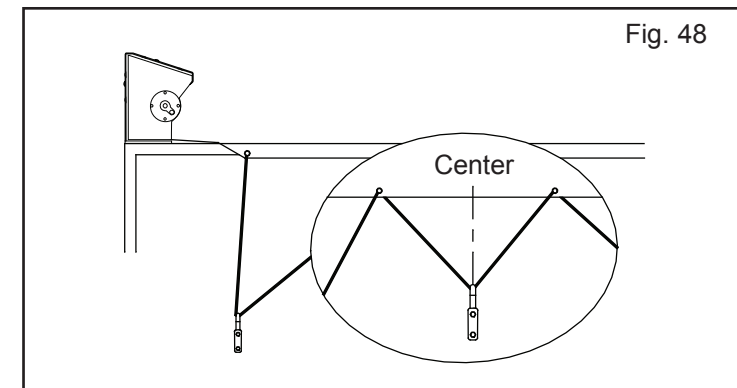
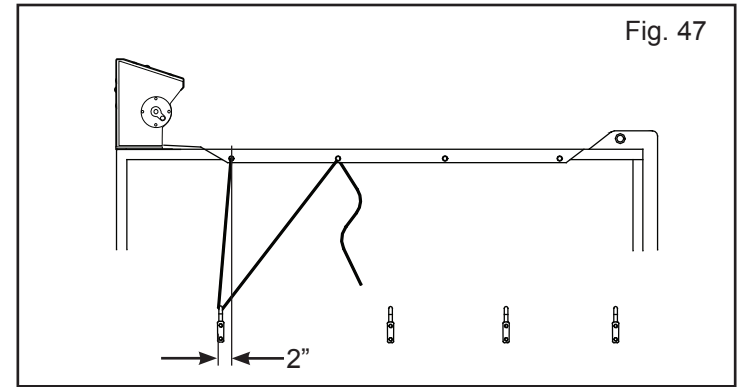
Flip the braided rope over the corner so that the rope and tie down flaps hang over each side of the box. The number of tie down hooks vary depending on the length of your tarp. One pull down hook is included with your Pulltarp system. If needed. Use the hook to pull the braided rope and tie down flap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

The tie down hooks must be positioned so that:

- The tie down rope can be reached from the ground.
- The bungee cord has to be stretched to reach the last hook (see step 10).
- The rope has no slack.
- 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.

- Position the first hook 2" (5.08cm) forward of first tie down (Fig. 47).
- Position middle hook between tie downs (Fig. 48).
- Position last hook at the end of the box (Fig. 49).
- Weld hooks in place level with one another.



Step 26. Optional Flap Tarp, Rope and Hook Installation

Parts: Tie Down Hooks (Steel or Alum.) 

Pull Down Hook 

The Location Of The Tie Down Hooks Is Critical !

