SHUR-CO®

4500 Series HD
Electric System for Grain Trailers

OWNER'S MANUAL

Reverse Roll

Download the ShurLink™ App

Shurlink
Shur-Co, LLC
5.0
Free

iOS Android

PHONE: 1.866.748.7435 | FAX: 1.605.665.0501
2309 SHURLOCK STREET | YANKTON, SD 57078-0713

www.SHURCO.com

⚠ SAFETY INSTRUCTIONS

At Shur-Co®, your safety is our top priority. Please read and thoroughly understand all instructions before operating all equipment. Failure to READ AND FOLLOW INSTRUCTIONS may result in system failure, property damage, or personal injury. Pay close attention to warnings, cautions, and operating instructions. The hazard symbol ⚠ alerts users of potentially hazardous conditions, and is followed by Caution, Warning, or Danger messages to indicate risk:

- **Danger: (Red) Indicates an imminently hazardous situation that, if not avoided, WILL result in death or serious injury.**
- **Warning: (Orange) Indicates a potentially hazardous situation that, if not avoided, COULD result in death or serious injury.**
- **Caution: (Yellow) Indicates a potentially hazardous situation that, if not avoided, MAY result in minor or moderate injury or damage to the system.**
- **Notice: (Blue) Indicates operational notes or other essential information without addressing safety.**

Regualarly inspect equipment to ensure proper performance. Always repair or replace worn or damaged parts immediately to maintain safety. Safety decals are placed at critical locations on the equipment. Keep these decals clean and legible at all times. Replace any decal that is worn, damaged, painted over or otherwise unreadable. Replacement decals can be obtained by your local Shur-Co® dealer.

- **Always wear safety glasses during installation and operation.**
- **Stay clear of moving parts.**
- **No other use of Shur-Co® equipment is authorized, except as designed.**

SHUR-CO® TERMS OF SERVICE

ORDER TERMS AND CONDITIONS

WARRANTY

PATENTS

SERVICE AND DISTRIBUTION CENTERS

www.shurco.com/about-us/corporate-locations/

LOCATIONS

MESSAGE TO OWNERS

Thank you for choosing Shur-Co® for your tarping system needs. We appreciate your confidence in our products. Please note that while this manual provides comprehensive installation and operation instructions, your trailer may require minor adjustments to these guidelines.

Visit Shurco.com to access the most current version of these instructions and other important product information.

QUESTIONS?

CALL OUR HELP LINE:

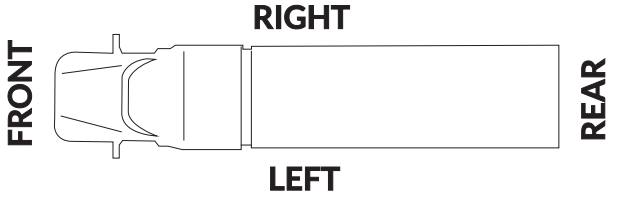
1-866-748-7435

MONDAY-FRIDAY
8 AM-5 PM CENTRAL TIME

MAINTENANCE

- Spray all bearings with penetrating oil as needed.
- Grease spring bearings as needed.
- Brush springs with a steel brush weekly to remove dirt, and spray with penetrating oil.
- Tighten loose bolts.
- Make sure arms are not hitting sides of box. Replace damaged/bent arms.
- Replace worn or broken springs.
- Replace/repair worn or damaged tarps.

VEHICLE ORIENTATION



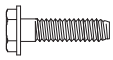
REQUIRED TOOLS

1. Welder
2. Hammer
3. Center Punch or Transfer Punch
4. #3 Phillips Insert Bit
5. Air or Electric Impact Wrench (9/16” deep socket)
6. 7/16" Deep Socket
7. 3/8" Combination Wrench
8. 9/16" Combination Wrench
9. 1/2" Combination Wrench
10. 1/8" Hex Wrench Long T-Handle
11. 3/16" Hex Wrench Long T-Handle (recommended)
12. 7/32" Drill Bit
13. 5/16" Drill Bit (for 3/8” self-tapping screws)
14. 11/32" Drill Bit
15. 13/32" Drill Bit
16. 3/8" Drill
17. 1-1/8" Hole Saw
18. 1-1/2" Hole Saw
19. 2" Hole Saw (if bracket for conductor socket is not used)
20. Standard/Flathead Screwdriver
21. #2 Phillips Screwdriver
22. Utility Knife
23. Ratchet
24. Hack Saw (metal cutter)
25. Pliers
26. Snap-Ring Pliers
27. Wire Cutters
28. Grinder
29. Tape Measure

Inspect 4500 Series HD kit upon arrival.

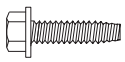
NOTICE: *This installation requires two people for safe and efficient completion.* (x2)

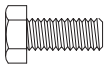
PLEASE READ THE COMPLETE MANUAL BEFORE PROCEEDING WITH INSTALLATION OR USE OF THE TARPING SYSTEM.

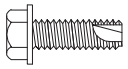
A

1704367 Cap Screw - #10 x 3/4"

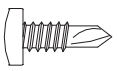
B

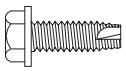
1704905 Flanged Cap Screw - #10 x 1"

C

1704905 Hex Flanged Cap Screw #10 x 1"

D

1703959 Cap Screw 1/4" x 3/4"

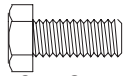
E

1700403 Self-Tapping Screw - 1/4" x 3/4"

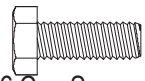
F

1700398 Self-Drilling Screw - 1/4" x 3/4"

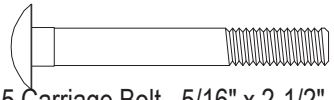
G

1704338 Self-Tapping Screw - 1/4" x 1"

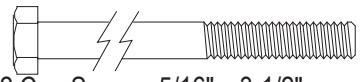
H

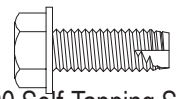
1705198 Self-Drilling Screw - 1/4" x 1"

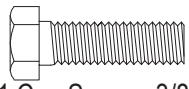
J

1701045 Cap Screw - 5/16" x 3/4"

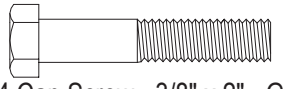
K

1702926 Cap Screw - 5/16" x 7/8"

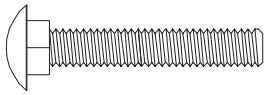
L

1701455 Carriage Bolt - 5/16" x 2-1/2"

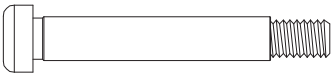
M

1201022 Cap Screw - 5/16" x 3-1/2"

N

1700400 Self-Tapping Screw - 3/8" x 1"

P

1702891 Cap Screw - 3/8" x 1-1/4"

Q

1704264 Cap Screw - 3/8" x 2" - Grade 8

R

1704237 Carriage Bolt - 3/8" x 2"

S

1704943 Shoulder Bolt - 3/8" x 2 - 5/16" x 1/2" Thd.

T

1808844 Nylon Lock Nut - #10

U

1701543 Nylon Lock Nut - 1/4"

V

1706399 Top Lock Flanged Nut - 1/4"

W

1704946 Flanged Top Lock Nut - 5/16"

X

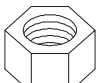
1704931 Flanged Nylon Lock Nut - 5/16"

Y

1700419 Nylon Lock Nut - 5/16"

Z

1704297 Nylon Lock Nut - 5/16"

AA

1700407 Hex Nut - 3/8"

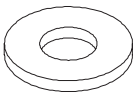
BB

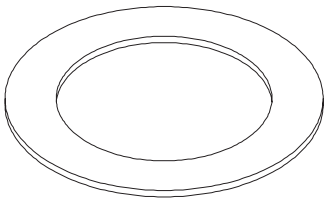
1701580 Nylon Lock Nut - 3/8"

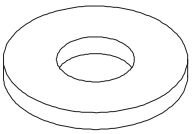
CC

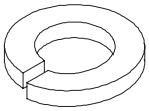
1702668 Top Lock Nut - 3/8"

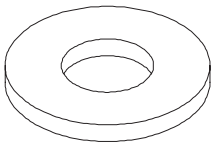
Inspect all parts in 4500 Series HD electric kit upon arrival.

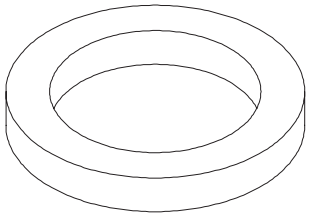
EE

1700427 Flat Washer - 1/4"

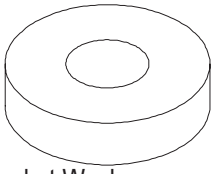
FF

1702890 Flat Washer - 1-1/4"

GG

1700428 Flat Washer - 5/16"

HH

1700434 Lock Washer - 3/8"

JJ

1700429 Flat Washer - 3/8"

KK

1118318 Spacer Washer - 1/4" x 1.81"

LL

1120291 Pivot Bracket Washer

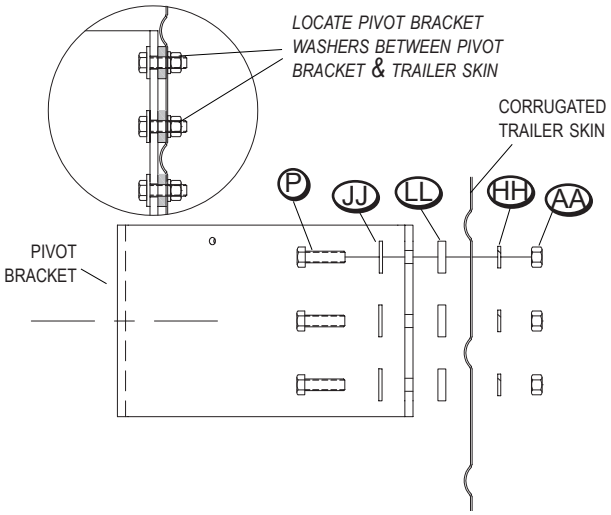
NOTICE: *Use lock washers and nuts with self-tapping screws whenever possible.*

Hardware	***Hole Size***	***Material Thickness***
With Lock Washers & Nuts	*13/32"*	*No Minimum*
Without Lock Washers & Nuts	*5/16"*	*Minimum 3/16"*

INSTALL BRACKETS ON CORRUGATED TRAILERS

NOTICE: TRAILERS WITH CORRUGATION (Vertical or Sloped)
Use **pivot bracket washers** *(**LL**) only when corrugation on trailer skin prevents bracket from contacting trailer skin.*

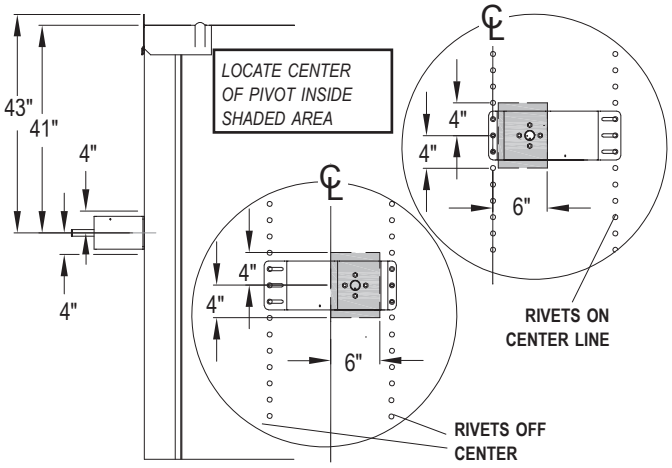
STEP 1: If installing pivot bracket or pivot mount bracket on horizontally corrugated trailer skin, use brackets as guide to mark hole locations. Mark and drill 13/32 inch holes in trailer and fasten with screws (**P**), flat washers (**JJ**), lock washers (**HH**), pivot bracket washers (**LL**) and nuts (**AA**). Locate pivot bracket washers between pivot bracket and trailer skin as shown.



TIP: *Read pages 6 and 7 entirely before drilling holes. Determine if ribs are centered or off-center on the front and rear of the trailer.*

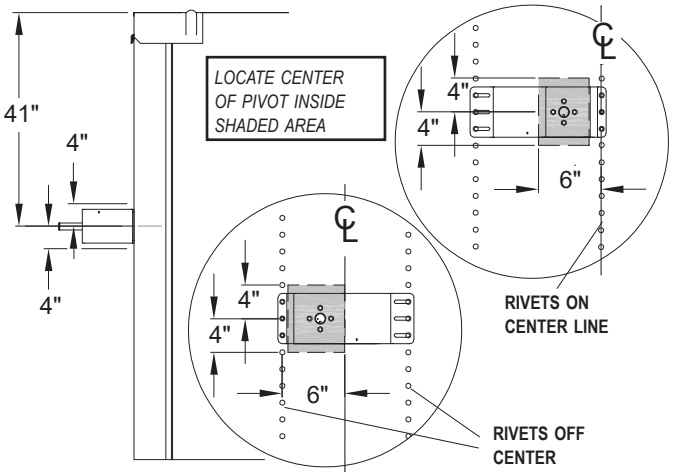
FRONT OF TRAILER

STEP 1: Locate front pivot mount bracket on left side of trailer so center of pivot lies within shaded area shown below. Measure 41 inches down from top of cap or 43 inches from top of windshield.



REAR OF TRAILER

STEP 2: Locate rear pivot mount bracket so center of pivot lies within shaded area shown below.

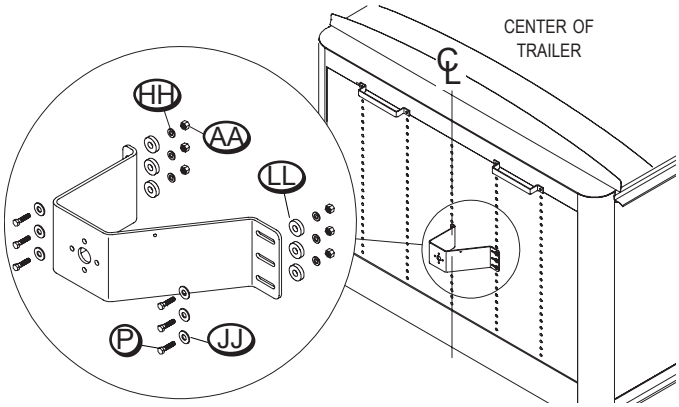


NOTICE: *Mount brackets to support braces on the trailer when possible. If mounting to support braces is not possible, reinforce the mounting area with a backer plate for adequate support. Use spacers between the mounting bracket and trailer skin if the bracket does not sit flush, ensuring solid contact with the support braces or backer plate. Before drilling holes, confirm the flex arm has a clear, unobstructed pathway for operation.*

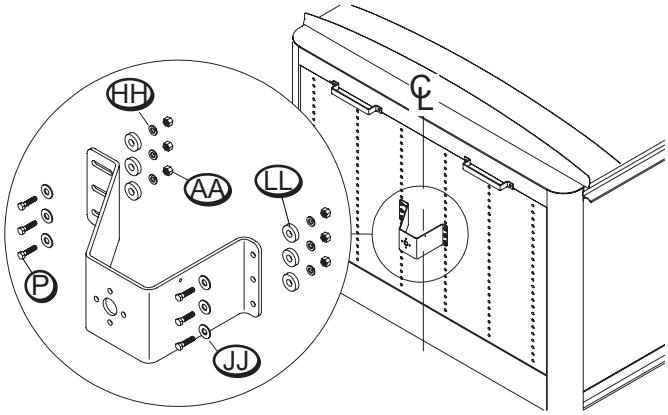
STEP 3: Place pivot mount brackets on trailer as shown below. Using brackets as guide, mark mounting hole locations.

FRONT OF TRAILER

RIVETS/CORRUGATION ON CENTER

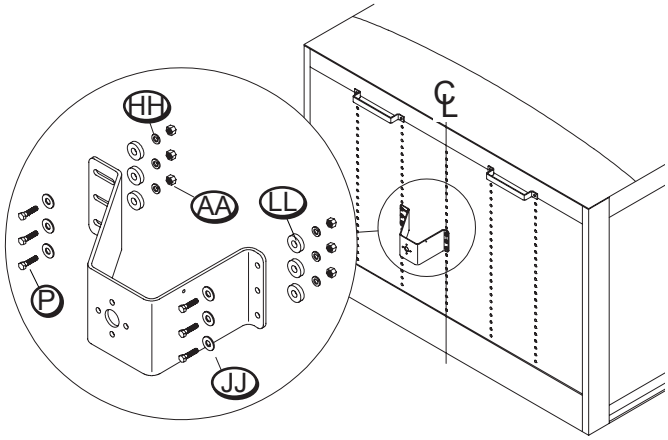


RIVETS/CORRUGATION OFF CENTER

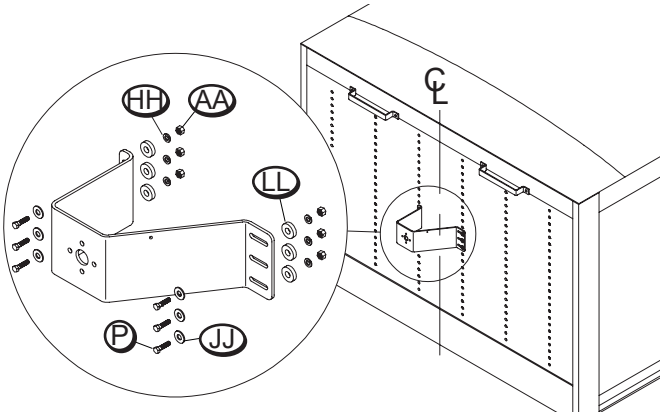


REAR OF TRAILER

RIVETS/CORRUGATION ON CENTER



RIVETS/CORRUGATION OFF CENTER



STEP 4: Remove rivets and mount brackets into rivet holes. If not possible, drill 13/32 inch holes in trailer. Fasten with screws (**P**), flat washers (**JJ**), lock washers (**HH**), pivot bracket washers (**LL**) and nuts (**AA**).

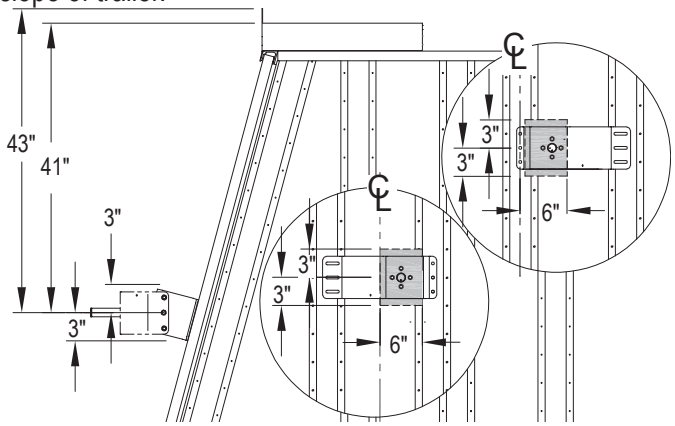
TIP: *Read entire page before drilling holes. Determine if rivets are centered or off center on front and rear of trailer.*

NOTICE: TRAILERS WITH CORRUGATION

Use **pivot bracket washers** *(**LL**) only when corrugation on trailer skin prevents bracket from contacting trailer skin.* *See page 6.*

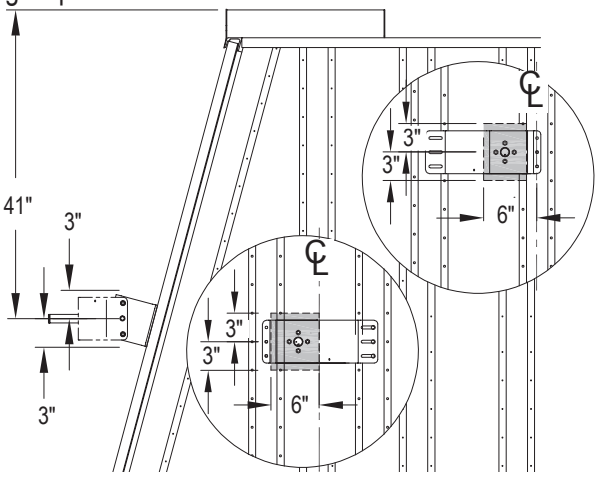
FRONT OF TRAILER

STEP 1: Locate sloped pivot mount bracket 41 inches down from top of cap or 43 inches from top of windshield, measuring vertically as shown. Do not measure along slope of trailer.



REAR OF TRAILER

STEP 2: Locate sloped pivot mount bracket 41 inch below top of cap, measuring vertically as shown. Do not measure along slope of trailer.

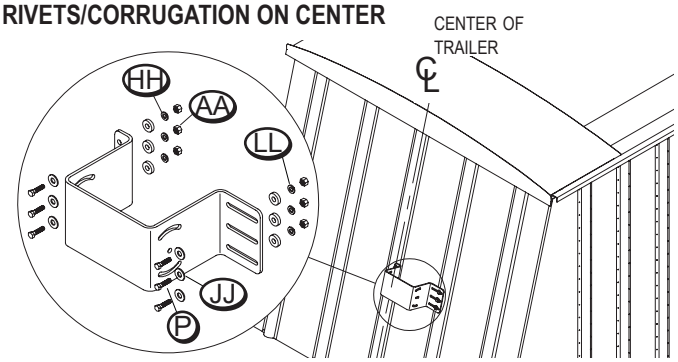


NOTICE: *Mount brackets to support braces on the trailer when possible. If mounting to support braces is not possible, reinforce the mounting area with a backer plate for adequate support. Use spacers between the mounting bracket and trailer skin if the bracket does not sit flush, ensuring solid contact with the support braces or backer plate. Before drilling holes, confirm the flex arm has a clear, unobstructed pathway for operation.*

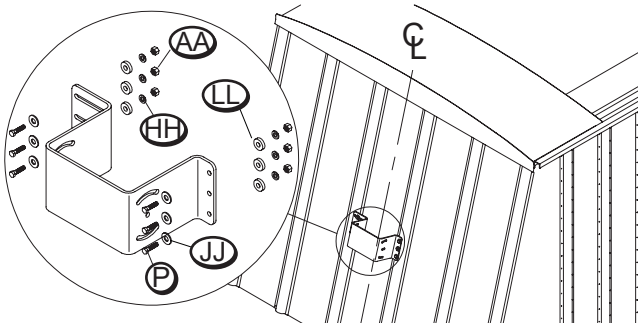
STEP 3: Place pivot mount brackets on trailer as shown below. Using brackets as guide, mark mounting hole locations.

FRONT OF TRAILER

RIVETS/CORRUGATION ON CENTER

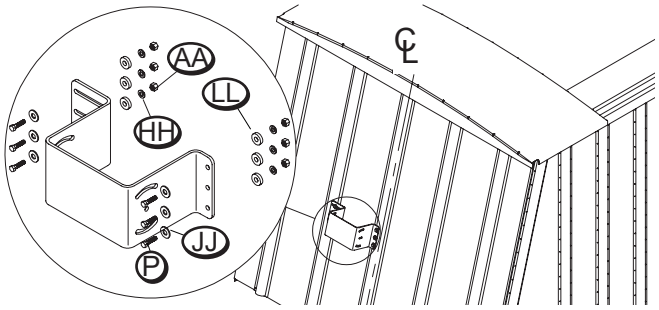


RIVETS/CORRUGATION OFF CENTER

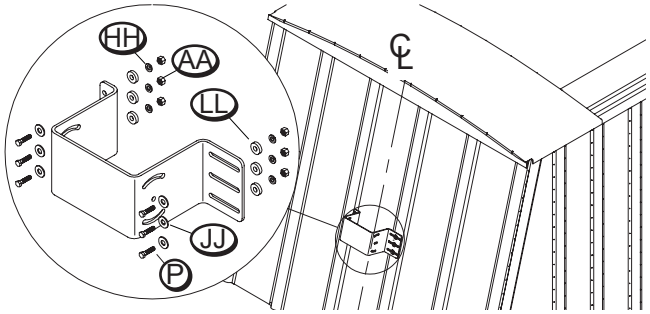


REAR OF TRAILER

RIVETS/CORRUGATION ON CENTER



RIVETS/CORRUGATION OFF CENTER

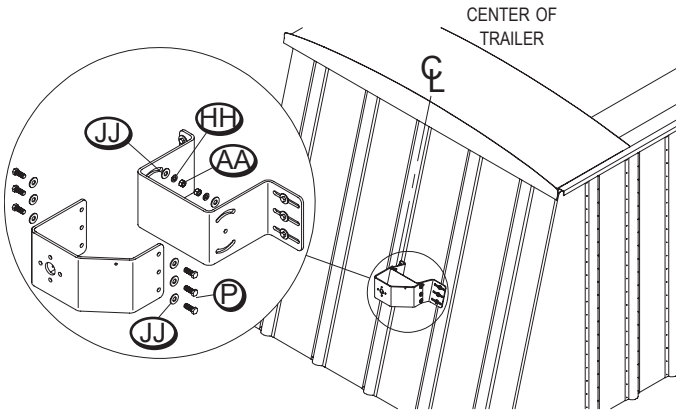


STEP 4: Drill 13/32 inch holes in trailer. Fasten sloped pivot mount bracket to trailer with screws (**P**), flat washers (**JJ**), lock washers (**HH**) and nuts (**AA**).

