



ENGINEERED TARPING SOLUTIONS

P/N 1121681 Rev. E

OWNER'S MANUAL



Aluminum System for Semi Grain Trailer

STANDARD ROLL

READ BEFORE INSTALLING

PO BOX 713 ■ 2309 SHUR-LOK STREET ■ YANKTON, SD 57078-0713
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SHIPPING. All orders are shipped F.O.B. from the Shur-Co[®], LLC sites listed below. There will be no full freight allowed or prepaid shipment accepted unless quoted and approved in writing prior to acceptance of the order. All shipments are made by the most reasonable means in accordance with the size and weight of the order, unless specified routing instructions are furnished by the customer. Shipments are made daily via U.P.S. and common carrier. Claims for shortages must be made within 10 days. All claims for damages or loss in transit must be made with the carrier. No collect calls will be accepted. To ensure delivery of orders, we need your full street address and phone number. When you receive your shipment, examine it carefully. Be sure all cartons listed on the delivery sheet are accounted for. Large items may be packaged separately. If a carton is damaged, open it and inspect the contents before signing for delivery. If merchandise is damaged, describe the damage on the delivery receipt. Failure on your part to document damaged or missing merchandise on the delivery receipt releases the carrier of all liability; repair or replacement will be the customer's responsibility.

WARRANTY. We warrant that all new products are free from defects in materials and workmanship.* This warranty is effective if products are properly installed and used for the purpose for which they were intended and applies to the original buyer only. Except as set forth above or as set forth in any product-specific warranty documentation, we make no other warranties, express or implied, including, but not limited to, warranties of merchantability or fitness for a particular use.

Returns of a product for warranty must be accompanied by a Return Merchandise Authorization number (RMA#), which can be obtained by calling Customer Service at 866-748-7435, and sent, with freight paid by us, to Shur-Co[®], LLC, 2309 Shur-Lok Street, P.O. Box 713, Yankton, SD 57078 USA. All products returned without an RMA# will be refused. When we issue the RMA#, we will also issue a call tag to have UPS (or other freight company) pick up the product. C.O.D. returns will not be accepted. We will pay no storage charges for a warranty product return prior to pick by us or the freight company. If a warranty product return is scheduled to be picked up by us, we will pick up the product at our earliest convenience.

If a product returned is found, in our judgement, to be defective in material or workmanship, our obligation under this warranty is limited to the repair or replacement of the product, which will be made by us. Repair or replacement will be at our discretion, with replacements being made using current products performing in the equivalent function. Labor charges, other than those incurred at our factory, including, but not limited to, any labor to install a repaired or replacement product, are not covered under this warranty. All expenses associated with delivering defective products to our factory and delivering repaired or replacement products from our factory to the owner will be paid by us.

If the product returned is found, in our judgement, to be non-warrantable, the owner will be contacted to authorize repair work, the purchase of a replacement product or return of the product, all of which will be at the owner's expense. Payment authorization must be received by us before any non-warrantable product is repaired, replaced or returned. All expenses associated with delivering the repaired non-warrantable product, a replacement product or the non-warrantable product from our factory to the owner will be paid by the owner.

In no event will we be liable for any damages of any kind or nature to person, product or property, including, but not limited to, indirect, incidental, special, consequential or punitive damages of any kind, or damages for loss of profits or revenue, even if we have been advised of the possibility of such damages. There are no warranties for used products or products that have been repaired, altered, modified or subjected to misuse, negligence or accident. We will not repair or replace products that fail or malfunction due to ordinary wear and tear, except as expressly provided in a product-specific warranty. The use of non-Shur-Co[®], LLC parts in conjunction with Shur-Co[®], LLC products will void this product warranty.

*Certain products have specific warranties that differ from this warranty, for example motors and electronics. Product-specific warranty documentation is available for these items. In the event of a conflict between this warranty and a product-specific warranty, the product-specific warranty will govern.

RETURN POLICY. All sales are final. See WARRANTY above for information on warranty returns.

OTHER. All prices, product listings, sizes, weights and manufacturing details are subject to change without notice. No person is authorized to modify the foregoing conditions of sale whatsoever.

SHUR-CO[®] OF SOUTH DAKOTA

Corporate HQ and Outlet Store
2309 Shur-Lok St., PO Box 713
Yankton, SD 57078-0713
Phone - 800.474.8756
Fax - 605.665.0501

SHUR-CO[®], LLC Donovan

SHUR-CO[®] of FLORIDA
3353 SE Gran Park Way
Stuart, FL 34997
Phone - 800.327.8287
Fax - 772.287.0431

SHUR-CO[®], LLC International

SHUR-CO[®] UK, Ltd.
Unit 41 Rochester Airport Est., Laker Rd.
Rochester, Kent ME1 3QX
UK 56011 82718
+44 (0)1795 473499
Fax +44 (0)871 272 8278

SERVICE CENTERS

SHUR-CO[®] of COLORADO
10220 Brighton Rd., Unit #1
Henderson, CO 80640
Phone - 866.355.9173
Fax - 303.289.2298

SHUR-CO[®] of ILLINOIS
4350 E. Boyd Rd.
Decatur, IL 62521
Phone - 866.356.0246
Fax - 217.877.8270

SHUR-CO[®] of IOWA
3839 Midway Blvd.
Ft. Dodge, IA 50501
Phone - 866.356.0245
Fax - 515.576.5578

SHUR-CO[®] of MICHIGAN
5100 Lakeshore Dr.
Lexington, MI 48450
Phone - 800.327.8287
Fax - 772.287.0431