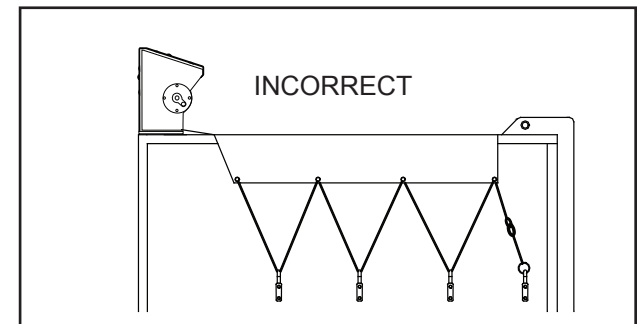
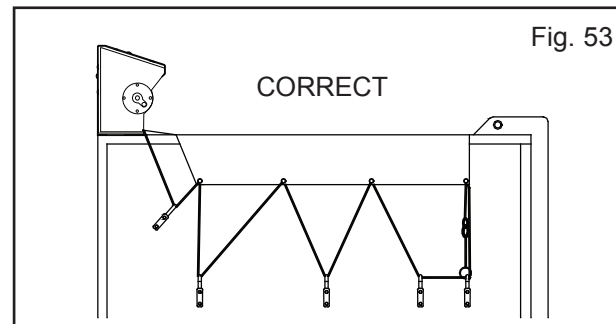
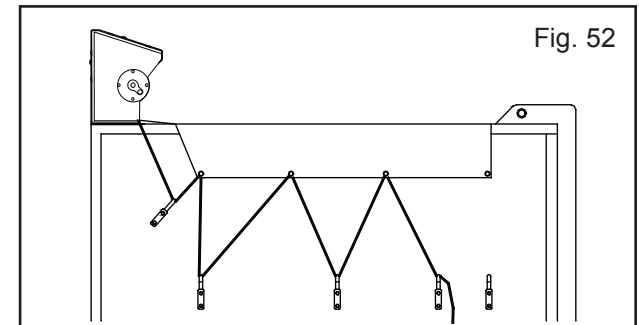
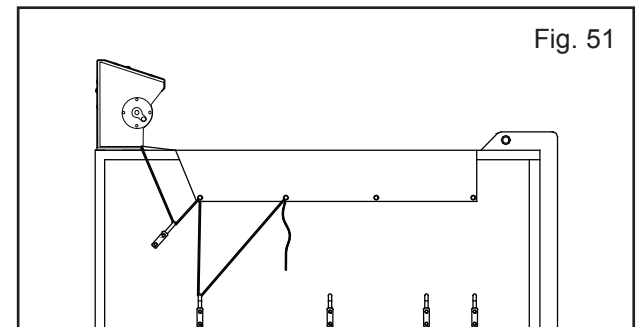
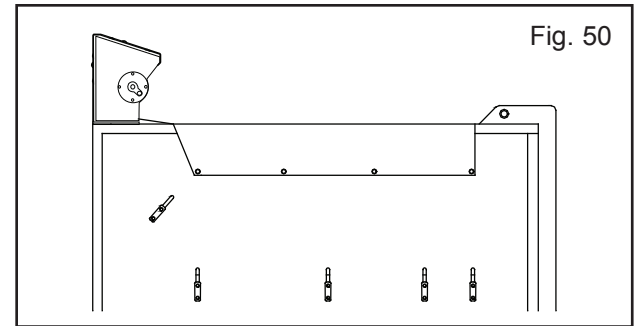
Flip the braided rope over the corner so that the flaps and tie down ropes hang over each side of the box. The number of tie down hooks vary depending on the length of your tarp. One pull down hook is included with your Pulltarp system. If needed. Use the hook to pull the braided rope and flap over the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

The tie down hooks must be positioned so that:

- The tie down rope can be reached from the ground.
- The bungee cord has to be stretched to reach the last hook (see step 9).
- The rope has no slack.
- 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.

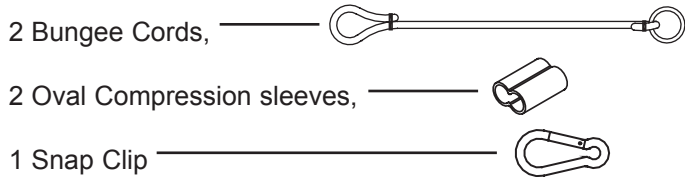
- Position the first hook 6" (15.24cm) down and 12" (30.48cm) forward (toward the cab) from the first grommet (Fig. 50).
- Position 2nd hook straight down from 1st grommet. This hook should be reached from ground (Fig. 51).
- Place middle hooks equal distances from grommet (Fig. 52). These hooks should be placed at the same height as the second hook.
- Position last hook (closest to the tailgate) below the last grommet at the same height as the others (Fig. 53).
- Weld hooks in place.



Step 27. Bungee Cord Installation

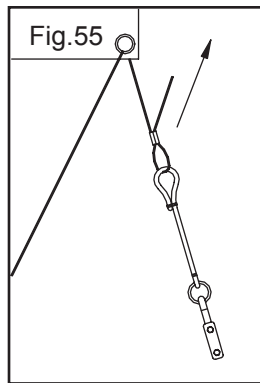
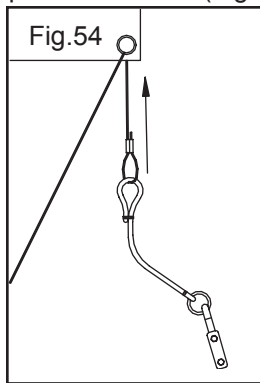
After side hooks are installed, the tie down rope must be installed and cut to proper length. It is important to get all of the slack out of the rope to prevent blowing and rubbing of flaps in windy conditions.