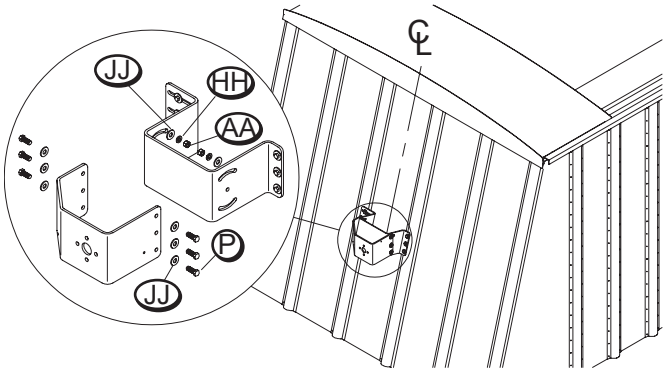
STEP 5: Place pivot brackets on pivot mount brackets ias shown below. Fasten pivot brackets to pivot mount brackets with screws (**P**), flat washers (**JJ**), lock washers (**HH**) and nuts (**AA**).

FRONT OF TRAILER

RIVETS/CORRUGATION ON CENTER

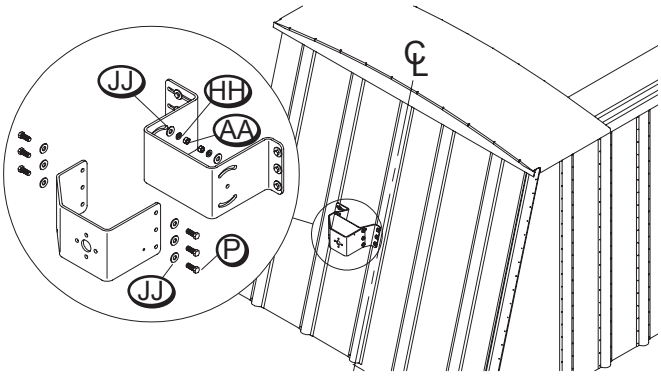


RIVETS/CORRUGATION OFF CENTER

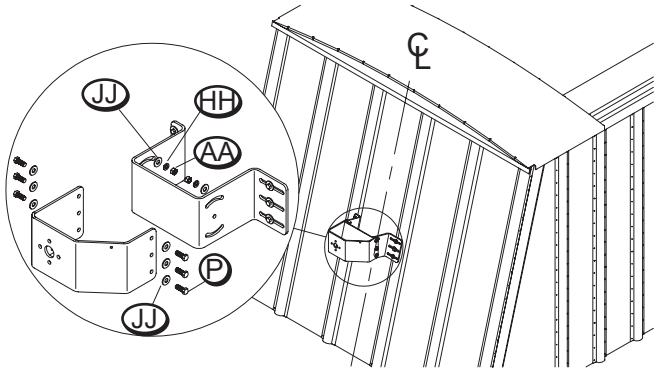


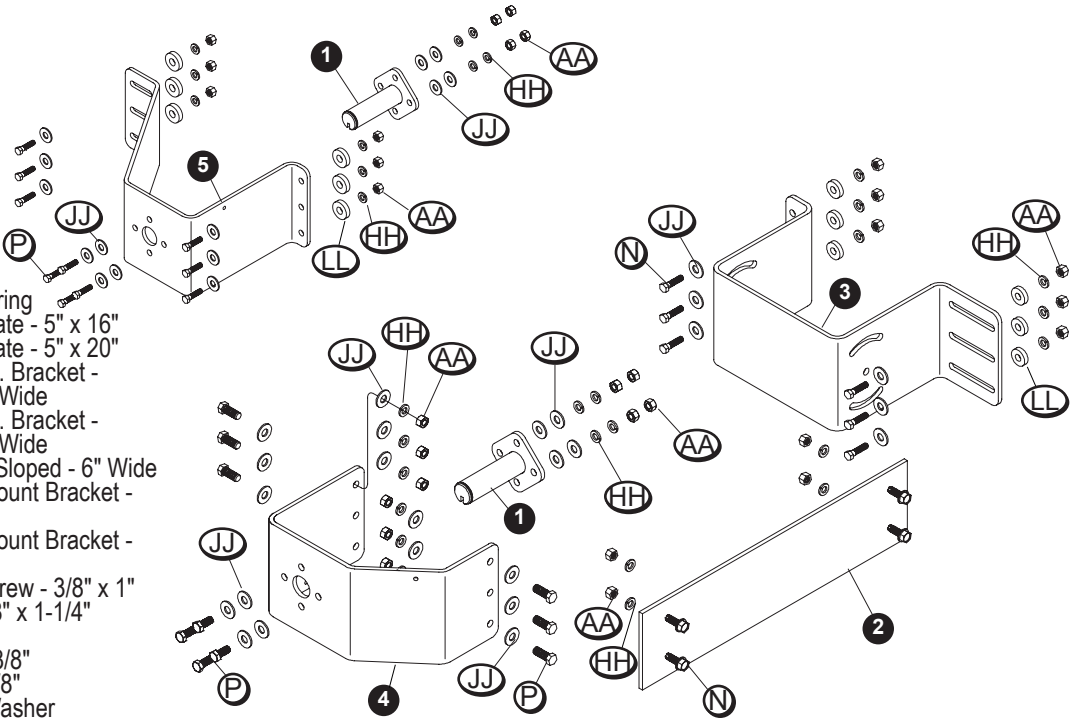
REAR OF TRAILER

RIVETS/CORRUGATION ON CENTER



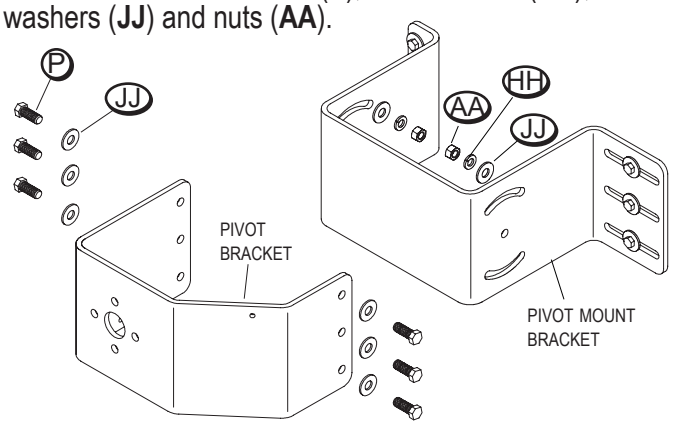
RIVETS/CORRUGATION OFF CENTER



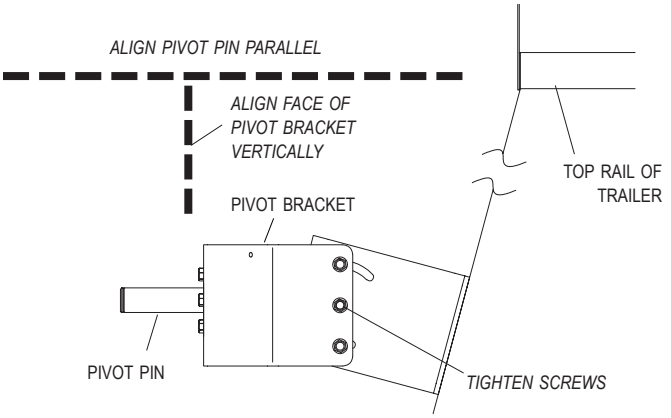


Item	Part #	Description
1.	1116920	Pivot Pin - 4 Spring
2.	1120361	Pivot Backer Plate - 5" x 16"
	1120418	Pivot Backer Plate - 5" x 20"
3.	1121993	Sloped Pivot Mt. Bracket - 6" Standoff - 6" Wide
	1121994	Sloped Pivot Mt. Bracket - 8" Standoff - 6" Wide
4.	1121992	Pivot Bracket - Sloped - 6" Wide
5.	1116919	Vertical Pivot Mount Bracket - 7-1/4" Standoff
	1117031	Vertical Pivot Mount Bracket - 9-1/4" Standoff
N.	1700400	Self-Tapping Screw - 3/8" x 1"
P.	1702891	Cap Screw - 3/8" x 1-1/4"
AA.	1700407	Hex Nut - 3/8"
HH.	1700434	Lock Washer - 3/8"
JJ.	1700429	Flat Washer - 3/8"
LL.	1120291	Pivot Bracket Washer

STEP 1: Align and loosely fasten pivot bracket to pivot mount bracket with screws (**P**), lock washers (**HH**), flat washers (**JJ**) and nuts (**AA**).

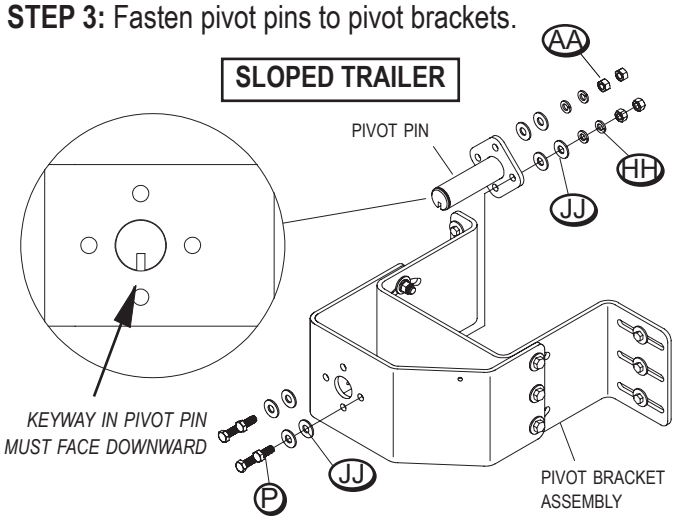


STEP 2: Align face of pivot bracket vertically and align pivot pin parallel with top rail of trailer, then tighten screws.

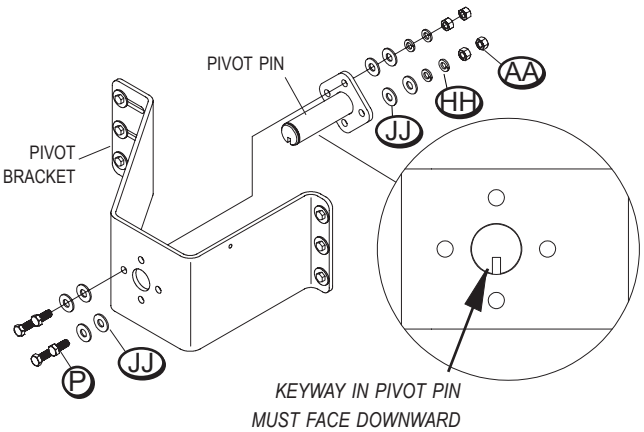


STEP 3: Fasten pivot pins to pivot brackets.

SLOPED TRAILER

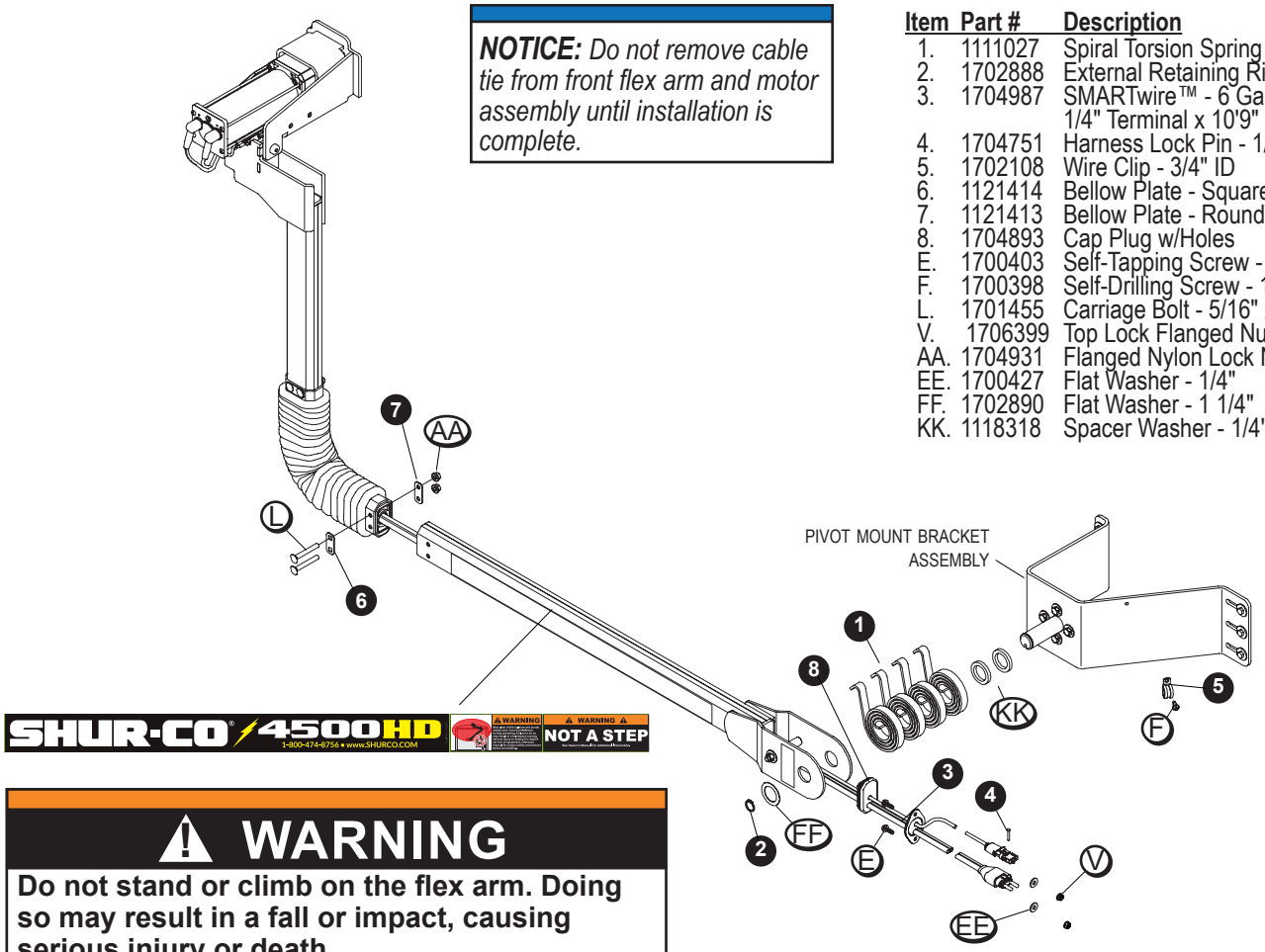


VERTICAL TRAILER



NOTICE: *Do not remove cable tie from front flex arm and motor assembly until installation is complete.*

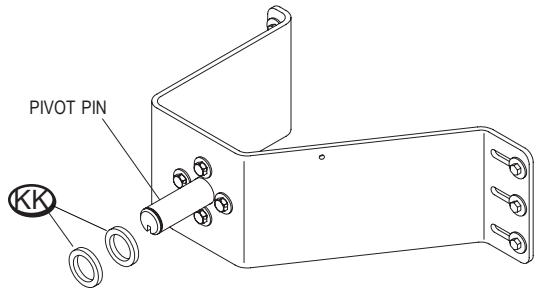
Item	Part #	Description
1.	1111027	Spiral Torsion Spring
2.	1702888	External Retaining Ring - 1-1/4"
3.	1704987	SMARTwire™ - 6 Ga. Plug x 1/4" Terminal x 10'9"
4.	1704751	Harness Lock Pin - 1/4" x 7/8"
5.	1702108	Wire Clip - 3/4" ID
6.	1121414	Bellow Plate - Square Holes
7.	1121413	Bellow Plate - Round Holes
8.	1704893	Cap Plug w/Holes
E.	1700403	Self-Tapping Screw - 1/4" x 3/4"
F.	1700398	Self-Drilling Screw - 1/4" x 3/4"
L.	1701455	Carriage Bolt - 5/16" x 2-1/2"
V.	1706399	Top Lock Flanged Nut - 1/4"
AA.	1704931	Flanged Nylon Lock Nut - 5/16"
EE.	1700427	Flat Washer - 1/4"
FF.	1702890	Flat Washer - 1 1/4"
KK.	1118318	Spacer Washer - 1/4" x 1.28"



⚠ WARNING

Do not stand or climb on the flex arm. Doing so may result in a fall or impact, causing serious injury or death.

STEP 1: Assemble spacer washers (**KK**) onto pivot pin.

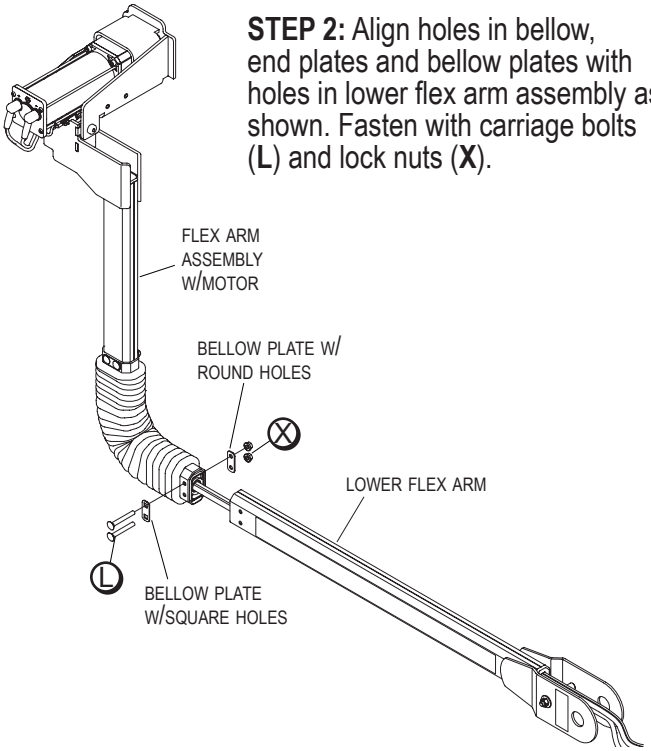


⚠ CAUTION

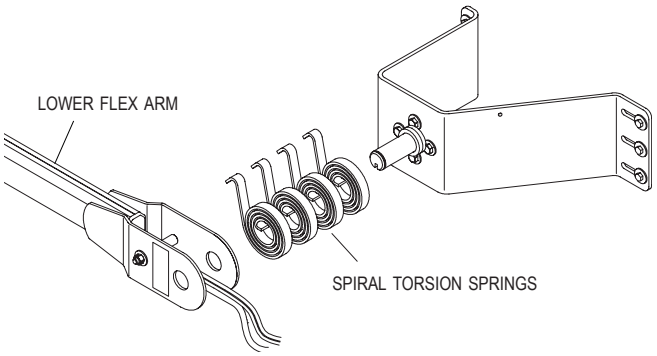
The arm assembly must be installed with the warning decals facing away from the trailer and in plain view.

NOTICE: *The motor assembly on the upper flex arm must face toward the trailer as shown.*

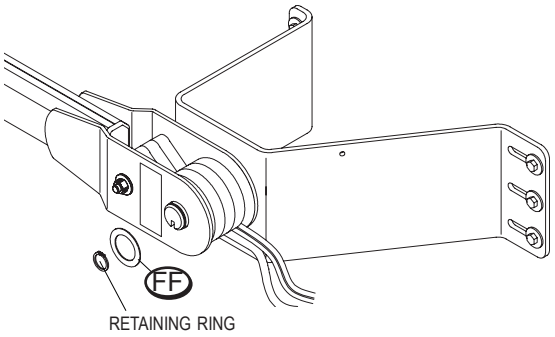
STEP 2: Align holes in bellow, end plates and bellow plates with holes in lower flex arm assembly as shown. Fasten with carriage bolts (**L**) and lock nuts (**X**).



STEP 3: Assemble spiral torsion springs and lower flex arm onto pivot pin. Hook springs over spacer tube.



STEP 4: Secure with flat washer (**FF**) and retaining ring.

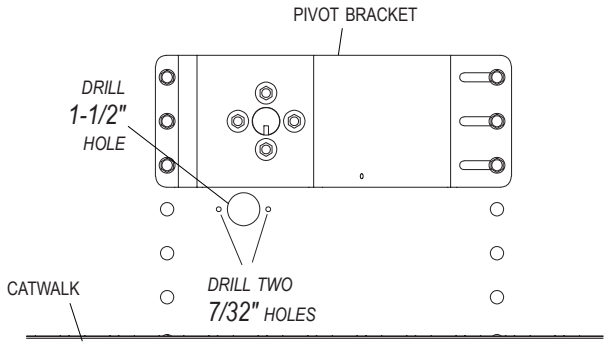


⚠ WARNING

Flex arms are under tension while torsion springs are engaged. Use caution when assembling and disassembling arms. Failure to read and follow instructions may result in serious injury or death.

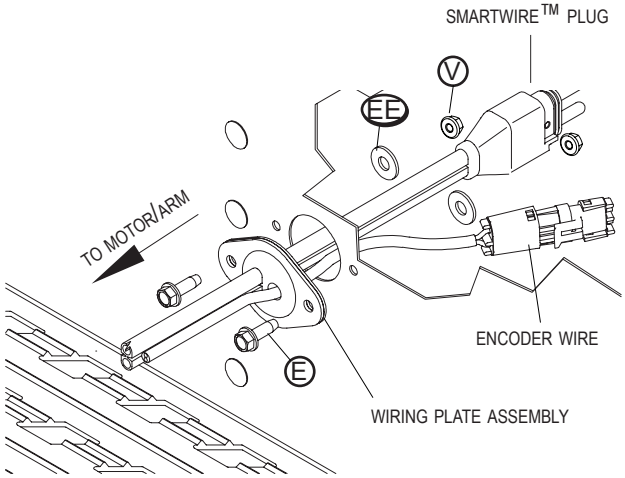
NOTICE: *Wire lengths are predetermined. Before installing SMARTwire™ components, review and confirm wire routing so wires reach components with ample room for connection.*

STEP 5: Measure 11 inches horizontally from center line of trailer and 1 inch down from lower edge of pivot bracket. Mark and drill 1-1/2 inch hole through trailer skin.



STEP 6: Align wire plate assembly with 1-1/2 inch hole. Using wiring hole as guide, mark and drill two 7/32 inch holes as shown.

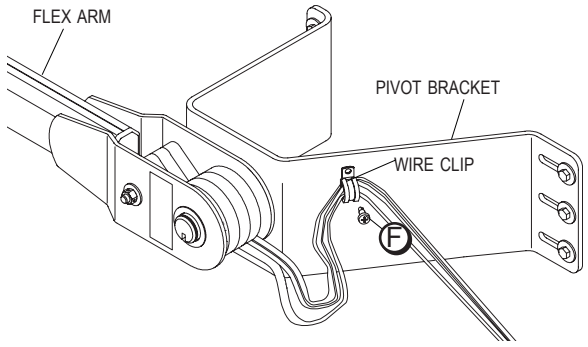
STEP 7: Fasten wire plate assembly to front of trailer with screws (**E**), washers (**EE**) and nuts (**V**).