SHUR-CO[®] of NORTH DAKOTA
920 38th St. NW, Exit 66
Fargo, ND 58102
Phone - 877.868.4488
Fax - 701.277.1283

SHUR-CO[®] of OHIO
1100 N. Freedom, St. Rt. 88 & 14
Ravenna, OH 44266
Phone - 866.356.0242
Fax - 330.297.5599

SHUR-CO[®] of OKLAHOMA
1604 East US Hwy 66
El Reno, OK 73036
Phone - 866.356.0243
Fax - 405.262.3842

SHUR-CO[®] of TEXAS
34505 I-10 West, S. Frontage Rd.
Brookshire, TX 77423
Phone - 866.689.0039
Fax - 281.934.3311

MESSAGE TO OWNERS

Thank you for buying this tarping system from Shur-Co®. We appreciate your confidence in our products. Please read and thoroughly understand this manual before installing and/or operating this system.

Pay particular attention to important safety and operating instructions, as well as warnings and cautions. The hazard symbol  is used to alert users to potentially hazardous conditions and is followed by caution, warning or danger messages.

Failure to READ AND FOLLOW INSTRUCTIONS could result in failure of your tarping system and/or personal injury. Your trailer requirements may, however, call for minor variations to these instructions.

Please inspect your tarping system periodically. Repair or replace worn or damaged parts to your system.

QUESTIONS? CALL OUR HELP LINE:

1-866-748-7435

MON-FRI 8 AM-5 PM CENTRAL TIME

SAFETY

We at Shur-Co® are concerned with your safety and the safety of all those operating this system. Therefore, we have provided safety decals at various locations on your tarping system. Keep decals as clean as possible at all times. Replace any decal that has become worn or damaged, painted over or otherwise difficult to read. Replacement decals are available through Shur-Co® dealers.

SAFETY INSTRUCTIONS

- 1. Always wear safety glasses during installation and operation.**
- 2. Stay clear of moving parts.**
- 3. No other use of this system is authorized, except as designed.**

RUST PREVENTION

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

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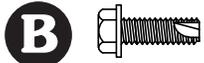
TOOLS REQUIRED

- 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 all parts in your 4500 HD Series electric kit upon arrival.



1704367 Cap Screw - #10 x 3/4"



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



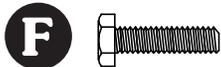
1700398 Self-Drilling Screw - 1/4" x 3/4"



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



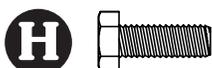
1704353 Self-Drilling Screw - 1/4" x 1"



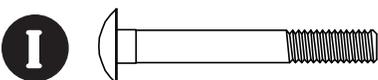
1700381 Cap Screw - 1/4" x 1"



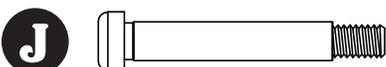
1701045 Cap Screw - 5/16" x 3/4"



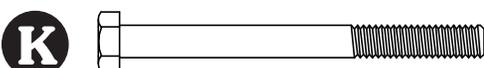
1702926 Cap Screw - 5/16" x 7/8"



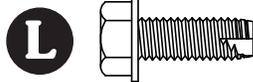
1701455 Carriage Bolt - 5/16" x 2 1/2"



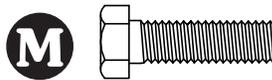
1704943 Shoulder Bolt - 3/8" x 2 - 5/16" x 1/2" Thd.



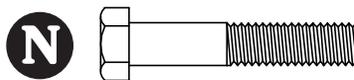
1201022 Cap Screw - 5/16" x 3 1/2"



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



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



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



1700408 Hex Nut - 1/4"



1701543 Nylon Lock Nut - 1/4"



1704946 Flanged Top Lock Nut - 5/16"



1704931 Flanged Nylon Lock Nut - 5/16"



1700419 Nylon Lock Nut - 5/16"



1700407 Hex Nut - 3/8"



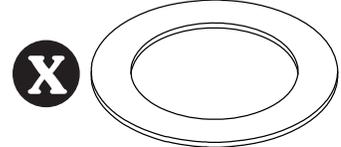
1701580 Nylon Lock Nut - 3/8"



1700436 Lock Washer - 1/4"



1700427 Flat Washer - 1/4"



1702890 Flat Washer - 1 1/4"



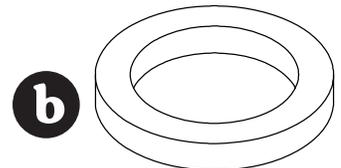
1700428 Flat Washer - 5/16"



1700434 Lock Washer - 3/8"



1700429 Flat Washer - 3/8"



1118318 Spacer Washer - 1/4" x 1.81"

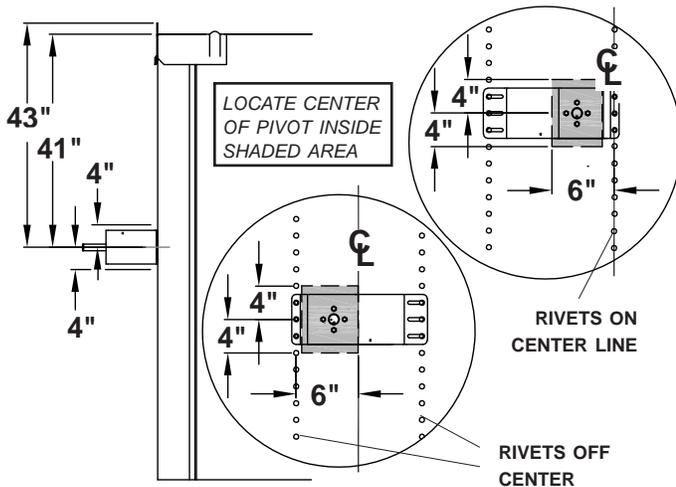


1120291 Pivot Bracket Washer

NOTE: Read pages 2 and 3 entirely before drilling holes.
Determine if rivets are centered or off center on front and rear of trailer.