Parts:



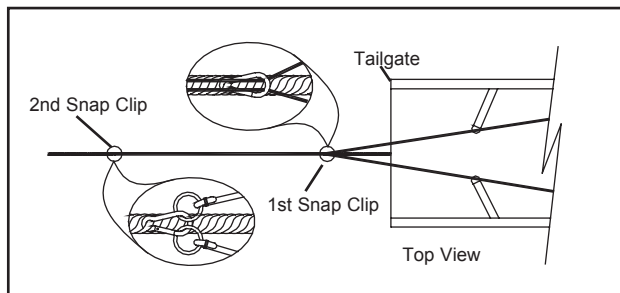
Tarps with Tie Downs

To tighten, pull loose end of rope through the Oval Compression Sleeve (Fig. 54). Stretch the bungee cord making sure all slack is taken out of the rope, crimp compression sleeve (Fig. 55).



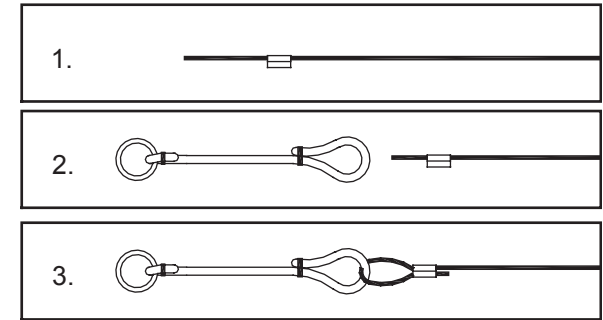
Snap Clip installation

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



Connect Bungee Cord to Rope

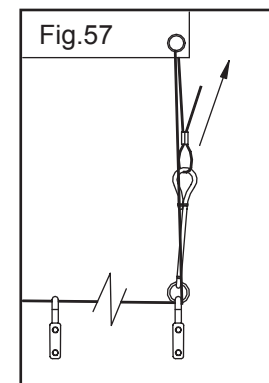
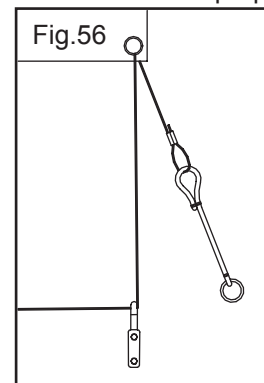
1. Thread braided rope through Oval Compression Sleeve.
2. Feed rope through the eye of the bungee cord.
3. Thread the rope back through the oval compression sleeve. Adjust for proper length. Crimp compression sleeve.



Tarps with Side Flaps

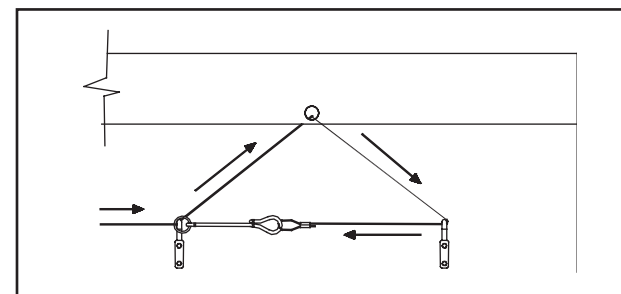
To tighten, pull loose end of rope through the Oval Compression Sleeve (Fig. 56). Stretch the bungee cord making sure all slack is taken out of the rope, crimp compression sleeve (Fig. 57).