⚠ CAUTION

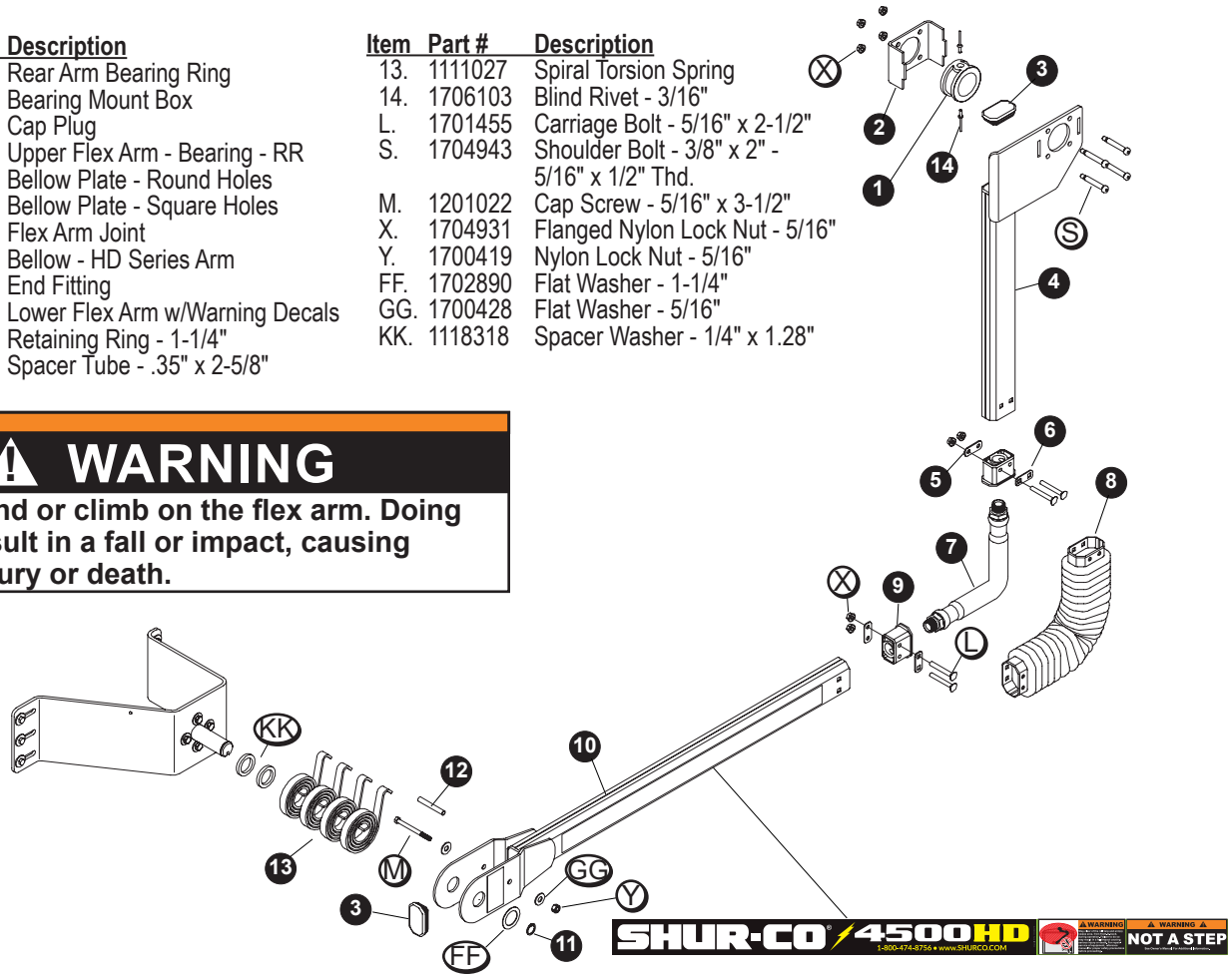
Fasten wire to the pilot hole on the opposite side of the pivot bracket, away from the flex arm, to prevent the wire from being pinched during operation.

NOTICE: *After all components are installed and system operation has been tested, choose appropriate pilot hole on the pivot bracket to secure the wire with the wire clip and self-drilling screw (F).*



Item	Part #	Description
1.	1704942	Rear Arm Bearing Ring
2.	1121430	Bearing Mount Box
3.	1704892	Cap Plug
4.	1121281	Upper Flex Arm - Bearing - RR
5.	1121413	Bellow Plate - Round Holes
6.	1121414	Bellow Plate - Square Holes
7.	1706825	Flex Arm Joint
8.	1704775	Bellow - HD Series Arm
9.	1704891	End Fitting
10.	1122000	Lower Flex Arm w/Warning Decals
11.	1702888	Retaining Ring - 1-1/4"
12.	1117033	Spacer Tube - .35" x 2-5/8"

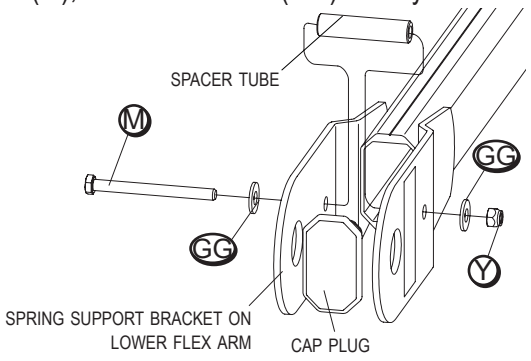
Item	Part #	Description
13.	1111027	Spiral Torsion Spring
14.	1706103	Blind Rivet - 3/16"
L.	1701455	Carriage Bolt - 5/16" x 2-1/2"
S.	1704943	Shoulder Bolt - 3/8" x 2" - 5/16" x 1/2" Thd.
M.	1201022	Cap Screw - 5/16" x 3-1/2"
X.	1704931	Flanged Nylon Lock Nut - 5/16"
Y.	1700419	Nylon Lock Nut - 5/16"
FF.	1702890	Flat Washer - 1-1/4"
GG.	1700428	Flat Washer - 5/16"
KK.	1118318	Spacer Washer - 1/4" x 1.28"



⚠ WARNING

Do not stand or climb on the flex arm. Doing so may result in a fall or impact, causing serious injury or death.

STEP 1: Install cap plug on lower flex arm. Fasten spacer tube into spring support bracket on lower flex arm with screw (**M**), two flat washers (**GG**) and nylon lock nut (**Z**).

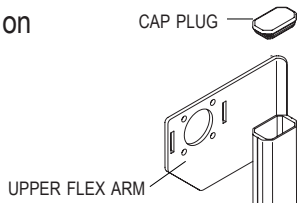


NOTICE: *Insert cap screw through flex arm so head of screw is on inside of assembly (towards trailer).*

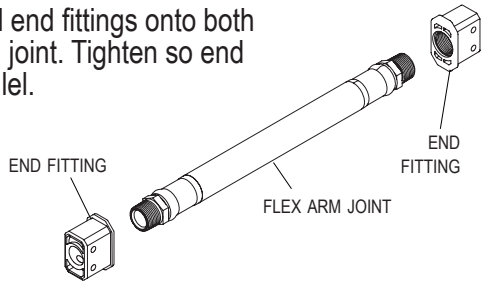
⚠ CAUTION

The arm assembly must be installed with the warning decals facing away from the trailer and in plain view.

STEP 2: Install cap plug on rear upper flex arm.



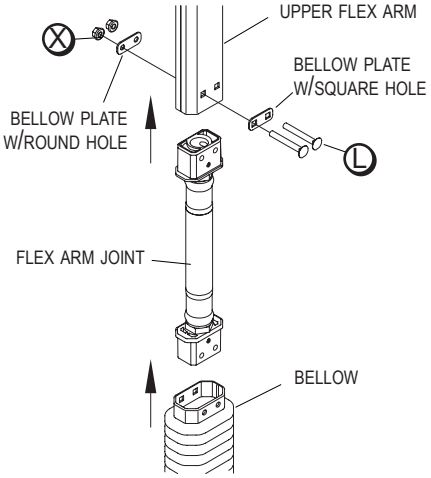
STEP 3: Thread end fittings onto both ends of flex arm joint. Tighten so end fittings are parallel.



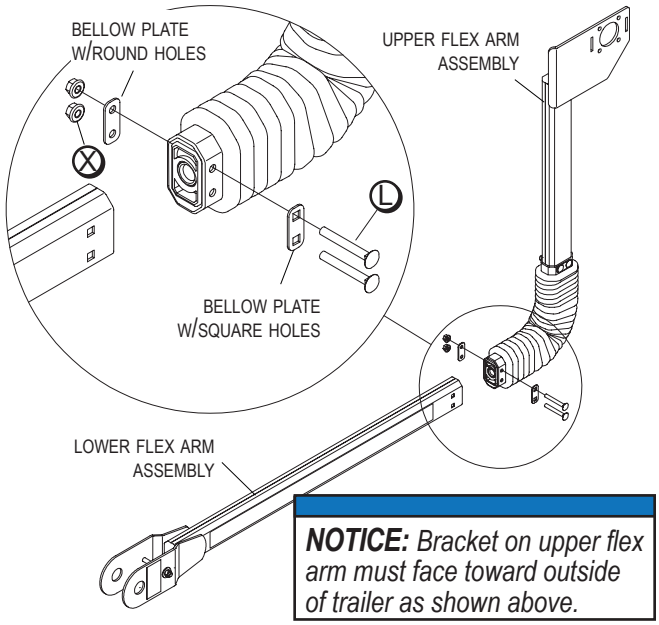
⚠ WARNING

Flex arms are under tension while torsion springs are engaged. Use caution when assembling and disassembling arms. Failure to read and follow instructions may result in serious injury or death.

STEP 4: Insert flex arm joint into upper flex arm and slide bellow over flex arm joint. Align holes in upper flex arm, bellow plates, flex arm joint and bellow. Fasten with carriage bolts (**L**) and lock nuts (**X**).

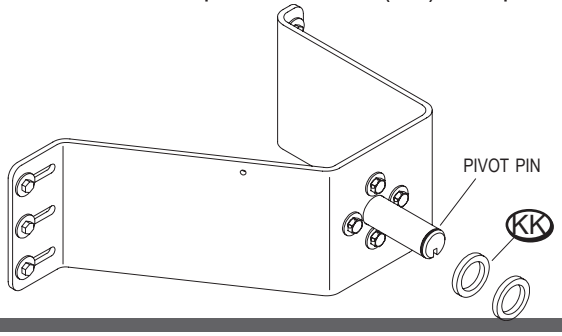


STEP 5: Insert lower end fitting into lower flex arm assembly with end of bellow over outside of arm. Align holes in lower flex arm assembly, bellow plates, end fitting and bellow. Fasten with carriage bolts (**L**) and lock nuts (**X**).

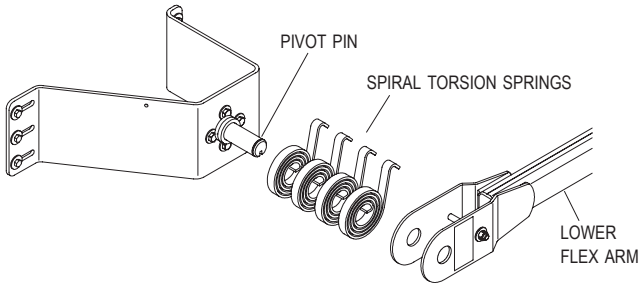


NOTICE: *Bracket on upper flex arm must face toward outside of trailer as shown above.*

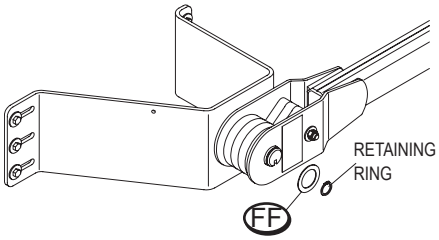
STEP 6: Assemble spacer washers (**KK**) onto pivot pin.



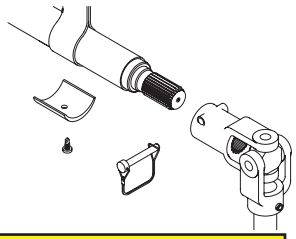
STEP 7: Assemble spiral torsion springs and lower flex arm onto pivot pin. Hook springs over spacer tube.



STEP 8: Secure with flat washer (**FF**) and retaining ring.



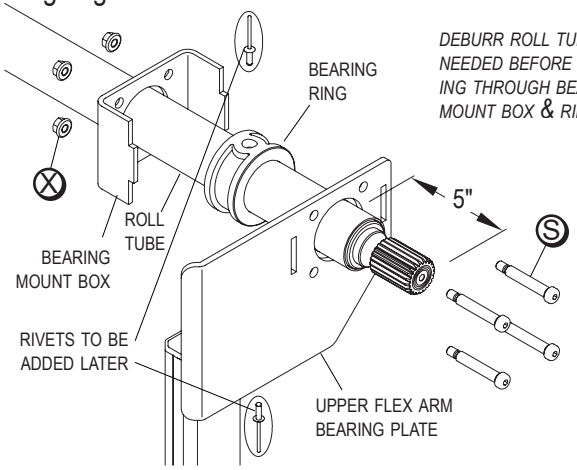
STEP 9: Roll tarp closed over box with roll tube hanging below latchplate. Remove crank assembly and U-clamps from roll tube.



⚠ CAUTION

Remove any existing returns, such as a cable return, bungee return, etc. Do not leave the tarping system unattended until the flex arm is securely fastened to the roll tube extension.

STEP 10: Insert roll tube through bearing mount box, bearing ring and upper flex arm bearing plate, aligning end of splined shaft 5 inches past bearing plate as shown. Fasten with shoulder bolts (**S**) and nuts (**X**) as shown, anchoring bearing ring between bolts.

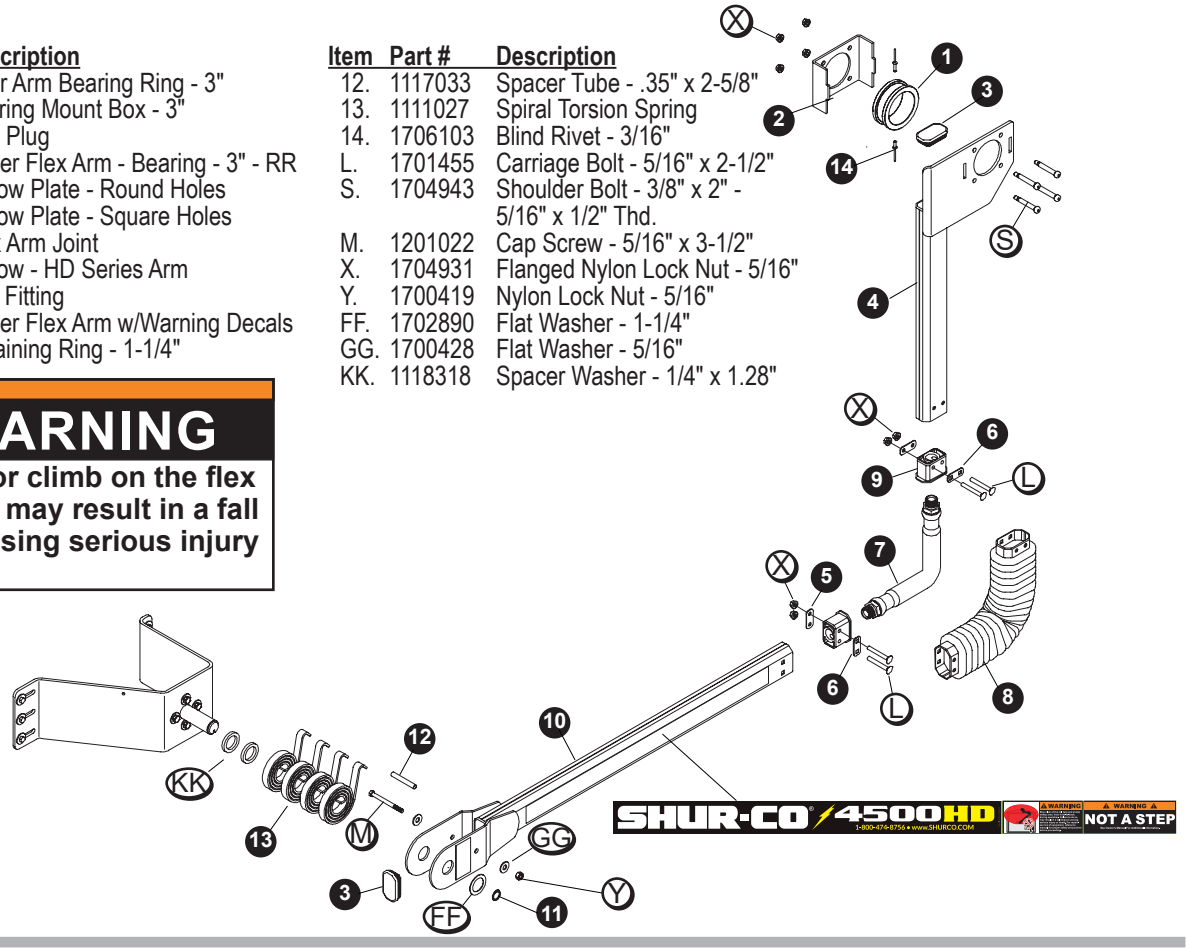


Item	Part #	Description
1.	1705160	Rear Arm Bearing Ring - 3"
2.	1123248	Bearing Mount Box - 3"
3.	1704892	Cap Plug
4.	1124958	Upper Flex Arm - Bearing - 3" - RR
5.	1121413	Bellow Plate - Round Holes
6.	1121414	Bellow Plate - Square Holes
7.	1706825	Flex Arm Joint
8.	1704775	Bellow - HD Series Arm
9.	1704891	End Fitting
10.	1121999	Lower Flex Arm w/Warning Decals
11.	1702888	Retaining Ring - 1-1/4"

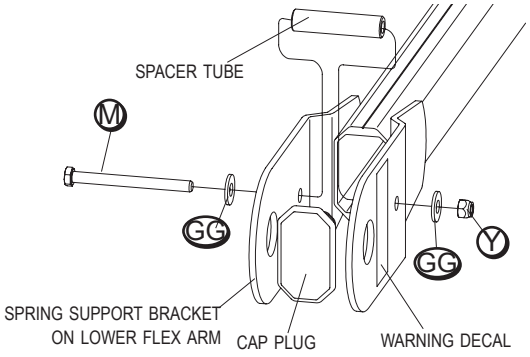
Item	Part #	Description
12.	1117033	Spacer Tube - .35" x 2-5/8"
13.	1111027	Spiral Torsion Spring
14.	1706103	Blind Rivet - 3/16"
L.	1701455	Carriage Bolt - 5/16" x 2-1/2"
S.	1704943	Shoulder Bolt - 3/8" x 2" - 5/16" x 1/2" Thd.
M.	1201022	Cap Screw - 5/16" x 3-1/2"
X.	1704931	Flanged Nylon Lock Nut - 5/16"
Y.	1700419	Nylon Lock Nut - 5/16"
FF.	1702890	Flat Washer - 1-1/4"
GG.	1700428	Flat Washer - 5/16"
KK.	1118318	Spacer Washer - 1/4" x 1.28"

⚠ WARNING

Do not stand or climb on the flex arm. Doing so may result in a fall or impact, causing serious injury or death.



STEP 1: Install cap plug on lower flex arm. Fasten spacer tube into spring support bracket on lower flex arm with screw (**M**), washers (**GG**) and nut (**Y**).

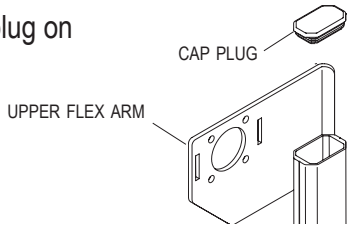


NOTICE: *Insert cap screw through flex arm so head of screw is on inside of assembly (towards trailer).*

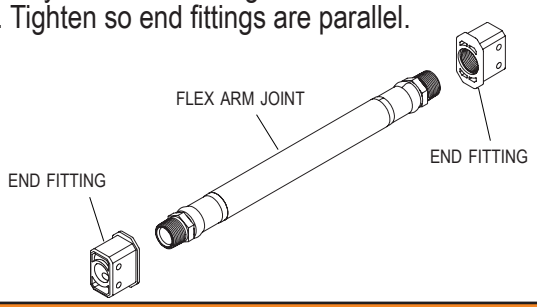
⚠ CAUTION

The arm assembly must be installed with the warning decals facing away from the trailer and in plain view.

STEP 2: Install cap plug on rear upper flex arm.



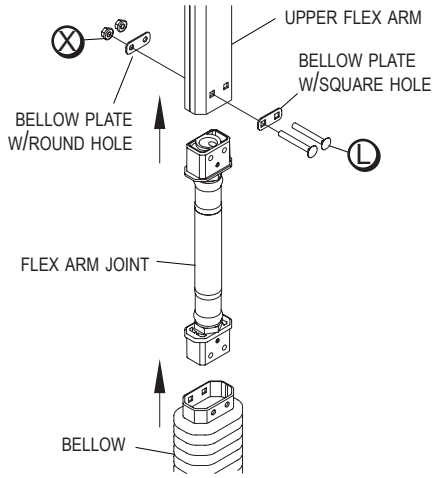
STEP 3: Fully thread end fittings onto both ends of flex arm joint. Tighten so end fittings are parallel.



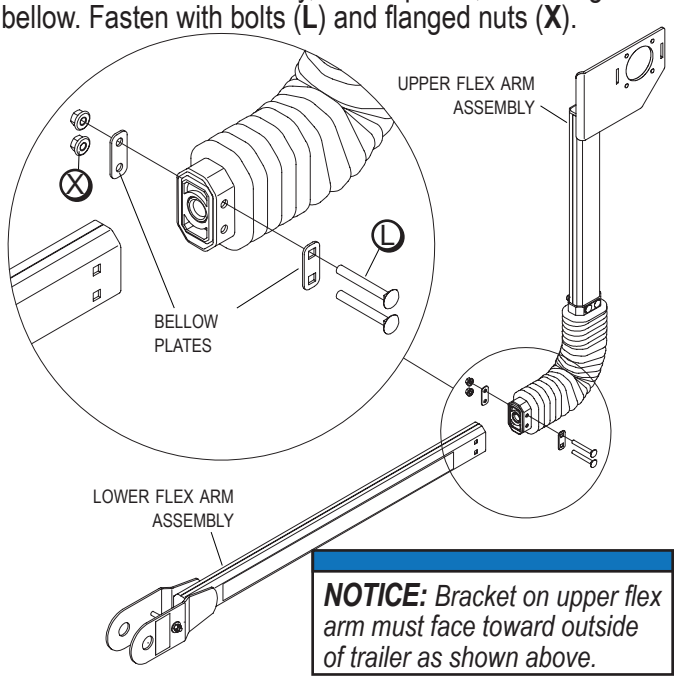
⚠ WARNING

Flex arms are under tension while torsion springs are engaged. Use caution when assembling and disassembling arms. Failure to read and follow instructions may result in serious injury or death.

STEP 4: Insert flex arm joint into upper flex arm and slide bellow over flex arm joint. Align holes in upper flex arm, bellow plates, flex arm joint and bellow. Fasten with bolts (**L**) and flanged nuts (**X**).

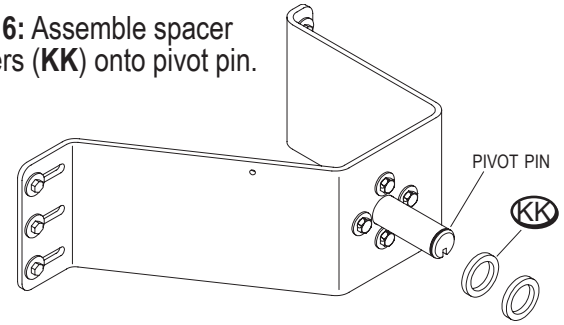


STEP 5: Insert lower end fitting into lower flex arm assembly with end of bellow over outside of arm. Align holes in lower flex arm assembly, bellow plates, end fitting and bellow. Fasten with bolts (**L**) and flanged nuts (**X**).