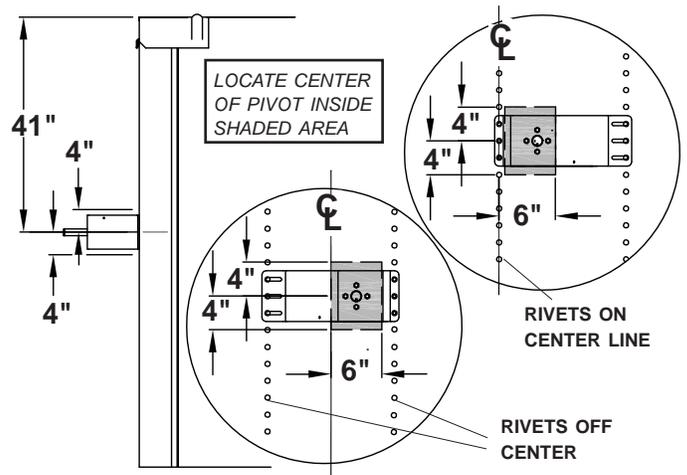
FRONT OF TRAILER

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



REAR OF TRAILER

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

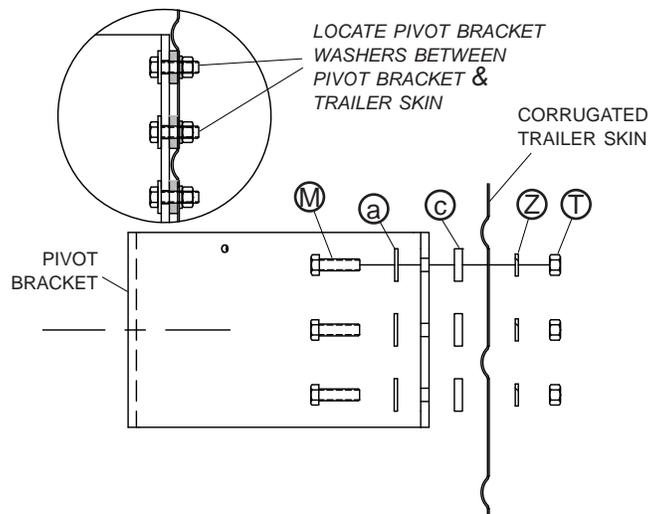


NOTE: Mount brackets into support braces on trailer, if possible. If bracket cannot be mounted into support braces, reinforce mounting area with backer plate for adequate support. Before drilling any holes, make sure flex arm has a clear pathway to operate.

INSTALL BRACKETS ON HORIZONTALLY CORRUGATED TRAILERS

NOTE: Use pivot bracket washers **C** only when horizontal corrugation on trailer skin prevents bracket from contacting trailer skin.

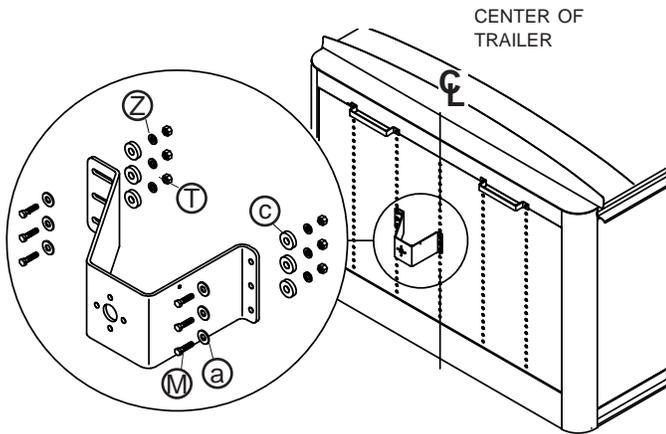
STEP 1: If installing pivot bracket or pivot mount bracket on horizontally corrugated trailer skin, use brackets as guide to mark hole locations. Mark and drill 13/32" holes in trailer and fasten with 3/8" x 1 1/4" cap screws, flat washers, lock washers, pivot bracket washers and nuts. Locate pivot bracket washers between pivot bracket and trailer skin as shown.



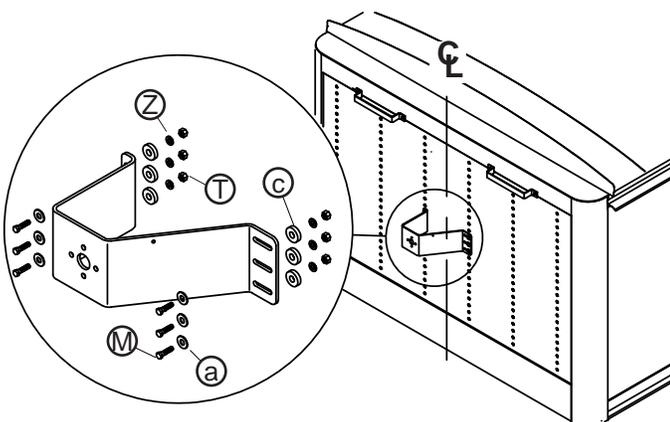
STEP 3: Place pivot mount brackets on trailer as shown below. Using brackets as guide, mark mounting hole locations.