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

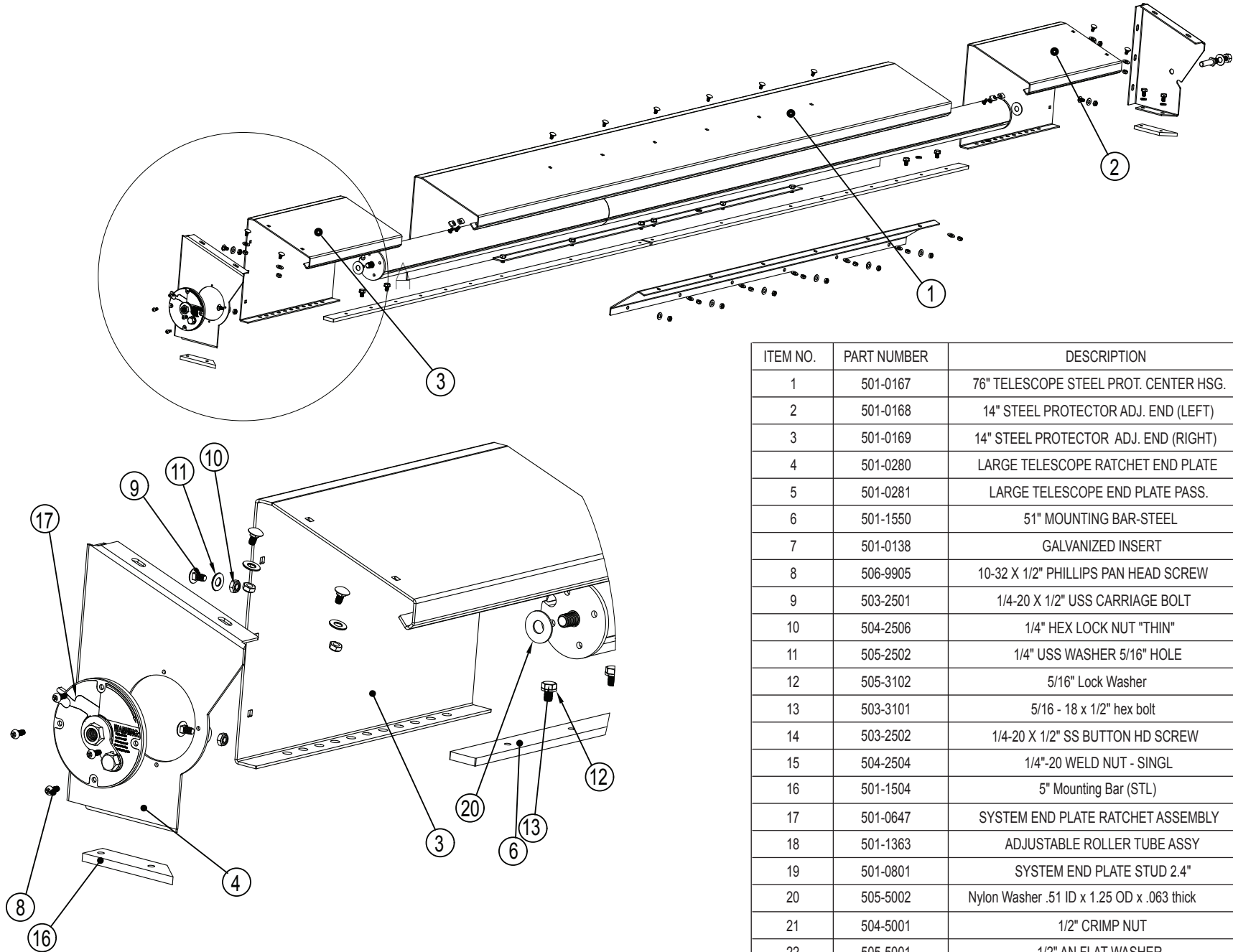


Excess Rope

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 attaching the end of the bungee cord to an alternate hook. (pictured below)



116-3027, 116-3017 X-Pando Adjustable Steel Protector



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	501-0167	76" TELESCOPE STEEL PROT. CENTER HSG.	1
2	501-0168	14" STEEL PROTECTOR ADJ. END (LEFT)	1
3	501-0169	14" STEEL PROTECTOR ADJ. END (RIGHT)	1
4	501-0280	LARGE TELESCOPE RATCHET END PLATE	1
5	501-0281	LARGE TELESCOPE END PLATE PASS.	1
6	501-1550	51" MOUNTING BAR-STEEL	2
7	501-0138	GALVANIZED INSERT	1
8	506-9905	10-32 X 1/2" PHILLIPS PAN HEAD SCREW	4
9	503-2501	1/4-20 X 1/2" USS CARRIAGE BOLT	22
10	504-2506	1/4" HEX LOCK NUT "THIN"	22
11	505-2502	1/4" USS WASHER 5/16" HOLE	22
12	505-3102	5/16" Lock Washer	14
13	503-3101	5/16 - 18 x 1/2" hex bolt	14
14	503-2502	1/4-20 X 1/2" SS BUTTON HD SCREW	4
15	504-2504	1/4"-20 WELD NUT - SINGL	4
16	501-1504	5" Mounting Bar (STL)	2
17	501-0647	SYSTEM END PLATE RATCHET ASSEMBLY	1
18	501-1363	ADJUSTABLE ROLLER TUBE ASSY	1
19	501-0801	SYSTEM END PLATE STUD 2.4"	1
20	505-5002	Nylon Washer .51 ID x 1.25 OD x .063 thick	2
21	504-5001	1/2" CRIMP NUT	1
22	505-5001	1/2" AN FLAT WASHER	1