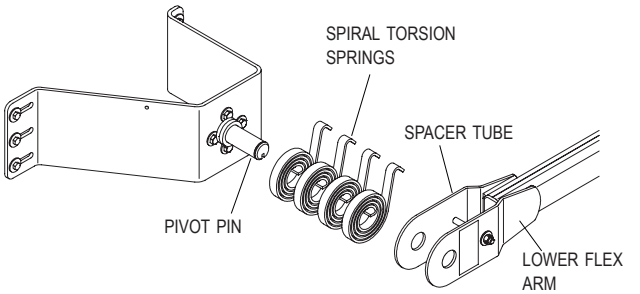


NOTICE: *Bracket on upper flex arm must face toward outside of trailer as shown above.*

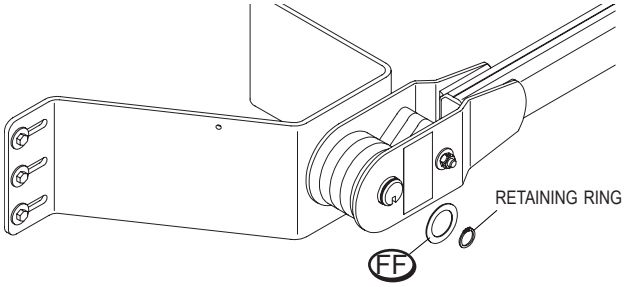
STEP 6: Assemble spacer washers (**KK**) onto pivot pin.



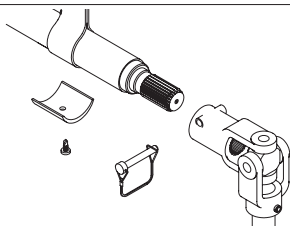
STEP 7: Assemble spiral torsion springs and lower flex arm onto pivot pin. Hook springs over spacer tube.



STEP 8: Secure with washer (**FF**) and retaining ring.



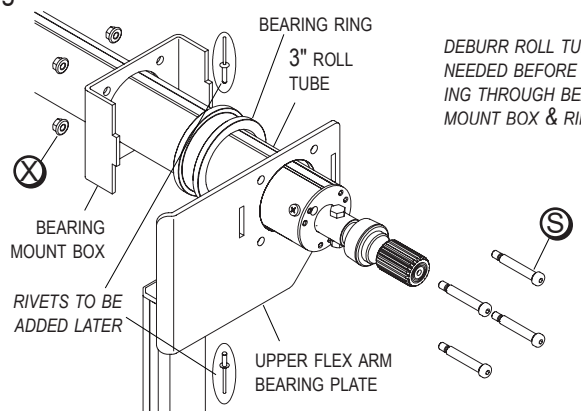
STEP 9: Roll tarp closed over box with roll tube hanging below latchplate. Remove crank assembly and U-clamps from roll tube.

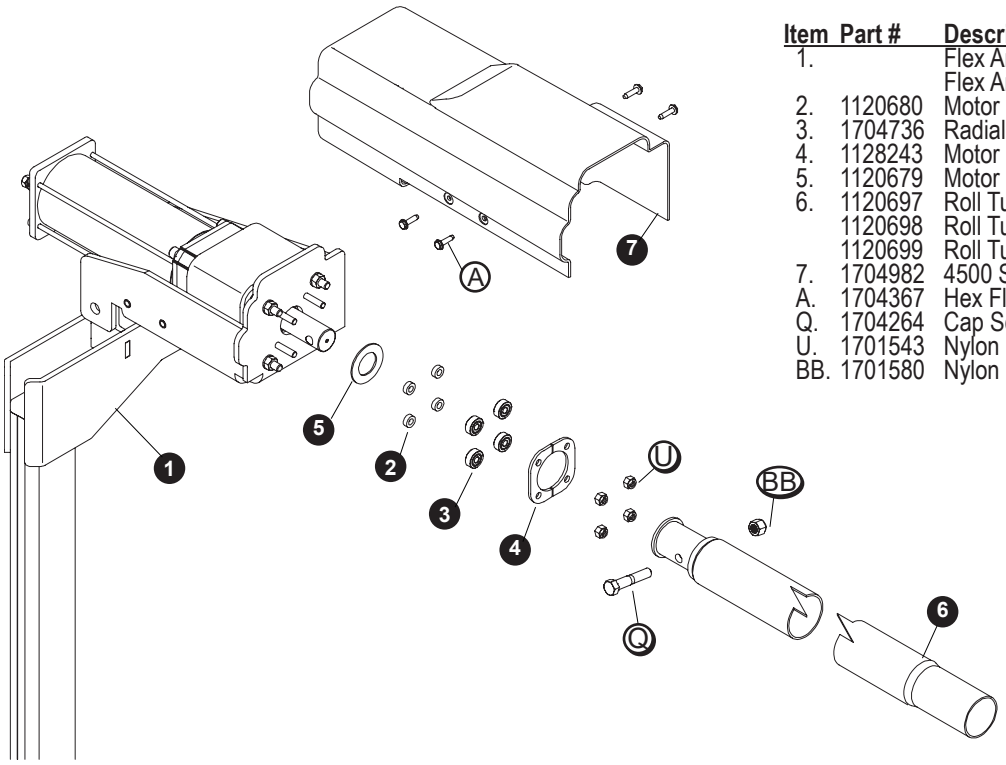


⚠ CAUTION

Remove any existing returns, such as a cable return, bungee return, etc. Do not leave the tarping system unattended until the flex arm is securely fastened to the roll tube extension.

STEP 10: Insert roll tube through bearing mount box, bearing ring and upper flex arm bearing plate, aligning end of splined shaft 5 inches past bearing plate as shown. Fasten with bolts (**S**) and nuts (**X**) as shown, anchoring bearing ring between bolts.



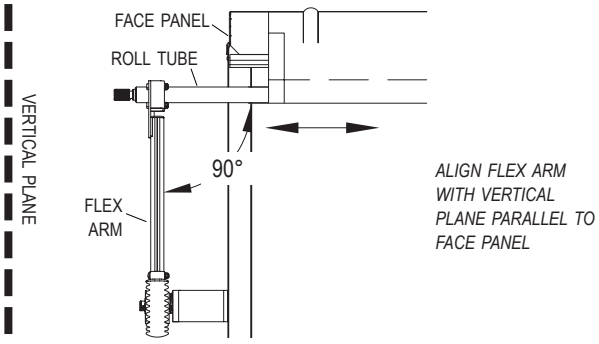


Item	Part #	Description
1.		Flex Arm Assembly w/Motor - Std. - RR
		Flex Arm Assembly w/Motor - 7-1/4" - RR
2.	1120680	Motor Mount Bearing Spacer
3.	1704736	Radial Ball Bearing - 1/4" x 3/4"
4.	1128243	Motor Mount Bearing Retainer
5.	1120679	Motor Spacer
6.	1120697	Roll Tube Extension w/Drive Shaft - 34.43"
	1120698	Roll Tube Extension w/Drive Shaft - 45.37"
	1120699	Roll Tube Extension w/Drive Shaft - 74.87"
7.	1704982	4500 Series Motor Cover - Black
A.	1704367	Hex Flange Cap Screw - #10 x 3/4"
Q.	1704264	Cap Screw - 3/8" x 2" - Grade 8
U.	1701543	Nylon Lock Nut - 1/4"
BB.	1701580	Nylon Lock Nut - 3/8"

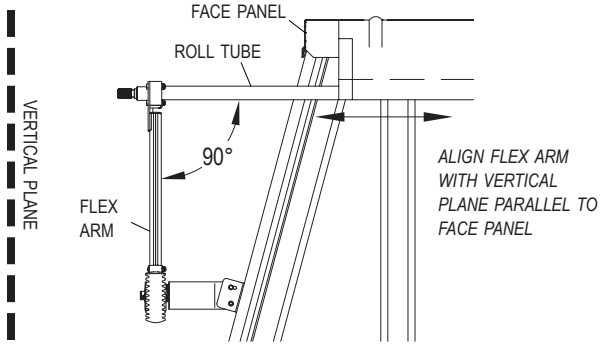
REAR OF TRAILER

STEP 1: Adjust roll tube toward front or rear of trailer so rear flex arm lies on vertical plane parallel to face panel and perpendicular to roll tube extension. Mark roll tube where roll tube extension ends.

VERTICAL TRAILER



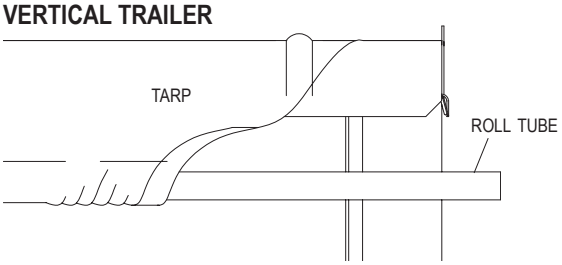
SLOPED TRAILER



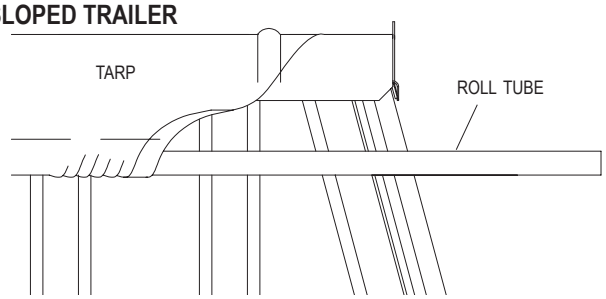
FRONT OF TRAILER

STEP 2: Slide tarp back on roll tube.

VERTICAL TRAILER



SLOPED TRAILER



⚠ CAUTION

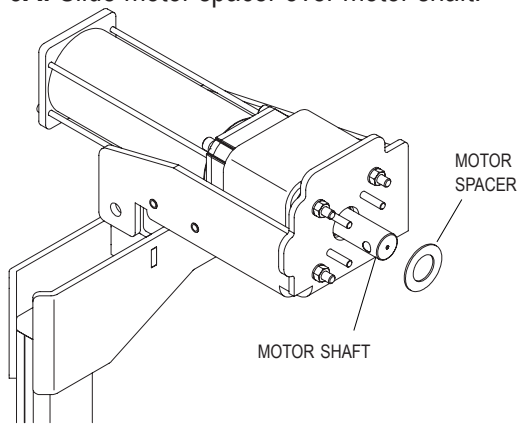
Do not leave the tarping system unattended until the flex arm is securely fastened to the roll tube extension.

⚠ CAUTION

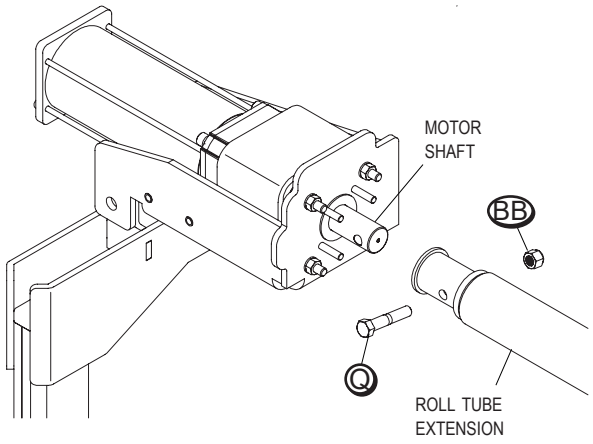
Avoid pinch points when sliding the roll tube extension over the motor shaft and during tightening. Keep hands and fingers clear of moving parts to prevent injury.

Fasten roll tube extension to motor mount bracket:

STEP 3A: Slide motor spacer over motor shaft.



STEP 3B: Slide roll tube extension over motor shaft. Fasten with screws (**Q**) and lock nuts (**BB**). Finger tighten only.



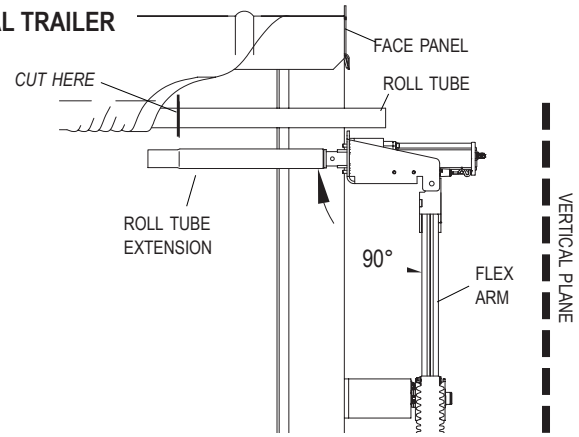
STEP 4: Hold flex arm with motor and roll tube extension in vertical plane to trailer and 90° to roll tube. Mark roll tube at location to be cut.

NOTICE: *This installation requires two people for safe and efficient completion.* (x2)

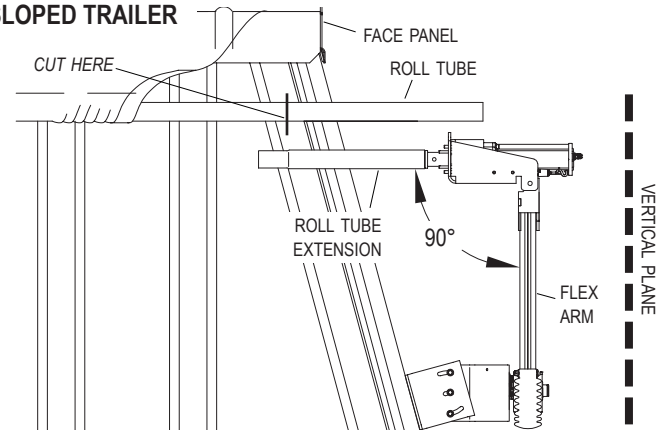
⚠ CAUTION

On certain trailers, clearance lights may obstruct the roll tube and could be damaged if caution is not taken. A deflector may need to be installed to prevent the roll tube from damaging the lights.

VERTICAL TRAILER



SLOPED TRAILER

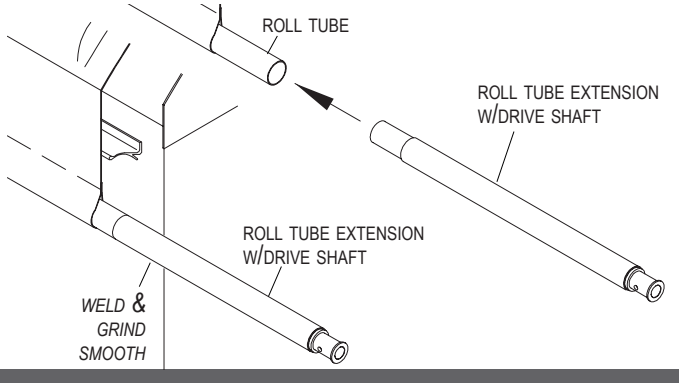


STEP 5: Reverse step 3B to unfasten and remove motor from roll tube extension. Remove roll tube extension from roll tube. Cut roll tube at marked location.

STEP 6: Insert swaged end of roll tube extension w/drive shaft into roll tube. Align extension straight with roll tube and weld all around. Grind smooth.

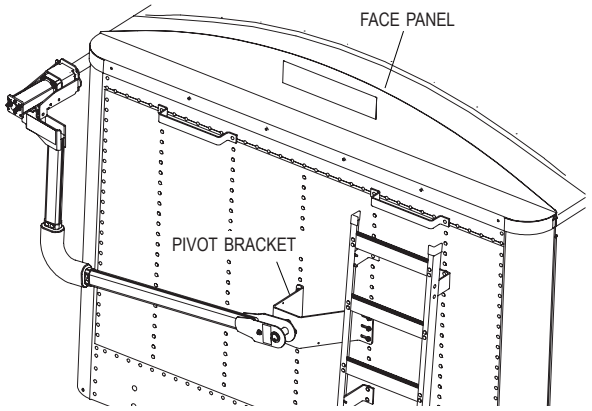
⚠ CAUTION

Pull the roll tube away from the tarp and trailer before welding to prevent weld spatter damage. Ensure the roll tube extension is aligned straight with the roll tube before welding to allow the tarp system to roll smoothly.



NOTICE: *To prevent rust, paint all exposed metal, such as weld seams and/or metal exposed by grinding or cutting, with corrosion-resistant paint.*

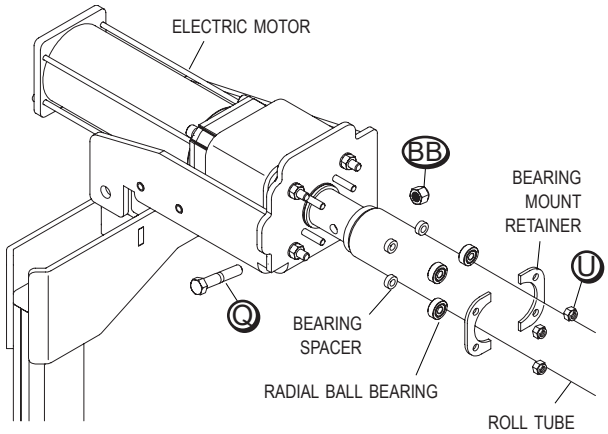
STEP 7: Slide roll tube/roll tube extension weldment back into position and align upper flex arm on front of trailer. Follow STEP 8 to install motor, positioning motor as shown below. Make sure torsion springs load when tarp opens.



⚠ WARNING

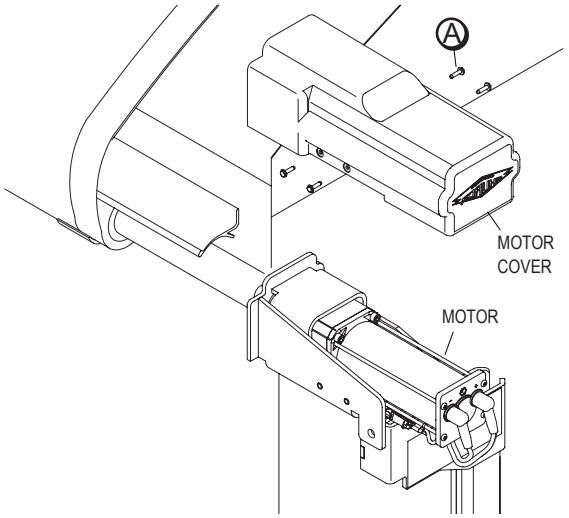
Flex arms are under tension while torsion springs are engaged. Use caution when assembling and disassembling arms. Failure to read and follow instructions may result in serious injury or death.

STEP 8: Fasten and secure roll tube to electric motor shaft with screw (**Q**) and lock nut (**BB**). Install bearing spacers, radial ball bearings and bearing mount retainer and secure with nuts (**U**).



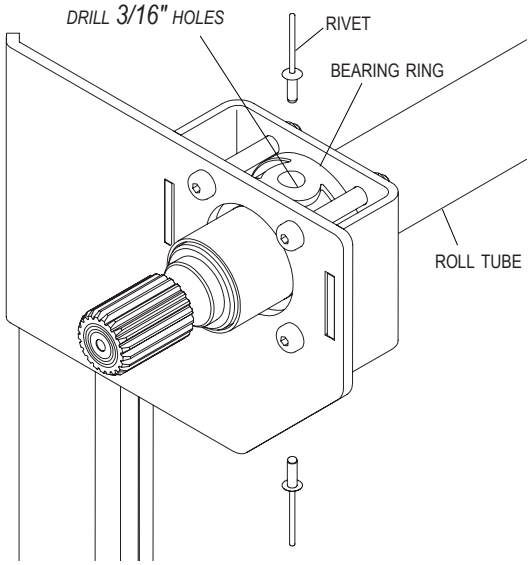
NOTICE: *Verify again that the front arm is on a vertical plane and parallel to the face panel before proceeding. Make sure all fasteners holding the motor to the upper arm bracket are securely tightened.*

STEP 9: Fasten motor cover onto motor with screws (**A**).

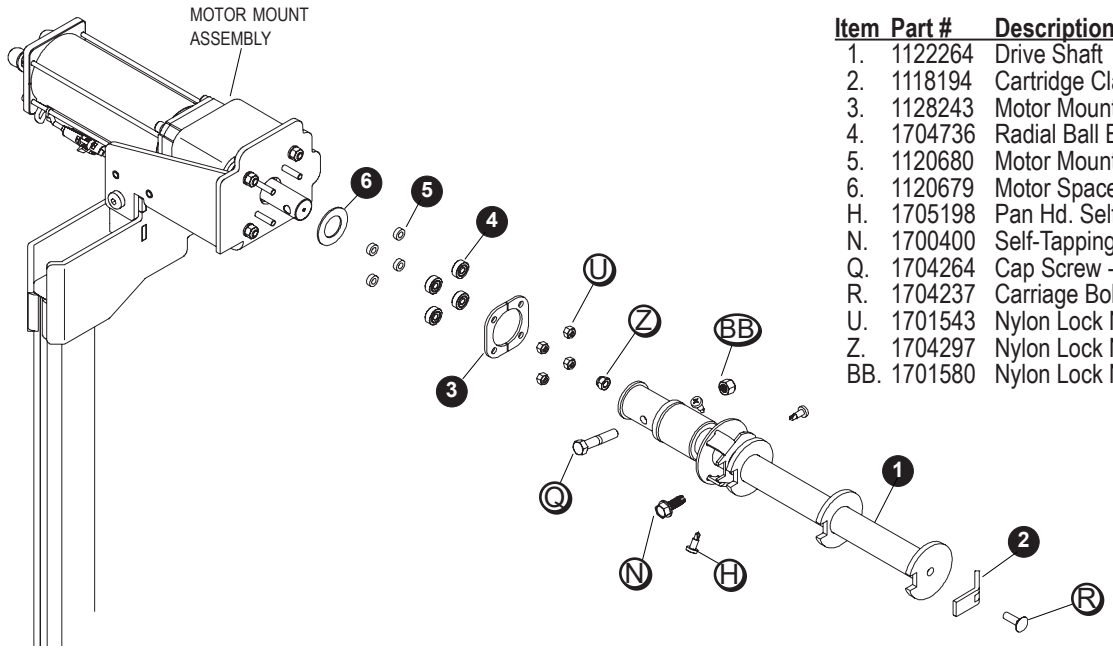


STEP 10: Adjust rear roll tube extension to align flex arm on vertical plane parallel to face panel. Do not drill holes and/or fasten until tarp and roll tube are in desired position.

STEP 11: When both front and rear flex arms are vertical, drill 3/16 inch holes and fasten bearing ring to roll tube with two rivets.



STEP 12: Fasten tarp to roll tube with existing U-clamps and screws. Tighten all fasteners securely. Tighten front and rear flex arm connections.

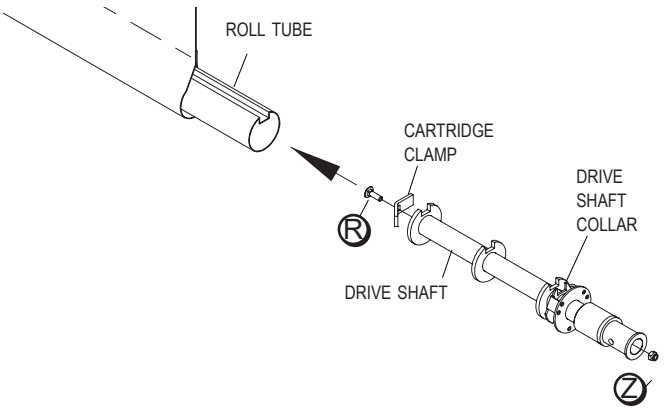


Item	Part #	Description
1.	1122264	Drive Shaft
2.	1118194	Cartridge Clamp
3.	1128243	Motor Mount Bearing Retainer
4.	1704736	Radial Ball Bearing - 1/4" x 3/4"
5.	1120680	Motor Mount Bearing Spacer
6.	1120679	Motor Spacer
H.	1705198	Pan Hd. Self-Drilling Screw - 1/4" x 1"
N.	1700400	Self-Tapping Screw - 3/8" x 1"
Q.	1704264	Cap Screw - 3/8" x 2" - GR8
R.	1704237	Carriage Bolt - 5/16" x 1"
U.	1701543	Nylon Lock Nut - 1/4"
Z.	1704297	Nylon Lock Nut - 5/16"
BB.	1701580	Nylon Lock Nut - 3/8"

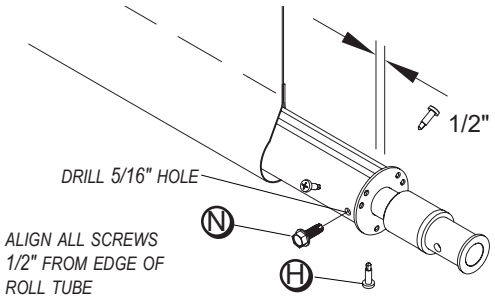
⚠ CAUTION

Avoid pinch points when sliding the roll tube extension over the motor shaft and during tightening. Keep hands and fingers clear of moving parts to prevent injury.