FRONT OF TRAILER

RIVETS/CORRUGATION ON CENTER

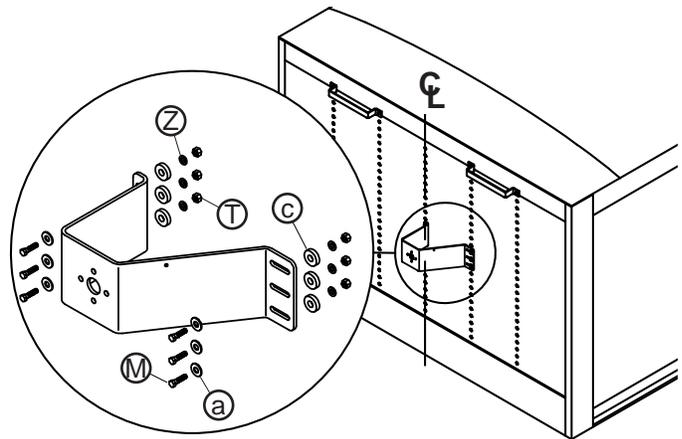


RIVETS/CORRUGATION OFF CENTER

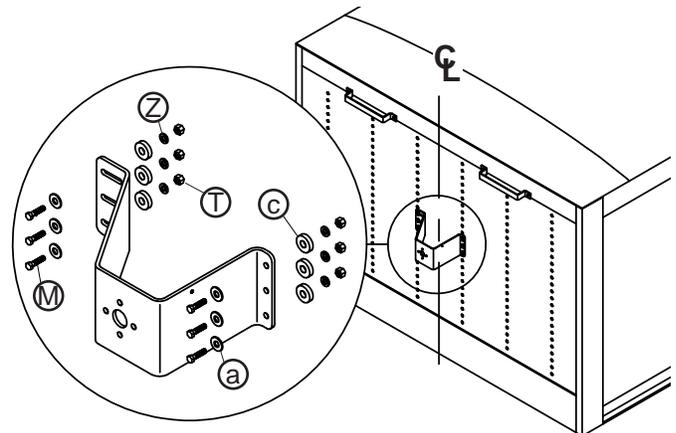


REAR OF TRAILER

RIVETS/CORRUGATION ON CENTER



RIVETS/CORRUGATION OFF CENTER



STEP 4: Remove rivets and mount brackets into rivet holes. If not possible, drill 13/32" holes in trailer. Fasten with screws **M**, washers **a**, **Z** and **C** and nuts **S**.

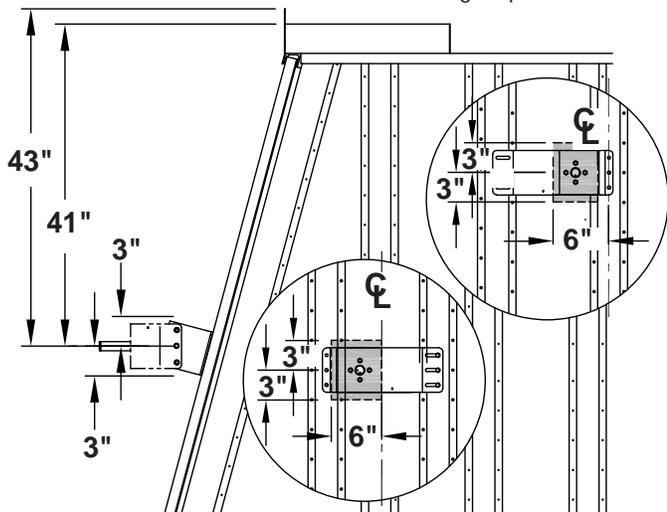
Front Bracket Installation - Sloped Trailer Standard Roll

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

NOTE: Use pivot bracket washers  only when horizontal corrugation on trailer skin prevents bracket from contacting trailer skin (see instructions on page 2).

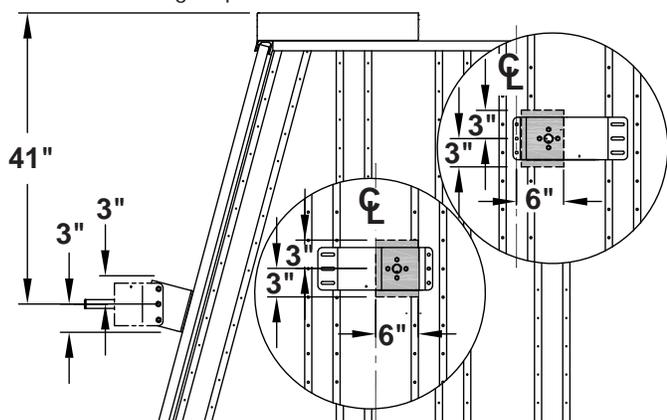
FRONT OF TRAILER

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



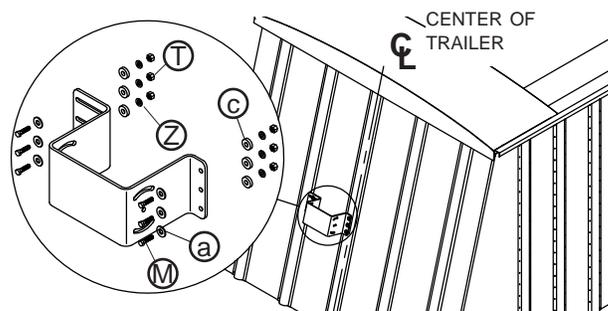
NOTE: Mount brackets into support braces on trailer if possible. If bracket cannot be mounted into support braces, reinforce mounting area with backer plate for adequate support. If bracket does not sit flush with skin of trailer, install spacers between mounting bracket and skin of trailer to assure solid contact through support braces or backer plate.