STEP 1: Loosely fasten cartridge clamp to drive shaft with screw (**R**) and lock nut (**Z**). Insert drive shaft into roll tube as shown. To secure drive shaft to roll tube, tighten nut (**Z**) to 20 ft.-lbs.



STEP 2: Install three screws (**H**) through roll tube and flats on drive shaft collar. Drill 5/16 inch hole between flats and collar, then fasten screw (**N**) through roll tube and drive shaft collar.



⚠ CAUTION

On certain trailers, clearance lights may obstruct the roll tube and could be damaged if caution is not taken. A deflector may need to be installed to prevent the roll tube from damaging the lights.

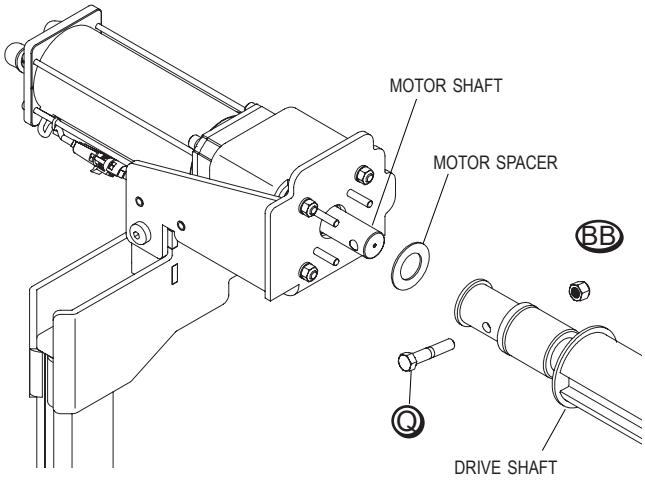
⚠ CAUTION

Do not leave the tarping system unattended until the flex arm is securely fastened to the roll tube extension.

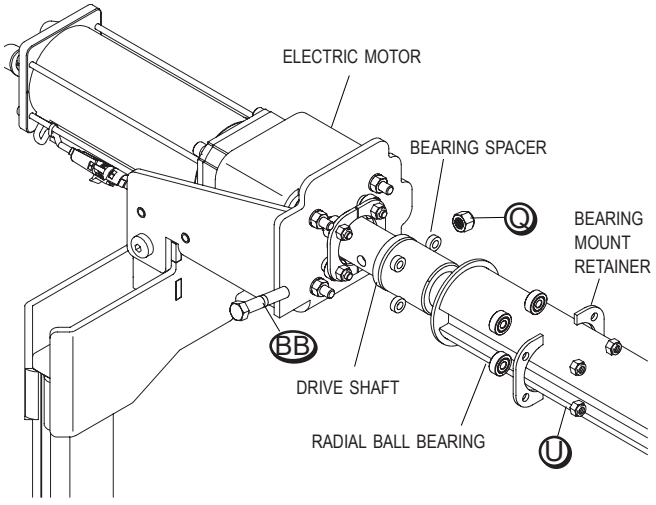
⚠ WARNING

Flex arms are under tension while torsion springs are engaged. Use caution when assembling and disassembling arms. Failure to read and follow instructions may result in serious injury or death.

STEP 3: Slide motor spacer over motor shaft. Slide drive shaft over motor shaft. Fasten with screws (**Q**) and nuts (**BB**). Finger tighten only.

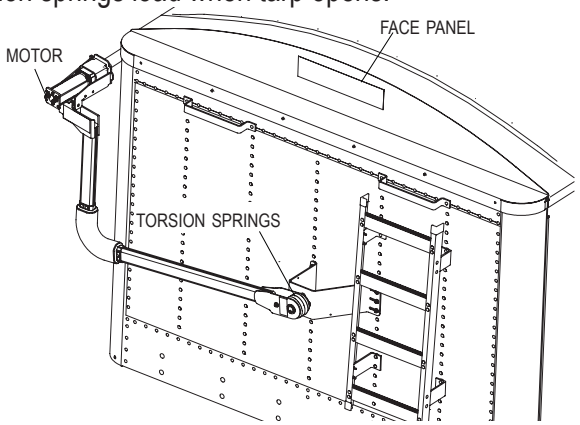


STEP 4: Fasten drive shaft to electric motor shaft with screw (**Q**) and nut (**BB**). Install bearing spacers, radial ball bearings and bearing mount retainer and secure with lock nuts (**U**).

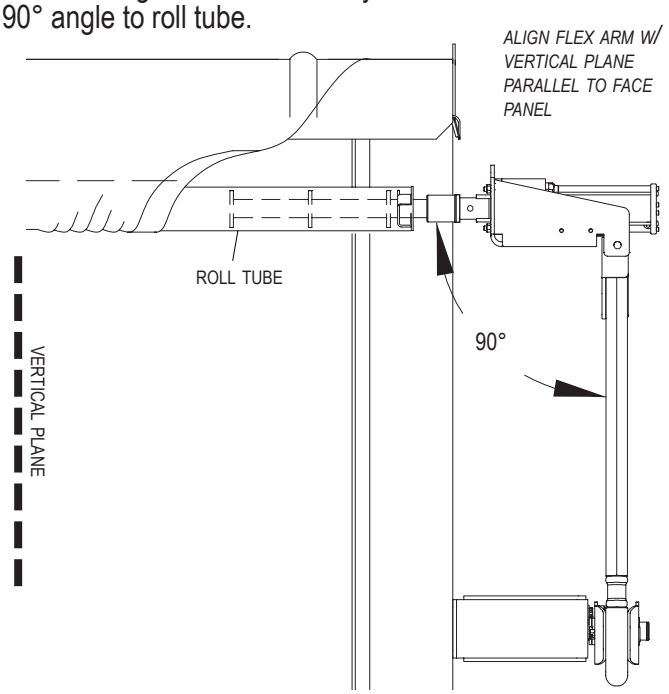


NOTICE: *Make sure all fasteners holding motor to upper flex arm bracket are tightened securely.*

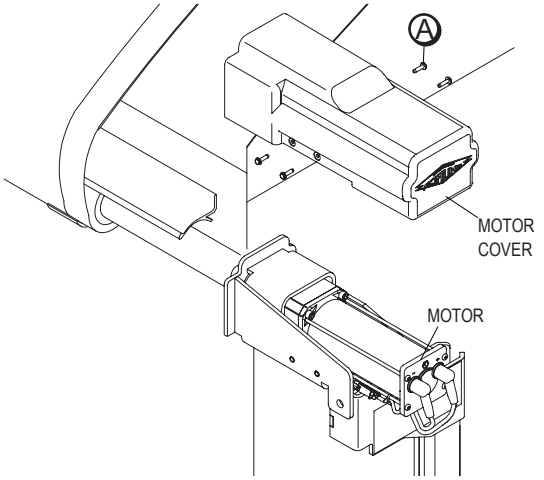
STEP 5: Position motor as shown below. Make sure torsion springs load when tarp opens.

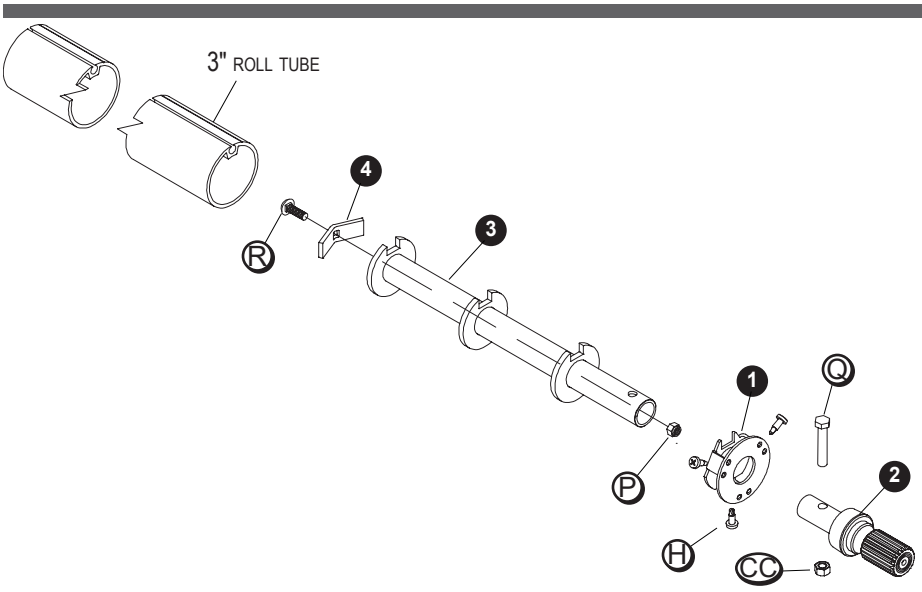


STEP 6: Align flex arm vertically with front of trailer and at 90° angle to roll tube.



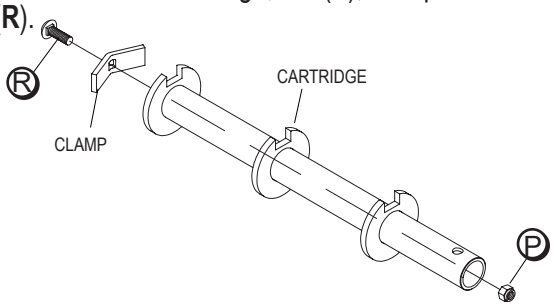
STEP 7: Fasten motor cover onto motor with screws (**A**).



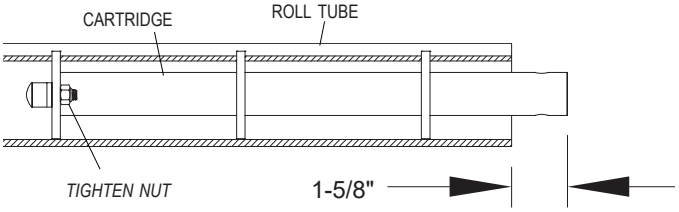


Item	Part #	Description
1.	1121040	Roll Tube Cap - 3" Spline
2.	1121111	Manual Crank Spline - 3" Tube
3.	1121039	Cartridge - 3" Spline End
4.	1118194	Cartridge Clamp
H.	1705198	Self-Drilling Screw - 1/4" x 1"
P.	1704297	Nylon Lock Nut - 5/16"
Q.	1704264	Cap Screw - 3/8" x 2"
R.	1704237	Carriage Bolt - 5/16" x 1"
CC.	1702668	Top Lock Nut - 3/8"

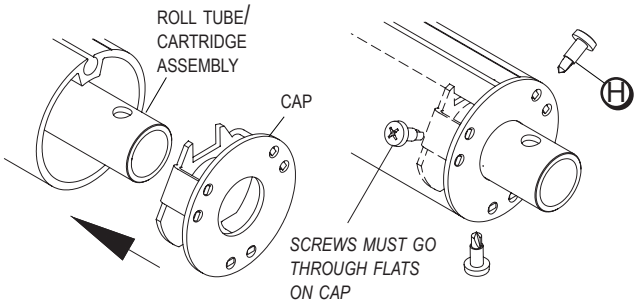
STEP 1: Assemble cartridge, nut (**P**), clamp and carriage bolt (**R**).



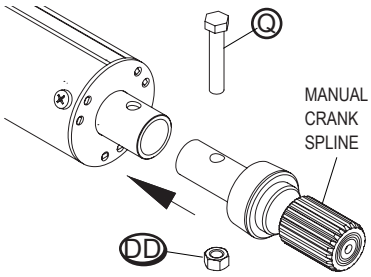
STEP 2: Insert cartridge assembly into roll tube. Position cartridge to extend 1-5/8 inches past end of roll tube. Tighten nut to 20 ft./lbs.



STEP 3: Insert cap into roll tube/cartridge assembly. Fasten three screws (**H**) through roll tube and flats on sides of cap.

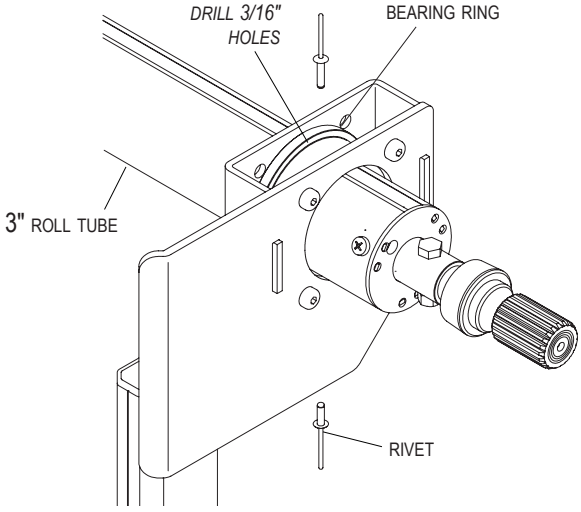


STEP 4: Insert manual crank spline into roll tube assembly. Secure with screw (**Q**) and nut (**CC**).

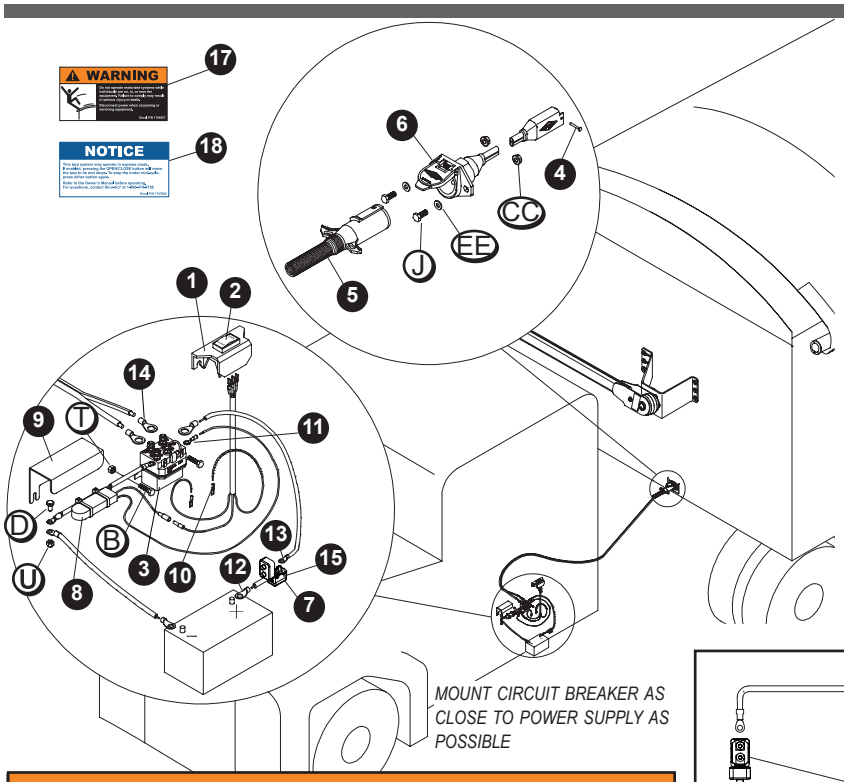


STEP 5: Adjust rear roll tube extension to align flex arm on vertical plane parallel to face panel. Do not drill holes and/ or fasten until tarp and roll tube are in desired position.

STEP 6: When both front and rear flex arms are vertical, drill 3/16 inch holes and fasten bearing ring to roll tube with two rivets.



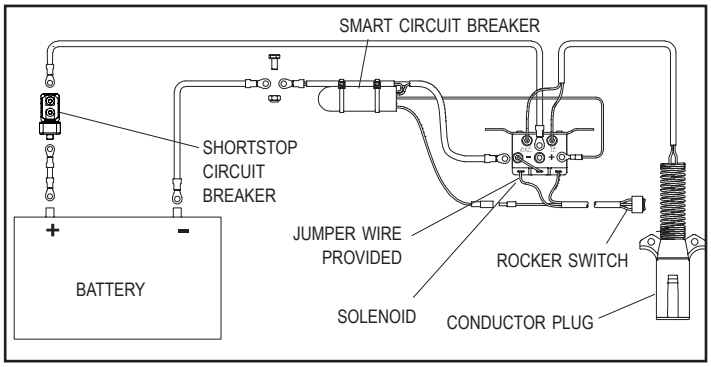
STEP 7: Fasten tarp to roll tube with existing U-clamps and screws. Tighten all fasteners securely. Tighten front and rear flex arm connections.



Item	Part #	Description
1.	1703661	Rocker Switch Mounting Bracket
2.	1116020	Rocker Switch
3.	1703845	Motor-Reversing Solenoid
4.	1704751	Harness Lock Pin - 1/4" x 7/8"
5.	1115385	Heavy-Duty Dual-Conductor Plug
6.	1120670	SMARTwire™ Dual-Conductor Socket
7.	1704354	40-Amp Reset Circuit Breaker - Shortstop
8.	1705624	50-Amp SMART Circuit Breaker
9.	1703896	Solenoid Cover
10.	1703659	Push-On Terminal - 14 Ga. 1/4"
11.	1704153	Ring Terminal - 14 Ga. x 1/4" Stud
12.	1703244	Ring Terminal - 6 Ga. x 3/8" Stud
13.	1703245	Ring Terminal - 6 Ga. x #10 Stud
14.	1702707	Ring Terminal - 6 Ga. 1/4" Stud
15.	1704411	Circuit Breaker Boot - Red
16.	1704378	Dielectric Grease (not pictured)
17.	1704627	Motorized System Warning Decal
18.	1707865	Express Operation Decal
B.	1704905	Flanged Cap Screw - #10 x 1"
D.	1703959	Cap Screw - 1/4" x 3/4"
J.	1701045	Cap Screw - 5/16" x 3/4"
T.	1808844	Nylon Lock Nut - #10
U.	1701543	Nylon Lock Nut - 1/4"
CC.	1704946	Flanged Top Lock Nut - 5/16"
EE.	1700427	Flat Washer - 1/4"

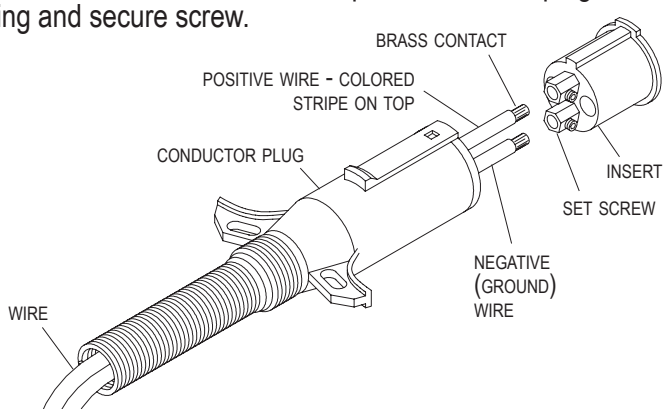
⚠ WARNING

When transporting trailer, wiring from in-cab rocker switch must be connected to 4500 HD system on trailer. If motor is not connected to power while in transit, tarp may unwind and blow off.



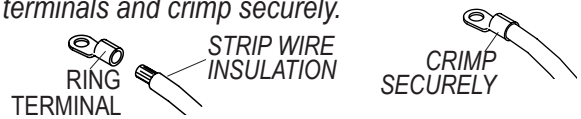
STEP 1: Mount solenoid in battery box or other location protected from elements and road debris. Solenoid posts should face up.

STEP 2: Assemble conductor plug. Unfasten screw and remove insert from plug housing. Feed 6-ga. dual wire through plug housing. Strip insulation back 1/2 inch and insert bare wire strands into brass contacts. Ensure there are no loose wire strands that could short circuit. Tighten set screws to secure wires. Replace insert into plug housing and secure screw.

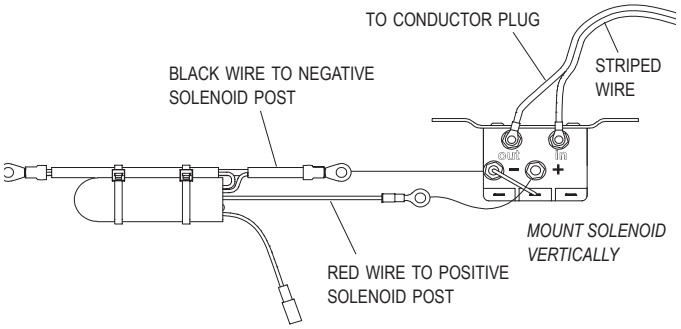


STEP 3: Route 6-ga. dual wire from conductor plug to solenoid and cut wire to length. Crimp and connect 1/4 inch ring terminals to rear two solenoid posts. Striped wire should be connected to right rear post. Orient wires so shield can be mounted over solenoid later.

NOTICE: *Cut wires to length and strip only enough wire insulation to install ring terminals. Insert bare wire into ring terminals and crimp securely.*



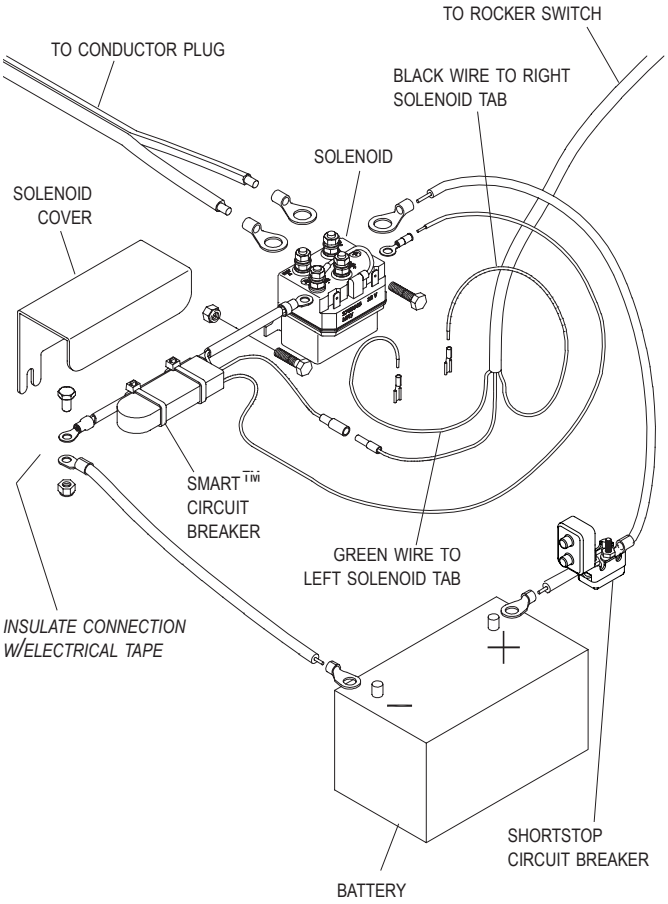
STEP 4: Connect SMART™ circuit breaker to solenoid.



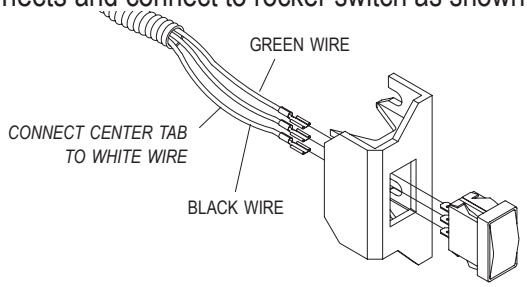
STEP 5: Connect SMART™ breaker to battery. Make jumper out of black 6-ga. wire (no stripe). Connect one end to battery negative post and bolt other ring terminal to SMART™ breaker. Insulate bolted connection with electrical tape.