Before drilling any holes, make sure flex arm has a clear pathway to operate.

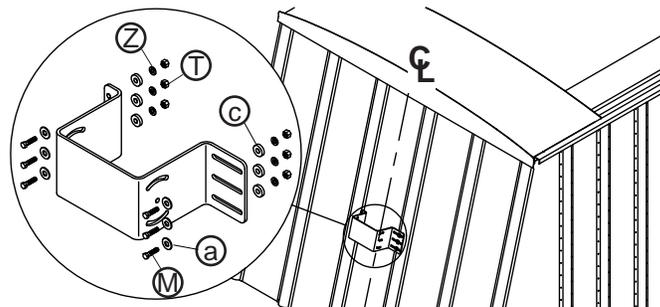
STEP 3: Place pivot mount brackets on trailer as shown below. Using brackets as guide, mark mounting hole locations.

FRONT OF TRAILER

RIVETS/CORRUGATION ON CENTER

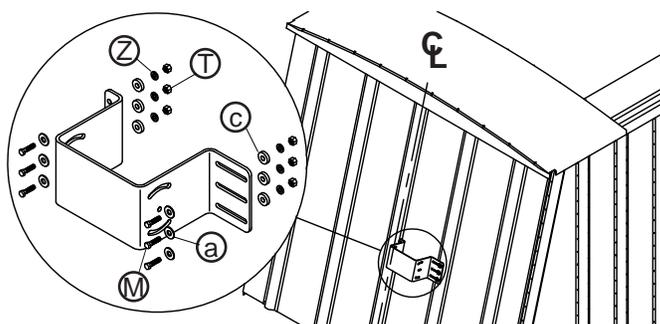


RIVETS/CORRUGATION OFF CENTER

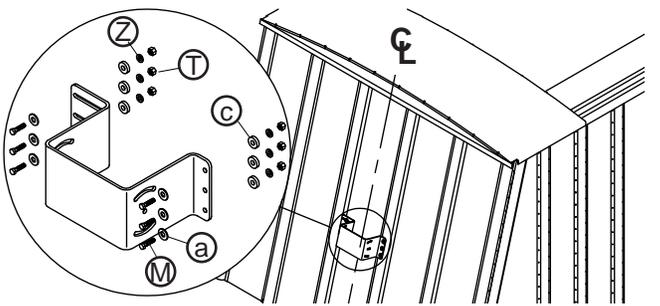


REAR OF TRAILER

RIVETS CORRUGATION ON CENTER



RIVETS/CORRUGATION OFF CENTER

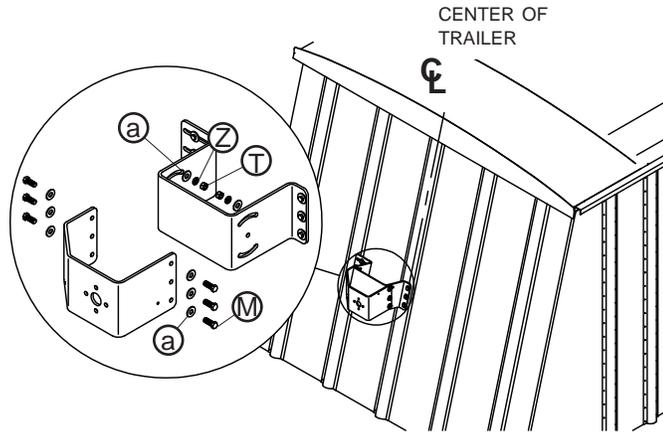


STEP 4: Drill 13/32" holes in trailer. Fasten sloped pivot mount bracket to trailer with screws , washers ,  and nuts .

STEP 5: Place pivot brackets on pivot mount brackets as shown below. Fasten pivot brackets to pivot mount brackets with 3/8" x 1 1/4" cap screws, flat washers, lock washers and nuts.

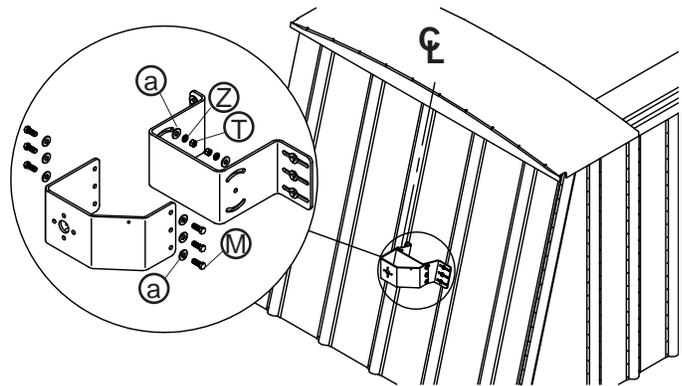
FRONT OF TRAILER

RIVETS/CORRUGATION ON CENTER

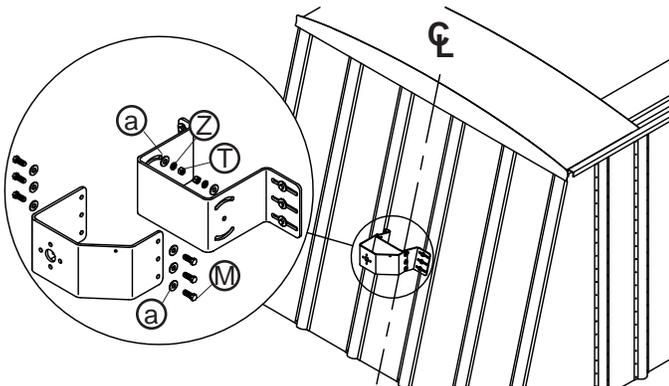


REAR OF TRAILER

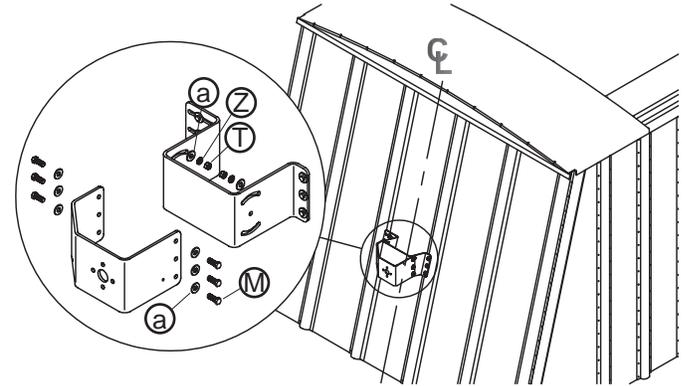
RIVETS/CORRUGATION ON CENTER



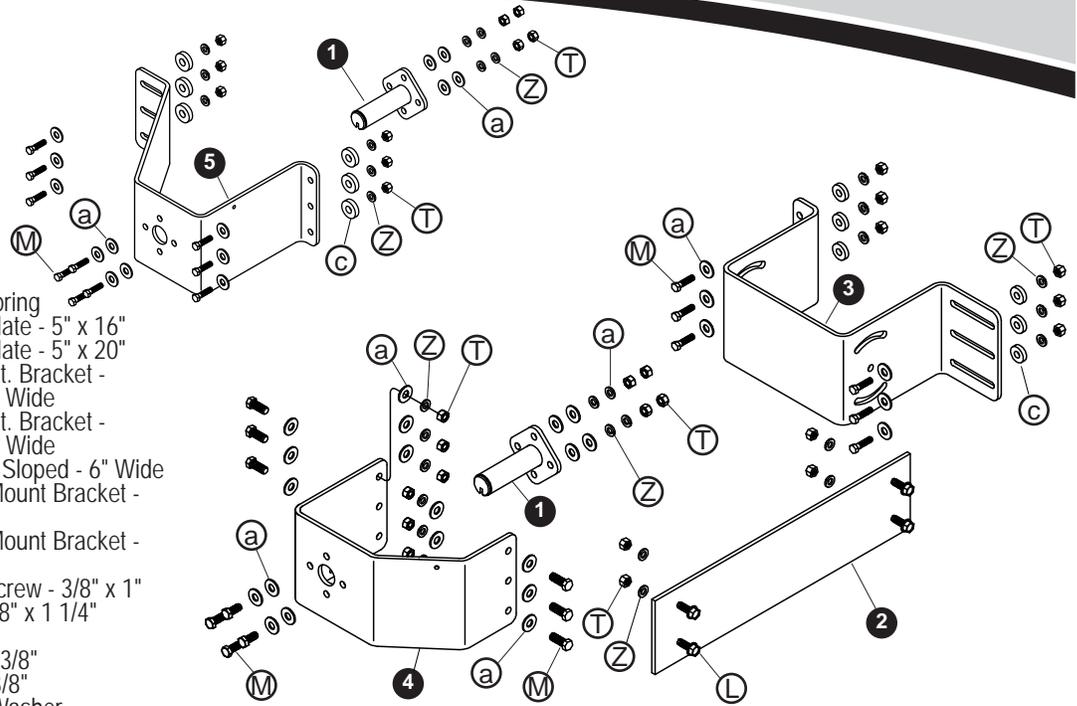
RIVETS/CORRUGATION OFF CENTER



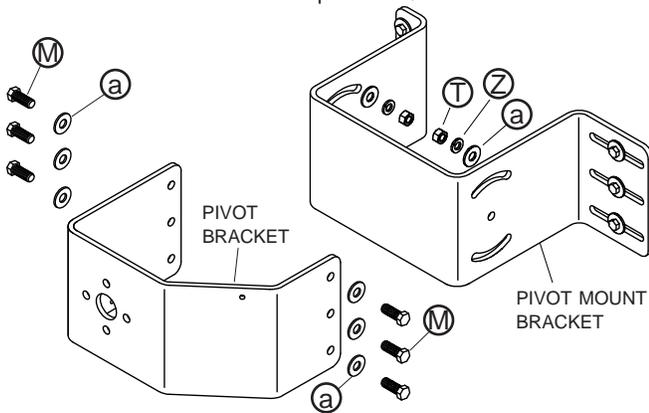
RIVETS/CORRUGATION OFF CENTER



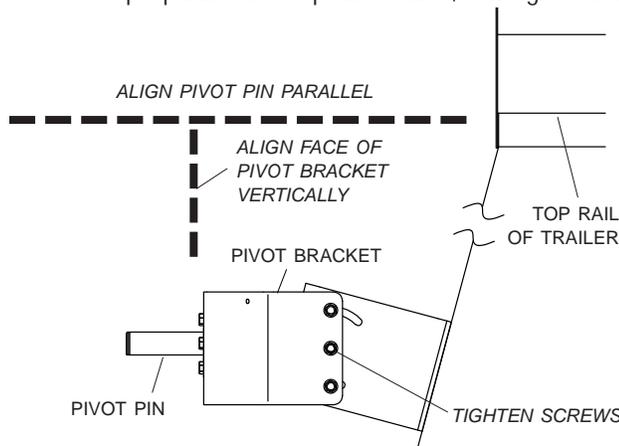
Item	Part #	Description
1.	1116920	Pivot Pin - 4 Spring
2.	1120361	Pivot Backer Plate - 5" x 16"
	1120418	Pivot Backer Plate - 5" x 20"
3.	1121993	Sloped Pivot Mt. Bracket - 6" Standoff - 6" Wide
	1121994	Sloped Pivot Mt. Bracket - 8" Standoff - 6" Wide
4.	1121992	Pivot Bracket - Sloped - 6" Wide
5.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