NOTICE: *When splitting dual 6-ga. wire into separate halves to make jumper wires, use sharp knife to split webbing in order to prevent insulation from tearing and exposing metal strands.*

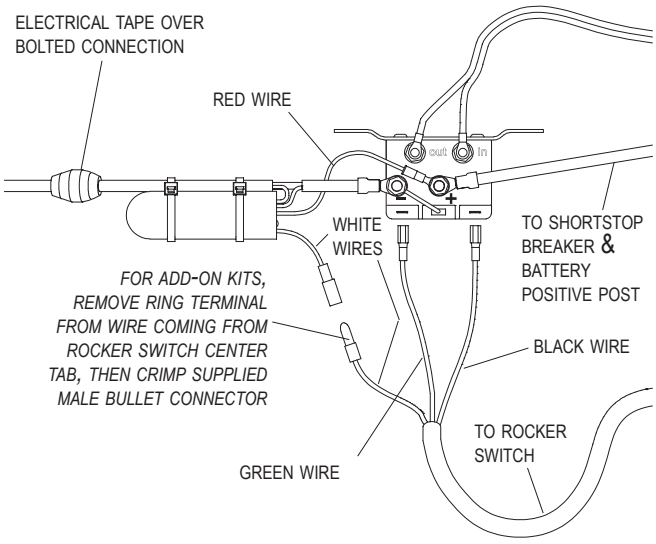
STEP 6: Push circuit breaker boot onto shortstop circuit breaker. Locate shortstop circuit breaker within 1 foot of battery positive post. Make jumper wires out of 6-ga. wire (with stripe) for connecting shortstop breaker between positive battery post and positive solenoid post. Connect breaker to positive solenoid post, but do not connect breaker to positive battery post at this time.



STEP 7: Mount rocker switch in cab in convenient location on dash panel or door jamb. Crimp female quick disconnects and connect to rocker switch as shown.

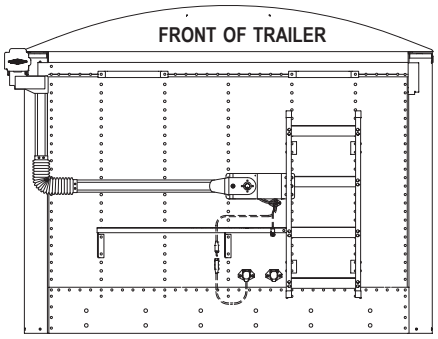


STEP 8: Route 14-ga. 3-conductor cable between rocker switch and solenoid.



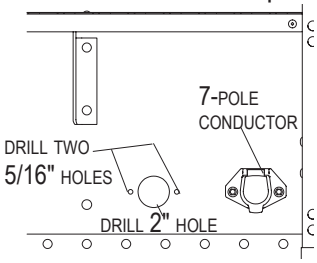
STEP 9: Mount solenoid cover over solenoid and tighten fasteners.

STEP 10: Connect shortstop breaker to battery positive post and test operation.



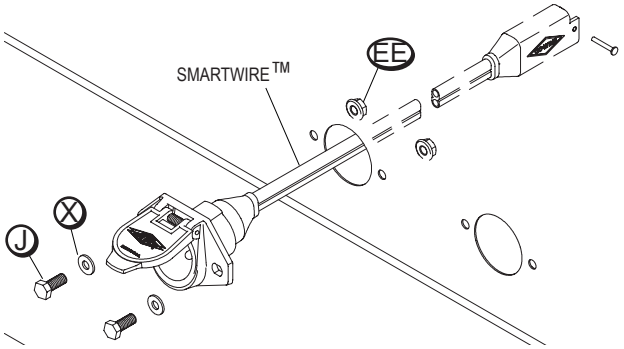
NOTICE: *Wire lengths are predetermined. Before installing SMARTwire™ components, review and confirm wire routing so wires reach components with ample room for connection.*

STEP 1: Locate dual-pole conductor socket near 7-pole conductor socket as shown. Determine location and drill 2 inch hole through trailer skin.



STEP 2: Align socket over 2 inch hole. Using holes in flanges on socket as guide, mark and drill two 5/16 inch holes.

STEP 3: Fasten conductor socket to trailer with screws (**J**), flat washers (**X**) and nuts (**EE**).

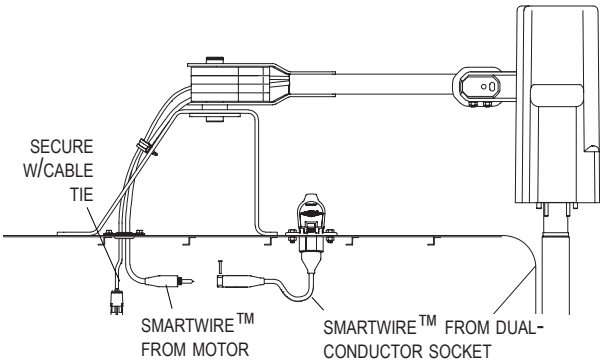


⚠ CAUTION

- **Do not cut molded SMARTwire™ ends. Molded SMARTwire ends are designed with sealed connections to prevent corrosion; cutting the wire may lead to operational problems.**
- **Only the loose (unmolded) wire end may be cut.**
- **Bind excess wire with cable ties to prevent loose wire entanglement.**

NOTICE: *Coat all connections, including the conductor plug terminals, with dielectric grease to prevent corrosion.*

STEP 4: Connect SMARTwire™ from electric motor to SMARTwire™ from dual-conductor socket. Coat each connection with dielectric grease and secure connection with lock pin. Secure all wires to trailer with cable clips and screws. If needed, use cable ties.



STEP 5: Identify a clean, dry surface area that is visible from the tarp system controls. Remove the backing from the warning decal **(17)** and notice decal **(18)**. Apply them to the identified surface. Regularly inspect all safety decals for wear and adherence, and replace if necessary.

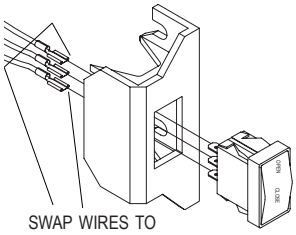
17

18

⚠ CAUTION

Ensure all hardware is secure before operating the system. Inspect the complete system at this time and make adjustments as required.

STEP 6: Check motor direction by activating switch to *OPEN*. If switch is running system backwards, swap wire leads on two outside tabs on rocker switch.



OPERATION:

A) Close tarp: Push switch to *CLOSE* and hold. Observe tarp and release switch when tarp is fully closed.

B) Open tarp: Push switch to *OPEN* and hold. Observe tarp and release switch when tarp is fully open.

NOTICE: *Release switch at end of cycle or modified-reset circuit breaker will trip. After breaker resets, switch will activate motor again. To reduce unnecessary strain on tarp components, release switch at end of each cycle.*

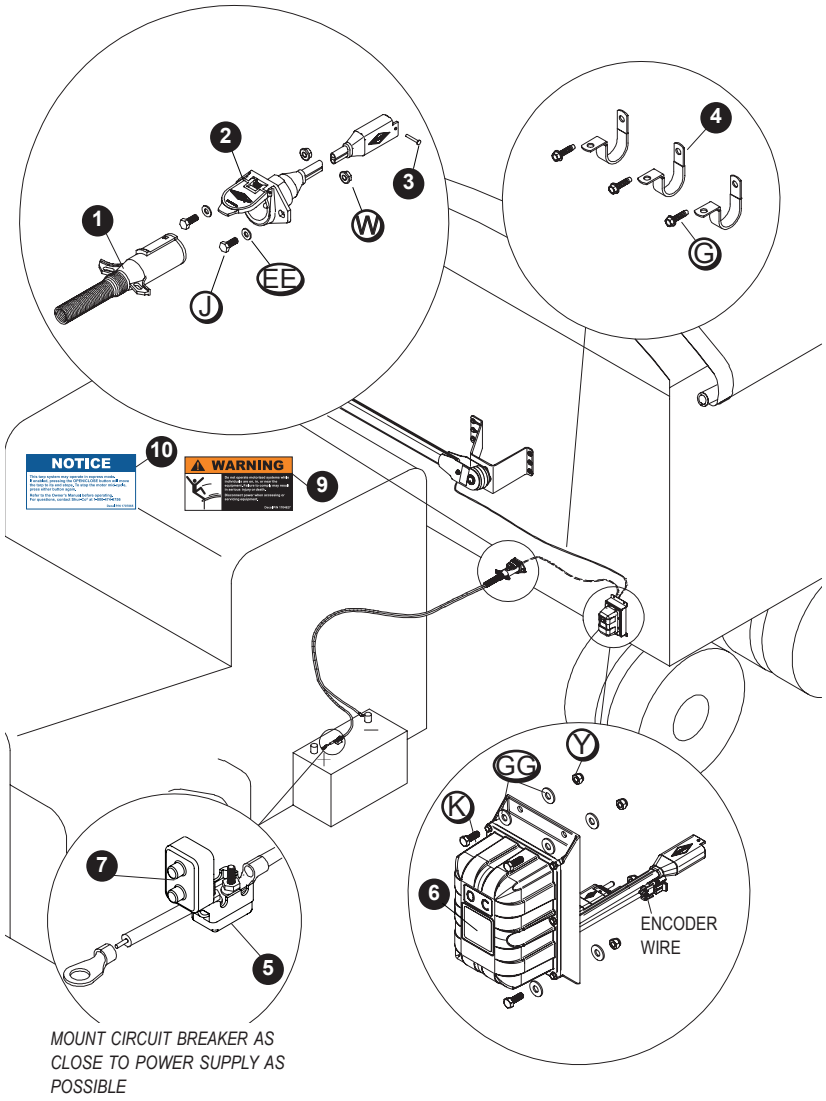
Item	Part #	Description
1.	1115385	Heavy-Duty Dual-Conductor Plug
2.	1120670	SMARTwire™ Dual-Conductor Socket
3.	1704751	Harness Lock Pin - 1/4" x 7/8"
4.	1702108	Wire Clip - 3/4"
5.	1704354	40-Amp Modified-Reset Circuit Breaker
6.	1131566	ShurLink™ Receiver - Rear Output
7.	1704411	Circuit Breaker Boot - Red
8.	1704378	Dielectric Grease (not pictured)
9.	1704627	Motorized System Warning Decal
10.	1707865	Express Operation Decal
G.	1704338	Self-Tapping Screw - 1/4" x 1"
J.	1701045	Cap Screw - 5/16" x 3/4"
K.	1702926	Cap Screw - 5/16" x 7/8"
W.	1704946	Flanged Top Lock Nut - 5/16"
Y.	1700419	Lock Nut - 5/16"
EE.	1700427	Flat Washer - 1/4"
GG.	1700428	Flat Washer - 5/16"

NOTICE: *Only one electric tarp system can be hooked up at a time.*

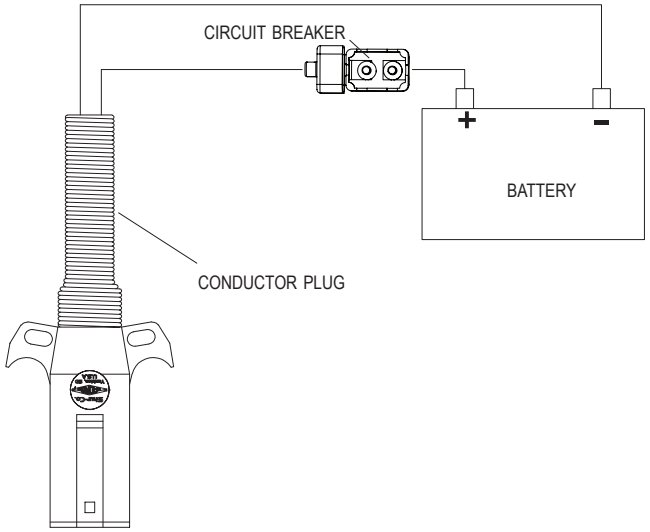
NOTICE: *Cut wires to length and strip only enough wire insulation to install ring terminals. Insert bare wire into ring terminals and crimp securely.*

⚠ WARNING

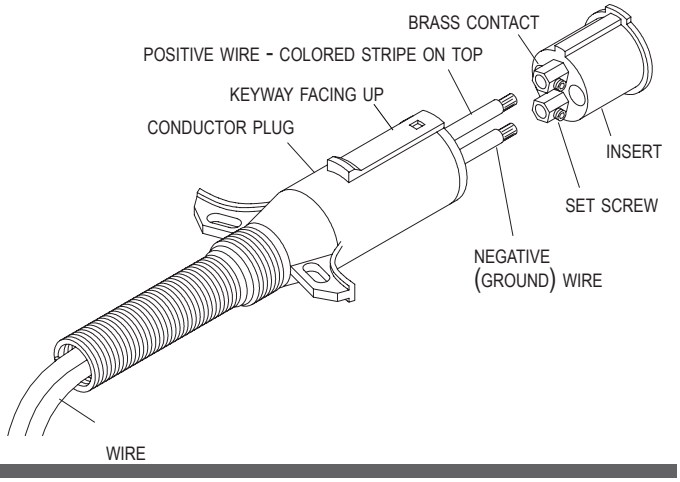
Do not power any Shur-Co wireless system using a battery charger alone, as this may cause system abnormalities and malfunctions. Use a charged 12-volt vehicle battery to power the trailer instead.

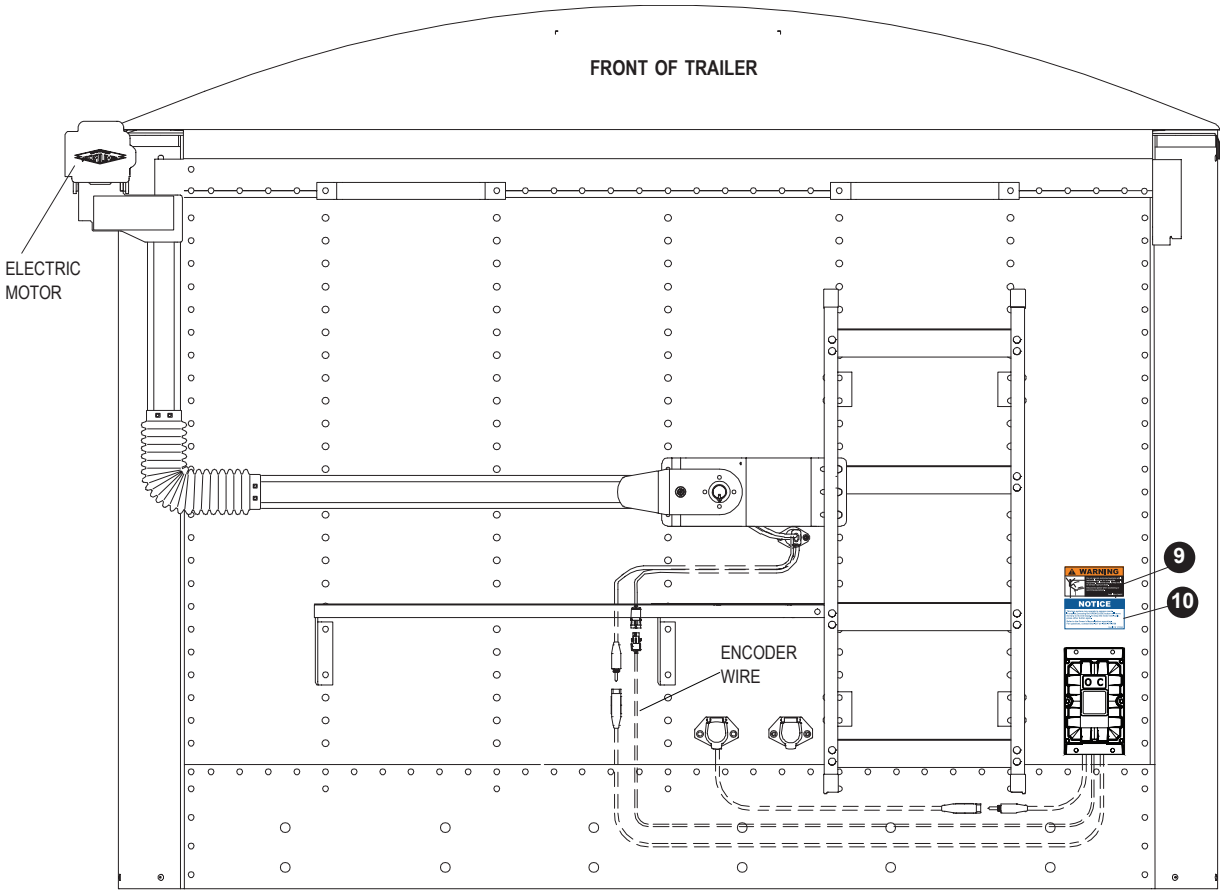


STEP 1: Push circuit breaker boot onto shortstop circuit breaker. Mount circuit breaker as close as possible to battery or power supply.



STEP 2: Unfasten and remove insert from **CONDUCT**or plug. Feed 6-ga. wire through plug and into brass contacts on insert. Tighten set screws to secure wires. Replace insert into conductor plug and secure screw.

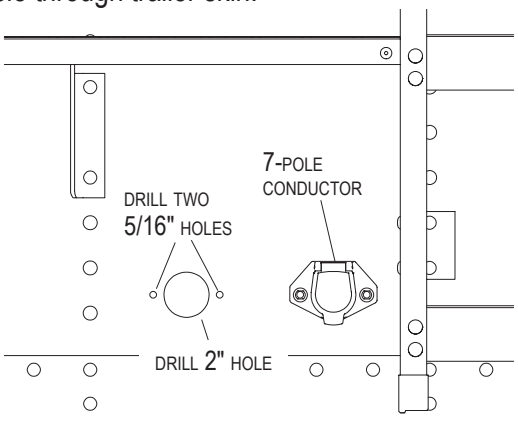




NOTICE: *Wire lengths are predetermined. Before installing SMARTwire components, review and confirm wire routing so wires reach components with ample room for connection.*

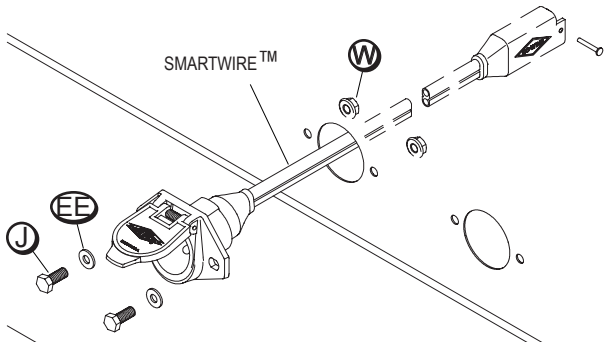
DUAL-CONDUCTOR SOCKET

STEP 1: Locate dual-pole conductor socket near 7-pole conductor socket as shown. Determine location and drill 2 inch hole through trailer skin.



STEP 2: Align socket over 2 inch hole. Using holes in flanges on socket as guide, mark and drill two 5/16 inch holes.

STEP 3: Fasten conductor socket to trailer with screws (**J**), flat washers (**EE**) and nuts (**W**).



⚠ CAUTION

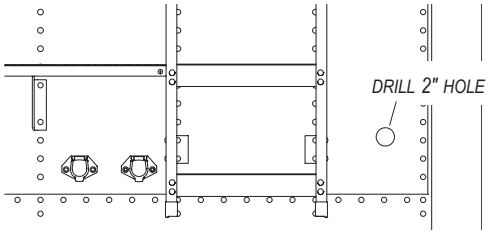
Do not fasten SMARTwire components to the trailer through the hopper walls. Doing so may damage the hopper walls or compromise system performance.

⚠ CAUTION

- **Do not cut molded SMARTwire™ ends. Molded SMARTwire ends are designed with sealed connections to prevent corrosion; cutting the wire may lead to operational problems.**
- **Only the loose (unmolded) wire end may be cut.**
- **Bind excess wire with cable ties to prevent loose wire entanglement.**

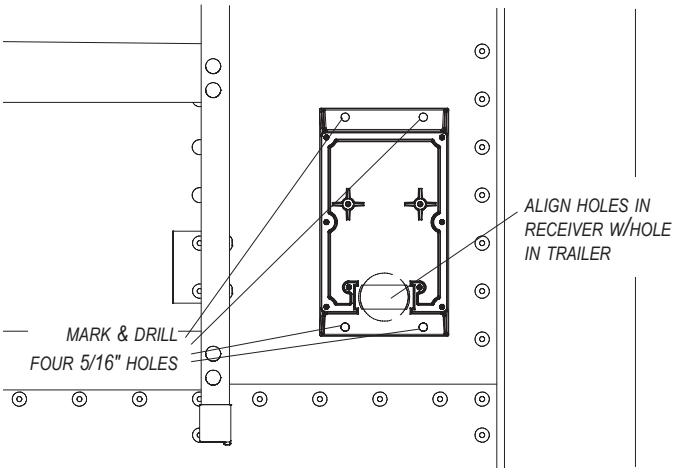
RECEIVER

STEP 1: In order to clear travel area of front arm, locate Shur-Co® receiver as low as possible on front of trailer. Determine location and drill 2 inch hole through trailer skin.

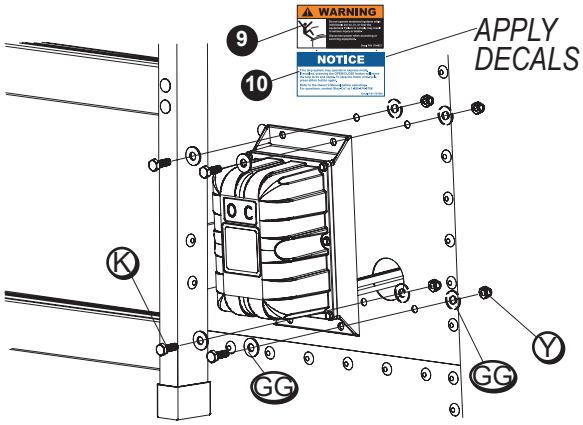


NOTICE: *In order to clear travel area of front arm, locate the receiver as low as possible on the front of the trailer.*

STEP 2: Align hole in receiver over 2 inch hole in trailer as shown below. Using holes in flanges on receiver base as guide, mark and drill four 5/16 inch holes as shown.

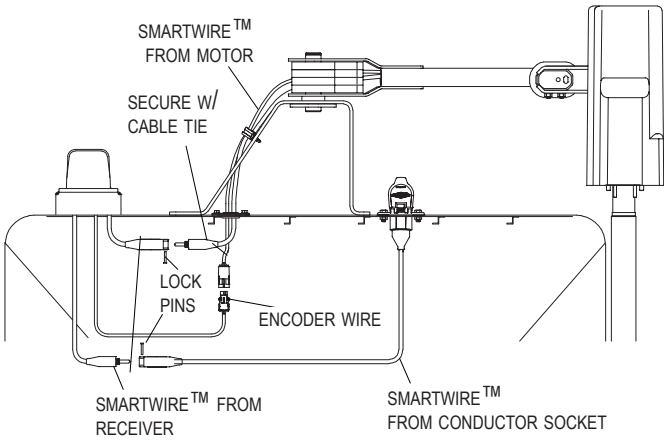


STEP 3: Align holes on receiver with holes on trailer. Fasten receiver to trailer with four cap screws (**K**), and washers (**GG**), and secure with additional washers (**GG**) and nuts (**Y**). Apply **decals** (**9**) and (**10**) to a clean surface above the receiver.



NOTICE: *Coat each connection with dielectric grease to prevent corrosion.*

STEP 4: Connect SMARTwire™ from receiver to SMARTwire™ from electric motor. Connect SMARTwire™ plug from receiver to SMARTwire™ from dual-conductor socket. Coat each connection with dielectric grease and secure connection with lock pin. Connect encoder wire from receiver to encoder wire from motor. Secure wires to trailer with cable clips and screws. If needed, use cable ties.



⚠ CAUTION

Ensure all hardware is secure before operating the system. Inspect the complete system at this time and make adjustments as required.

NOTICE: *Apply a thin layer of dielectric grease to conductor plug terminals before inserting into the conductor socket.*

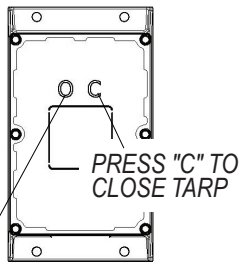
EXPRESS MODE

- **Express Mode:** The tarp system automatically enters Express Mode when operated using the buttons on the trailer-mounted receiver box or through the Shurlink™ remote system. In this mode, pressing the O (open) or C (close) button initiates an express operation to open or close the tarp. This operation will continue until either button is pressed again to stop, or it will automatically conclude once the tarp reaches the end of its travel.

TEST OPERATION

a) Check the motor direction by pressing either the Open or Close button on the receiver.

b) If the button is released and operation continues, the system is in *Express Mode*. To stop operation, press button again.



CHANGE MOTOR DIRECTION

If the open/close buttons are running the system backwards, download the app to change motor direction.

Follow QR code for Shurlink™ App Product Support

NOTICE: *Receiver may be pressure washed, but keep nozzle at least 3 feet from system while spraying.*

⚠ WARNING

Do not operate motorized systems while individuals are on, in, or near the equipment. Failure to comply may result in serious injury or death. Disconnect power when accessing or servicing equipment.

⚠ WARNING

Read manual thoroughly before assembling or disassembling flex arm.

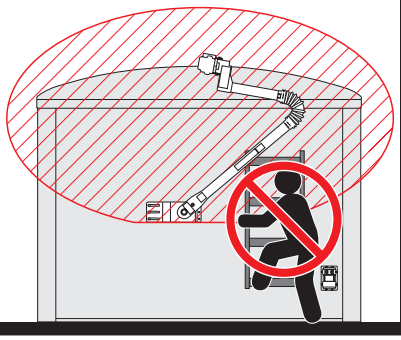
Failure to do so may result in serious injury or death.

Find Owner's Manual at: www.shurco.com

Decal P/N 1703897

⚠ WARNING

Do not stand or climb on the flex arm. Doing so may result in a fall or impact, causing serious injury or death.



⚠ WARNING

Stay clear of the roll tarp and arm(s) sweep area, from front-to-back, during operation. Failure to do so may result in a fall/impact causing serious injury or death. For repair/-service of equipment, reference manual for proper safety precautions before proceeding.

Perform following steps to change 4500 HD Series Electric system to manual crank operation:

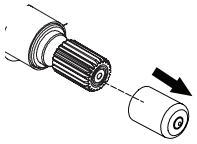
NOTICE: *Store the hand crank arm in the truck or mount it to the trailer. (Example - above kingpin, near the apex.)*

STEP 1: DISCONNECT POWER

Disconnect power from the front of the trailer.

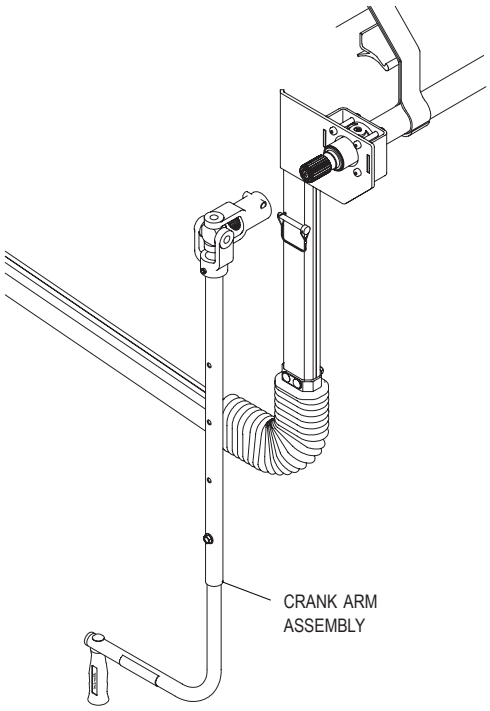
STEP 2: REMOVE END CAP

On the rear end of the trailer, remove the protective cap from the roll tube.



STEP 3: ATTACH HAND CRANK

Place splined U-joint on splined shaft. Secure with wire lock pin.



⚠ WARNING

Do not open or close the tarp unless the U-joint is securely fastened to the splined shaft with the wire lock pin. Failure to do so could result in severe injury or death.

NOTICE: *The U-joint is designed to operate as shown in Image 173 and is able to withstand considerably more pressure in this position.*

RECOMMENDED

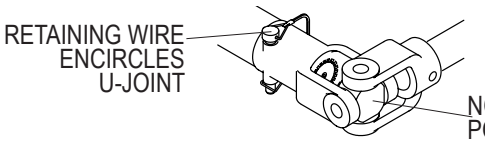


IMAGE 173

NOT RECOMMENDED

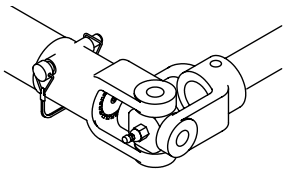


IMAGE 174

⚠ WARNING

Ensure the retaining wire encircles the U-joint to prevent the wiring from catching during operation. Failure to do so could cause severe injury or death.

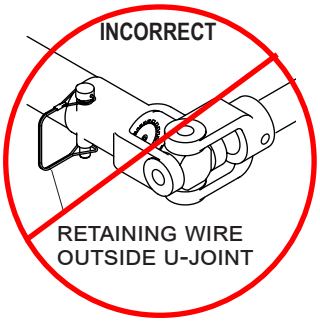
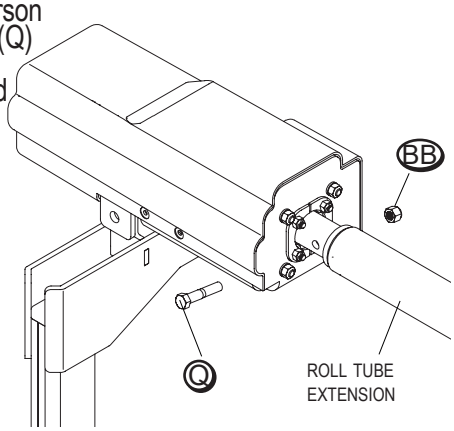


IMAGE 175

STEP 4: DISCONNECT MOTOR

At the Rear of the Trailer: Hold the crank handle to prevent the arms from rotating the roll tube.

At the Front of the Trailer: Have a second person remove the screw (Q) and nut (B) from the motor shaft and roll tube extension.



OPERATING INSTRUCTIONS

Use the crank arm assembly mounted at the rear of the trailer to manually open and close the tarp system until electrical system issues can be resolved. See the Shur-Lok® owner's manual for proper safety procedures at www.shurco.com.

STEP 1:

Hold the crank firmly with both hands and roll the tarp closed under the latchplate. Bring the crank handle down perpendicular to the ground.

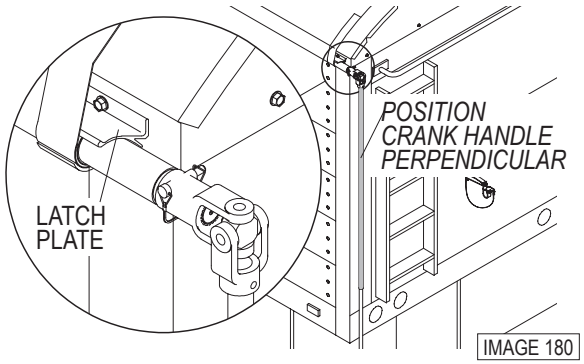


IMAGE 180

STEP 2:

Tighten the tarp by lifting the crank handle up into the crank retainer.

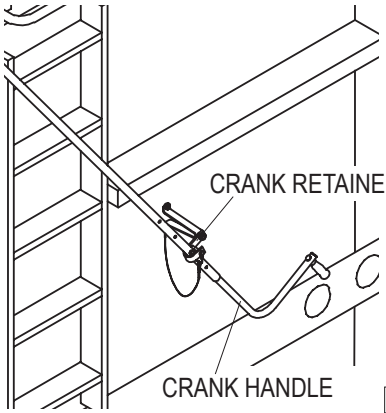


IMAGE 181

STEP 3:

Check the tarp tension. It should take 40 to 60 pounds of pressure to force the crank handle into the crank retainer. The crank extension will bend 1/8 inch.

⚠ WARNING

Do not open or close the tarp unless the U-joint is securely fastened to the splined shaft with the wire lock pin. Failure to do so could result in severe injury or death.

STEP 4:

If required, adjust the tension by removing the U-joint from the splined shaft, rotating the U-joint tooth, and replacing it on the splined shaft.

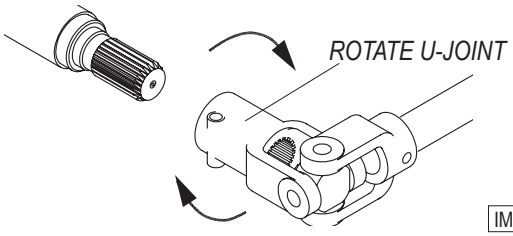


IMAGE 182

STEP 5:

Repeat Step 3 and Step 4 until the correct tension is achieved.

STEP 6:

Secure the U-joint to the splined shaft with the wire lock pin.

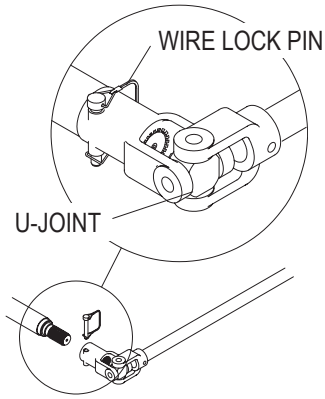


IMAGE 183

To uncover load:

1. Release the crank from the crank retainer.
2. Turn the crank clockwise (counter-clockwise for reverse roll) until the tarp has rolled up against the tarp stops.
3. Place the crank back into the crank retainer.

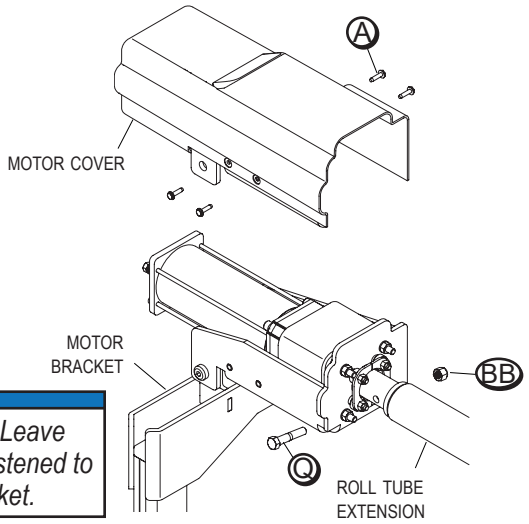
To cover load:

1. Release the crank from the crank retainer.
2. Turn the crank counter-clockwise (clockwise for reverse roll) until the tarp is unrolled over the edge of the trailer.
3. Continue cranking to roll the tarp up under the latchplate.
4. Bring the crank arm down to a vertical position.
5. Swing the crank arm up and place it into the crank retainer.

REMOVE EXISTING MOTOR

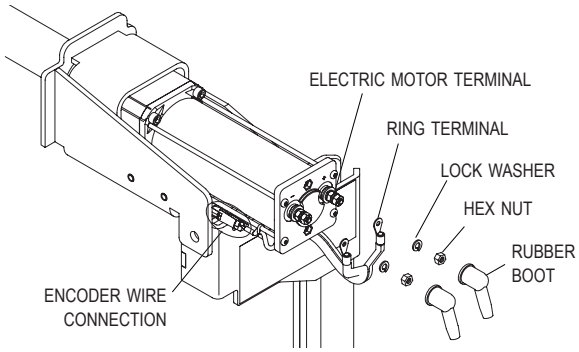
STEP 1: Close tarp, letting roll tube hang loose under latchplate.

STEP 2: Disconnect electric power to trailer. Unfasten and remove motor cover. Unfasten screw (**Q**) and lock nut (**BB**) holding motor shaft to roll tube extension.

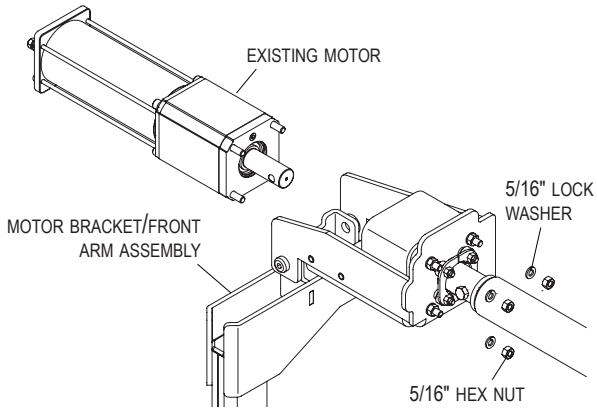


NOTICE: *Leave roll tube fastened to motor bracket.*

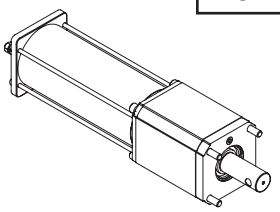
STEP 3: Disconnect electric wires from motor terminals and encoder wire.



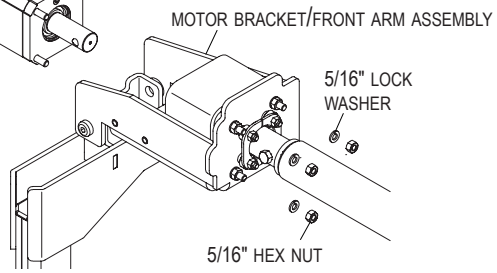
STEP 4: Unfasten and remove only 5/16 inch lock washers and hex nuts holding motor to motor bracket/front arm assembly, leaving motor mount bearing retainers in place. Remove existing motor.



INSTALL NEW MOTOR

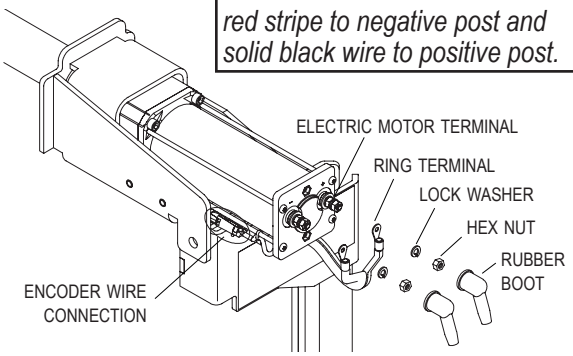


STEP 1: Install new motor. Fasten motor to motor bracket with 5/16 inch washers and nuts.

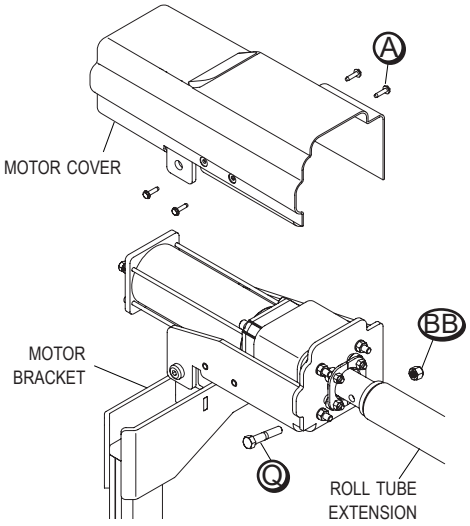


STEP 2: Connect electric wires to motor terminals and encoder wire.

NOTICE: *Connect black wire with red stripe to negative post and solid black wire to positive post.*



STEP 3: Fasten motor shaft to roll tube extension with screw (**Q**) and lock nut (**BB**). Replace motor cover and fasten to motor with screws (**A**). Reconnect electric power.



⚠ CAUTION

Ensure all hardware is secure before operating the system. Inspect the complete system at this time and make adjustments as required.

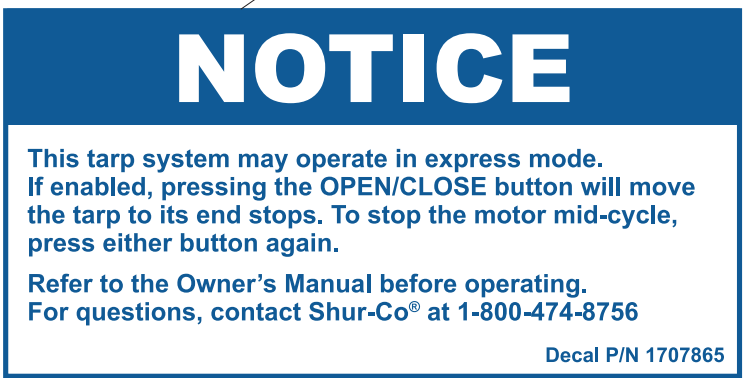
Decals

Item	Part #	Description
1.	1703897	Flex Arm Tension Warning Decal
2.	1704627	Motorized System Warning Decal
3.	1707862	Flex Arm Step Warning Decal
4.	1707865	Express Operation Decal