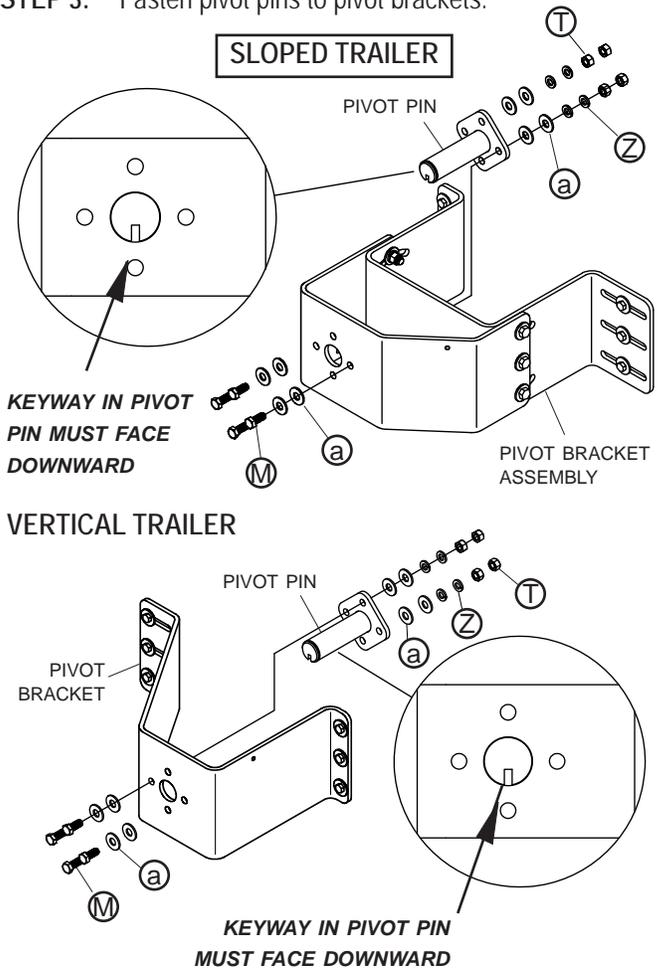
STEP 1: Align and loosely fasten pivot bracket to pivot mount bracket with 3/8" cap screws, lock washers and nuts.