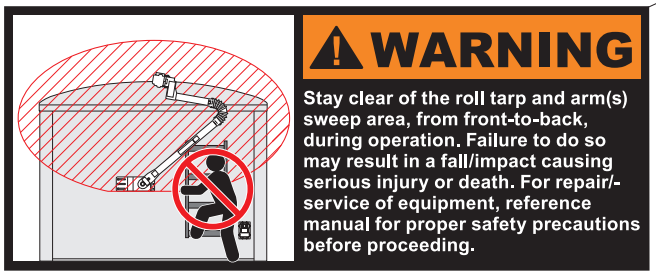
1

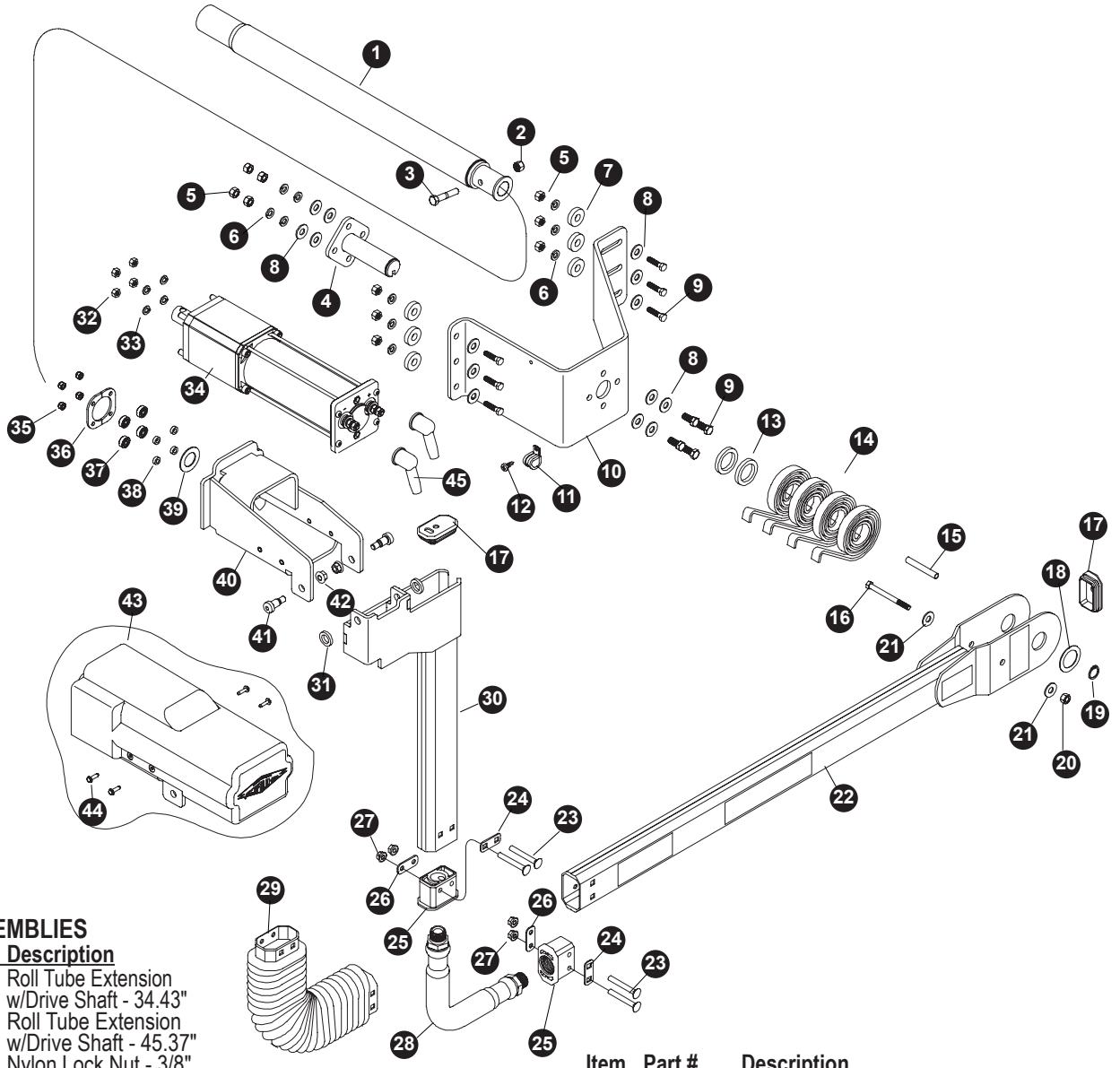
2

4



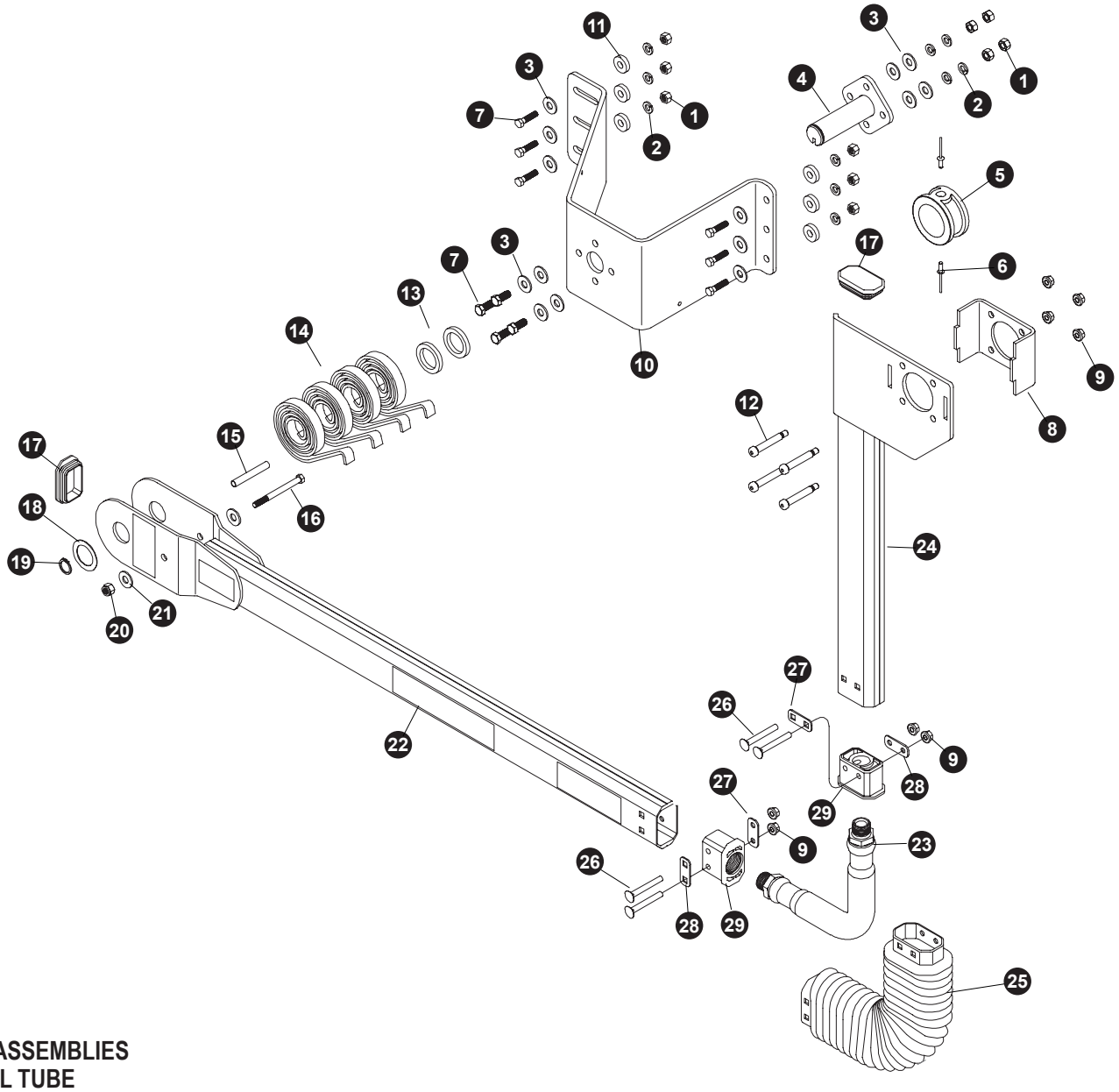
3





FRONT ASSEMBLIES

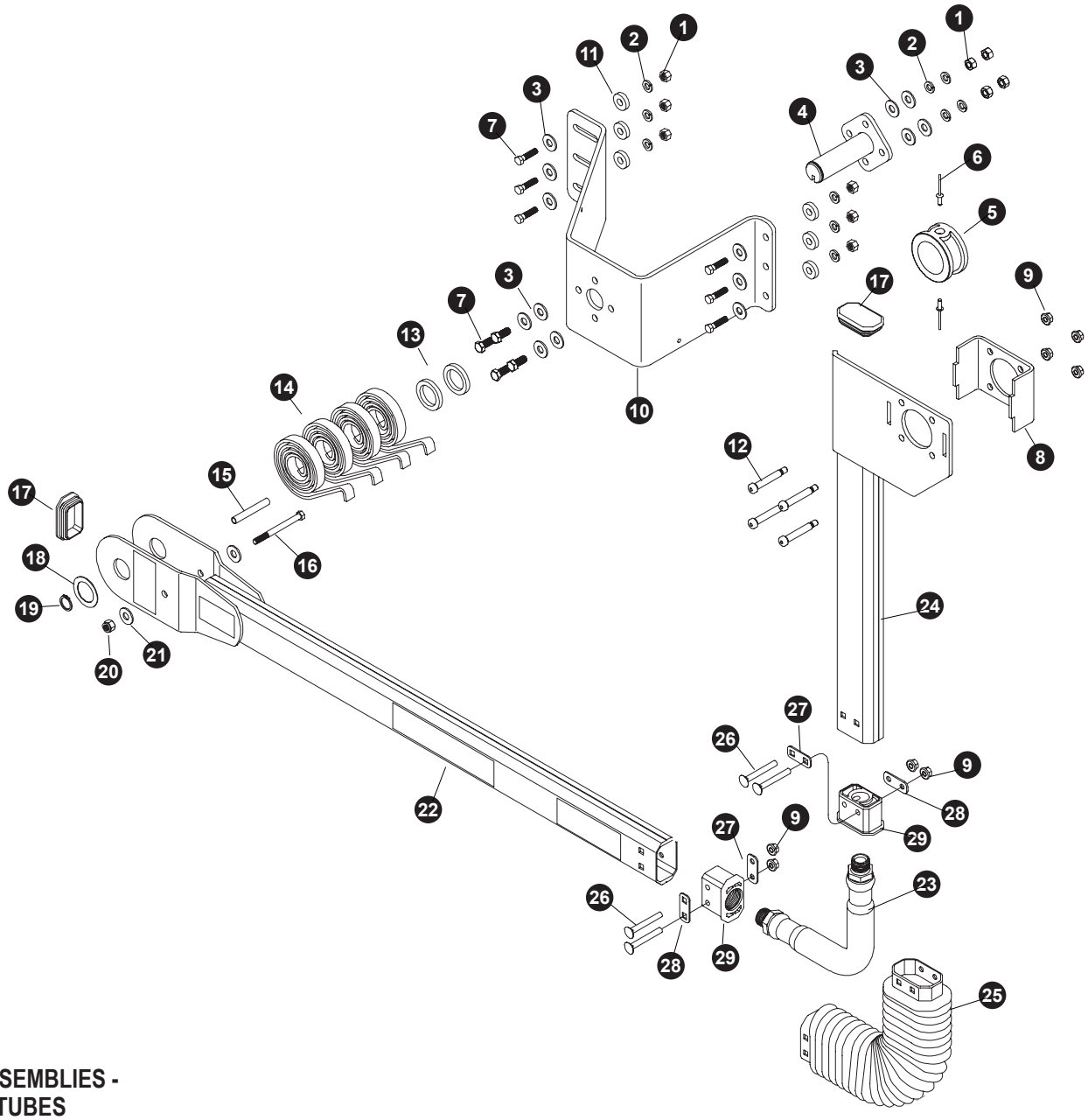
Item	Part #	Description
1.	1120697	Roll Tube Extension w/Drive Shaft - 34.43"
	1120698	Roll Tube Extension w/Drive Shaft - 45.37"
2.	1701580	Nylon Lock Nut - 3/8"
3.	1704264	Cap Screw - 3/8" x 2" - Gr. 8
4.	1116920	Pivot Pin - 4 Spring
5.	1700407	Hex Nut - 3/8"
6.	1700434	Lock Washer - 3/8"
7.	1120291	Pivot Bracket Washer
8.	1700429	Flat Washer - 3/8"
9.	1702891	Cap Screw - 3/8" x 1-1/4"
10.	1121578	Pivot Mt. Bracket - Vertical - 9-1/4" Standoff
	1121582	Pivot Mt. Bracket - Vertical - 7-1/4" Standoff
11.	1702108	Wire Clip - 3/4" ID
12.	1700398	Self-Drilling Screw - 3/8" x 3/4"
13.	1118318	Spacer Washer - 1/4" x 1.81" OD x 1.28"
14.	1111027	Spiral Torsion Spring
15.	1117033	Spacer Tube - .35" x 2-5/8"
16.	1201022	Cap Screw - 5/16" x 3-1/2"
17.	1704893	Cap Plug w/Hole
18.	1702890	Flat Washer - 1-1/4"
19.	1702888	External Retaining Ring - 1-1/4"
20.	1700419	Nylon Lock Nut - 5/16"
21.	1700428	Flat Washer - 5/16"
22.	1121294	Lower Flex Arm w/Warning Decals (Includes items 15; 16; 20; 21; 22)
23.	1701455	Carriage Bolt - 5/16" x 2-1/2"
24.	1121414	Bellow Plate - Square Holes
25.	1704891	End Fitting - 4500 Series HD
26.	1121413	Bellow Plate - Round Holes
27.	1704931	Flanged Nylon Lock Nut - 5/16"
28.	1706825	Flex Arm Joint
29.	1704775	4500 Series HD Bellow
30.	1121619	Upper Flex Arm - Motor - RR
31.	1120677	Upper Arm Spacer
32.	1700411	Hex Nut - 5/16"
33.	1700433	Lock Washer - 5/16"
34.	1120967	4500 Series HD Electric Motor
35.	1701543	Nylon Lock Nut - 1/4"
36.	1128243	Motor Mount Bearing Retainer
37.	1704736	Radial Ball Bearing - 1/4" x 3/4"
38.	1120680	Motor Mount Bearing Spacer
39.	1120679	Motor Spacer
40.	1120776	4500 Series HD Motor Mount - 7-1/4"
	1120662	4500 Series HD Motor Mount
41.	1704778	Shoulder Bolt - 1/2" x 5/8" - 3/8" x 1/2" Thd.
42.	1701283	Flanged Top Lock Nut - 3/8"
43.	1121659	4500 Series HD Motor Cover Kit - Black
44.	1704367	Hex Flange Cap Screw - #10 x 3/4"
45.	1704330	Rubber Boot



REAR ASSEMBLIES
2" ROLL TUBE

Item	Part #	Description
1.	1700407	Hex Nut - 3/8"
2.	1700434	Lock Washer - 3/8"
3.	1700429	Flat Washer - 3/8"
4.	1116920	Pivot Pin - 4 Spring
5.	1704942	Rear Arm Bearing Ring - 2"
6.	1706103	Blind Rivet - 3/16"
7.	1702891	Cap Screw - 3/8" x 1-1/4"
8.	1121430	Bearing Mount Box - 2"
9.	1704931	Flanged Nylon Lock Nut - 5/16"
10.	1121578	Pivot Mt. Bracket - Vertical - 9-1/4" Standoff
	1121582	Pivot Mt. Bracket - Vertical - 7-1/4" Standoff
11.	1120291	Pivot Bracket Washer
12.	1704943	Shoulder Bolt - 3/8" x 2" - 5/16" x 1/2" Thd.
13.	1118318	Spacer Washer - 1/4" x 1.81" OD x 1.28"
14.	1111027	Spiral Torsion Spring
15.	1117033	Spacer Tube - .35" x 2-5/8"

Item	Part #	Description
16.	1201022	Cap Screw - 5/16" x 3-1/2"
17.	1704892	Cap Plug
18.	1702890	Flat Washer - 1-1/4"
19.	1702888	External Retaining Ring - 1-1/4"
20.	1700419	Nylon Lock Nut - 5/16"
21.	1700428	Flat Washer - 5/16"
22.	1121617	Lower Flex Arm w/Warning Decals (Includes items 15; 16; 20; 21; 22)
23.	1706825	Flex Arm Joint
24.	1121281	Upper Flex Arm - Bearing - 2" - RR
25.	1704775	4500 Series HD Bellow
26.	1701455	Carriage Bolt - 5/16" x 2-1/2"
27.	1121413	Bellow Plate - Round Holes
28.	1121414	Bellow Plate - Square Holes
29.	1704891	End Fitting



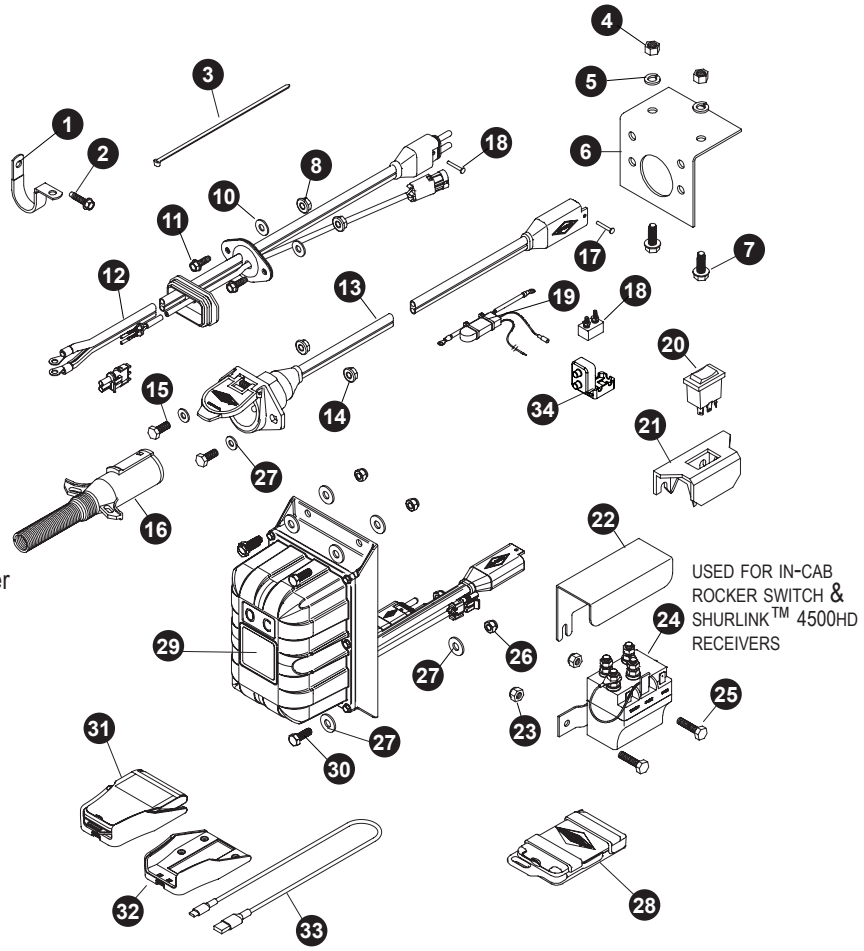
REAR ASSEMBLIES -
3" ROLL TUBES

Item	Part #	Description
1.	1700407	Hex Nut - 3/8"
2.	1700434	Lock Washer - 3/8"
3.	1700429	Flat Washer - 3/8"
4.	1116920	Pivot Pin - 4 Spring
5.	1705160	Rear Arm Bearing Ring - 3"
6.	1706103	Blind Rivet - 3/16"
7.	1702891	Cap Screw - 3/8" x 1-1/4"
8.	1123248	Bearing Mount Box - 3"
9.	1704931	Flanged Nylon Lock Nut - 5/16"
10.	1121578	Pivot Mt. Bracket - Vertical - 9-1/4" Standoff
	1121582	Pivot Mt. Bracket - Vertical - 7-1/4" Standoff
11.	1120291	Pivot Bracket Washer
12.	1704943	Shoulder Bolt - 3/8" x 2"- 5/16" x 1/2" Thd.
13.	1118318	Spacer Washer - 1/4" x 1.81" OD x 1.28"
14.	1111027	Spiral Torsion Spring
15.	1117033	Spacer Tube - .35" x 2-5/8"

Item	Part #	Description
16.	1201022	Cap Screw - 5/16" x 3-1/2"
17.	1704892	Cap Plug
18.	1702890	Flat Washer - 1-1/4"
19.	1702888	External Retaining Ring - 1-1/4"
20.	1700419	Nylon Lock Nut - 5/16"
21.	1700428	Flat Washer - 5/16"
22.	1121294	Lower Flex Arm w/Warning Decals (includes items 15; 16; 20; 21; 22)
23.	1706825	Flex Arm Joint
24.	1124958	Upper Flex Arm - Bearing - 3"- RR
25.	1704775	4500 Series HD Bellow
26.	1701455	Carriage Bolt - 5/16" x 2-1/2"
27.	1121413	Bellow Plate - Round Holes
28.	1121414	Bellow Plate - Square Holes
29.	1704891	End Fitting

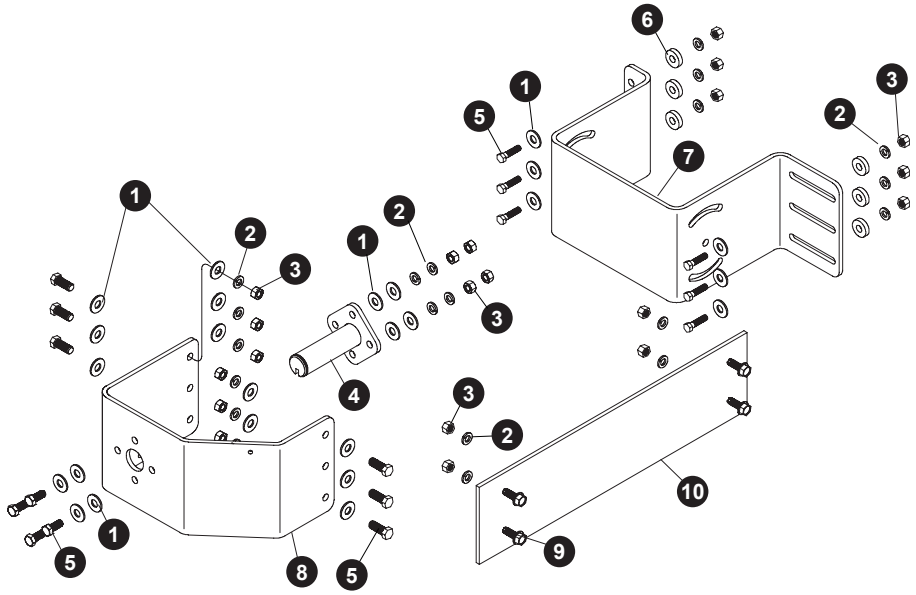
4500 SERIES HD ELECTRIC COMPONENTS

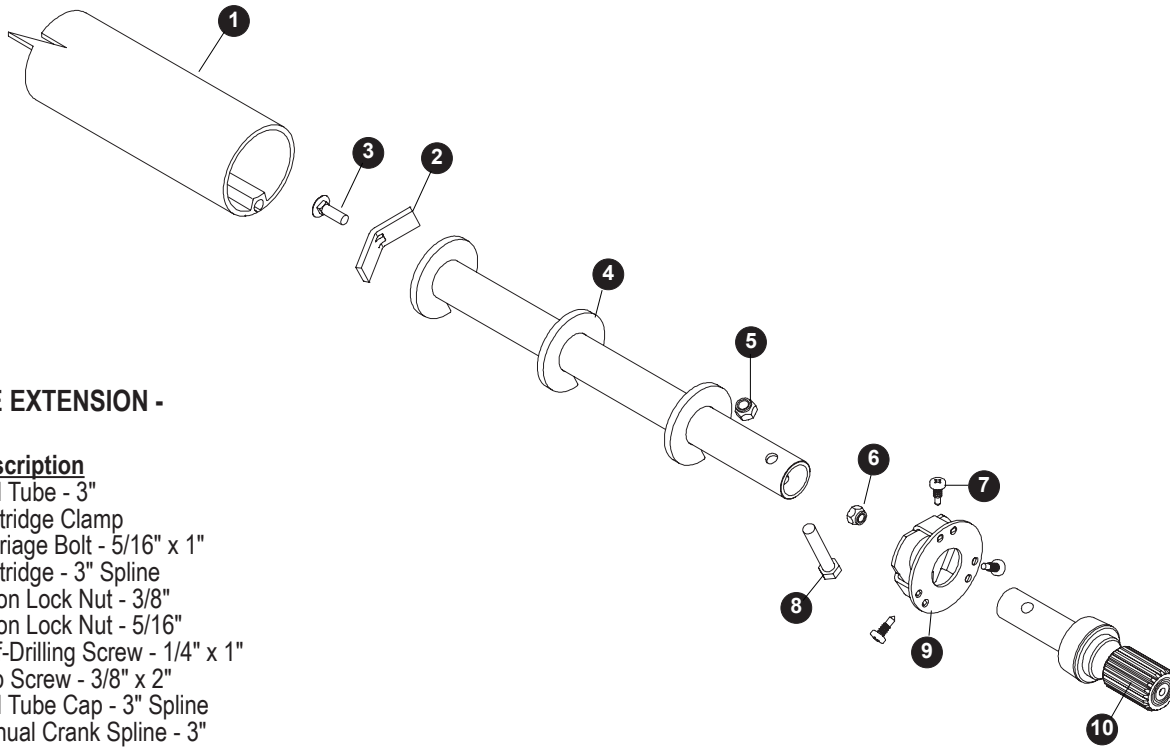
Item	Part #	Description
1.	1702108	Wire Clip - 3/4"
2.	1704338	Self-Tapping Screw - 1/4" x 1"
3.	1703231	Cable Tie - 8"
4.	1700407	Hex Nut - 3/8"
5.	1700434	Lock Washer - 3/8"
6.	1109015	Mounting Bracket
7.	1700400	Self-Tapping Screw - 3/8" x 1"
8.	1706399	Top Lock Flanged Nut - 1/4"
10.	1700427	Flat Washer - 1/4"
11.	1700403	Self-Tapping Screw - 1/4" x 3/4"
12.	1704987	SMARTwire™ - 6 Ga. - Plug x 1/4" Terminal x 10'9
13.	1120670	SMARTwire™ Dual-Conductor Socket
14.	1704946	Flanged Top Lock Nut - 5/16"
15.	1701045	Cap Screw - 5/16" x 3/4"
16.	1115385	Heavy-Duty Dual-Conductor Plug
17.	1704751	Harness Lock Pin - 1/4" x 7/8"
18.	1704354	40-Amp Modified-Reset Circuit Breaker
19.	1705624	50-Amp SMART™ Circuit Breaker
20.	1116020	Rocker Switch
21.	1703661	Rocker Switch Mounting Bracket
22.	1703896	Solenoid Cover
23.	1808844	Nylon Lock Nut - #10
24.	1703845	Motor-Reversing Solenoid
25.	1704905	Hex Flanged Cap Screw - #10 x 1"
26.	1700419	Lock Nut - 5/16"
27.	1700427	Flat Washer - 1/4"
28.	1131576	5-Channel ShurLink EZR™ Remote
29.	1131566	ShurLink™ Receiver - Rear Output
30.	1702926	Cap Screw - 5/16" x 7/8"
31.	1131575	ShurLink PRO™ Remote w/Cradle & Charging Cable
32.	1131764	ShurLink PRO™ Remote Charging Cradle
33.	1706836	USB Charging Cable Type A to C
34.	1704411	Circuit Breaker Boot - Red



HD SLOPED PIVOT MOUNTS

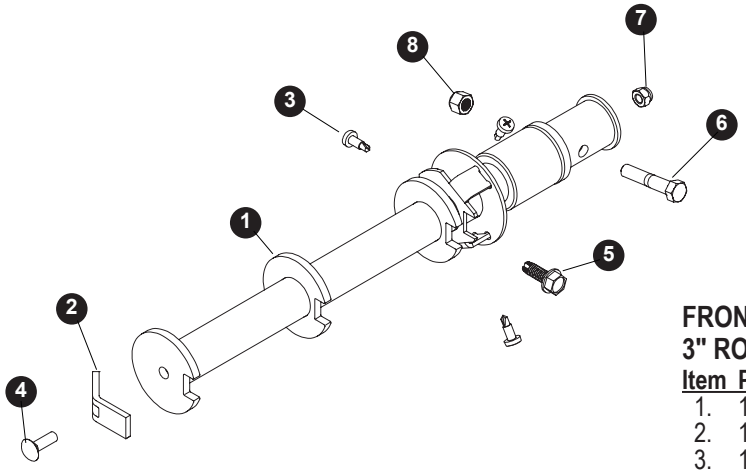
Item	Part #	Description
1.	1700429	Flat Washer - 3/8"
2.	1700434	Lock Washer - 3/8"
3.	1700407	Hex Nut - 3/8"
4.	1116920	Pivot Pin - 4 Spring
5.	1702891	Cap Screw - 3/8" x 1-1/4"
6.	1120291	Pivot Bracket Washer
7.	1121993	Pivot Mount Bracket - Sloped - 6" Standoff - 6" Wide
	1121994	Pivot Mount Bracket - Sloped - 8" Standoff - 6" Wide
8.	1121992	Pivot Bracket - Sloped - 6" Wide
9.	1700400	Self-Tapping Screw - 3/8" x 1"
10.	1120361	Pivot Backer Plate - 7" x 16"
	1120418	Pivot Backer Plate - 7" x 20"





REAR ROLL TUBE EXTENSION - 3" ROLL TUBE

Item	Part#	Description
1.	1704568	Roll Tube - 3"
2.	1118194	Cartridge Clamp
3.	1704237	Carriage Bolt - 5/16" x 1"
4.	1121039	Cartridge - 3" Spline
5.	1701580	Nylon Lock Nut - 3/8"
6.	1704297	Nylon Lock Nut - 5/16"
7.	1705198	Self-Drilling Screw - 1/4" x 1"
8.	1704264	Cap Screw - 3/8" x 2"
9.	1121040	Roll Tube Cap - 3" Spline
10.	1121111	Manual Crank Spline - 3"



FRONT DRIVE SHAFT - 3" ROLL TUBE

Item	Part #	Description
1.	1122264	Drive Shaft
2.	1118194	Cartridge Clamp
3.	1705198	Self-Drilling Screw - 1/4" x 1"
4.	1704237	Carriage Bolt - 5/16" x 1"
5.	1700400	Self-Tapping Screw - 3/8" x 1"
6.	1704264	Cap Screw - 3/8" x 2" - GR8
7.	1704297	Nylon Lock Nut - 5/16"
8.	1701580	Nylon Lock Nut - 3/8"

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