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

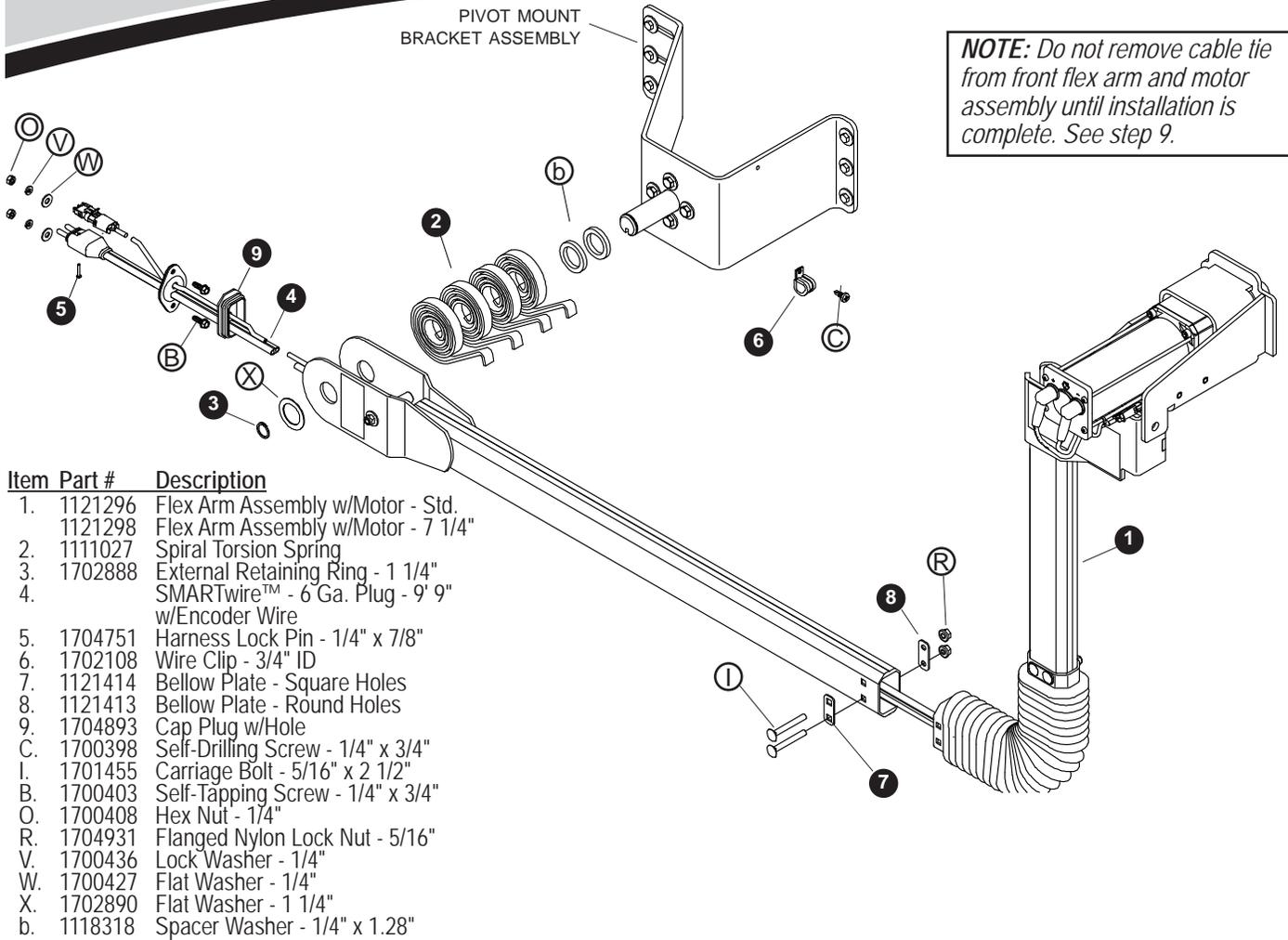


STEP 3: Fasten pivot pins to pivot brackets.



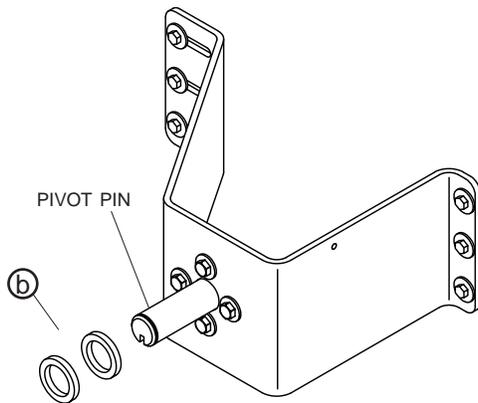
Front Flex Arm & Electric Motor Installation Standard Roll

P/N 1121681 Rev. E

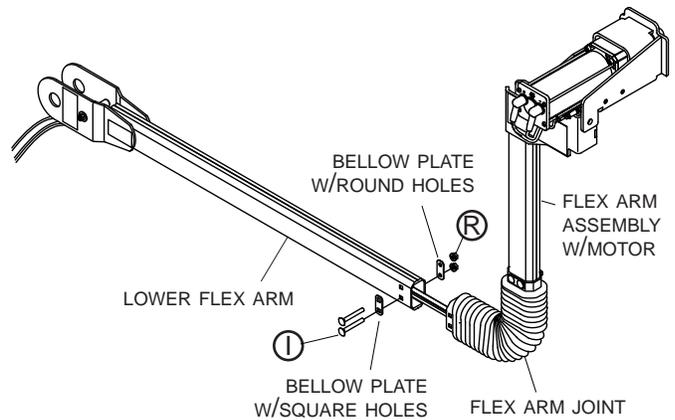


Item	Part #	Description
1.	1121296	Flex Arm Assembly w/Motor - Std.
	1121298	Flex Arm Assembly w/Motor - 7 1/4"
2.	1111027	Spiral Torsion Spring
3.	1702888	External Retaining Ring - 1 1/4"
4.		SMARTwire™ - 6 Ga. Plug - 9' 9"
		w/Encoder Wire
5.	1704751	Harness Lock Pin - 1/4" x 7/8"
6.	1702108	Wire Clip - 3/4" ID
7.	1121414	Bellow Plate - Square Holes
8.	1121413	Bellow Plate - Round Holes
9.	1704893	Cap Plug w/Hole
C.	1700398	Self-Drilling Screw - 1/4" x 3/4"
I.	1701455	Carriage Bolt - 5/16" x 2 1/2"
B.	1700403	Self-Tapping Screw - 1/4" x 3/4"
O.	1700408	Hex Nut - 1/4"
R.	1704931	Flanged Nylon Lock Nut - 5/16"
V.	1700436	Lock Washer - 1/4"
W.	1700427	Flat Washer - 1/4"
X.	1702890	Flat Washer - 1 1/4"
b.	1118318	Spacer Washer - 1/4" x 1.28"

STEP 1: Assemble spacer washers onto pivot pin.

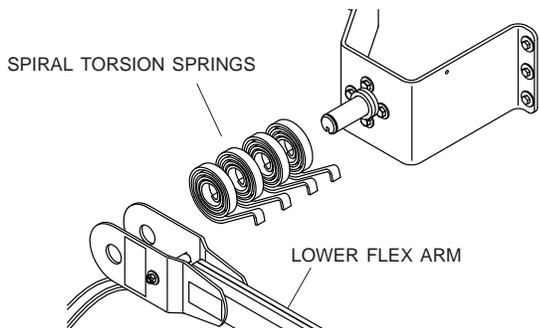


STEP 2: Align holes in bellow, end fitting and bellow plates with holes in lower flex arm assembly as shown. Fasten with 5/16" x 2 1/2" carriage bolts and lock nuts.

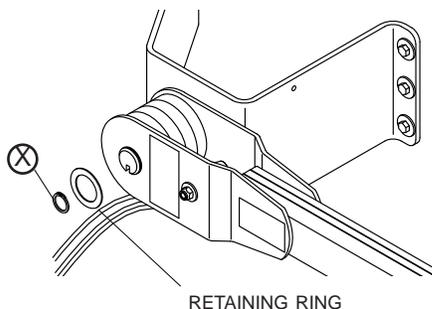


NOTE: Motor assembly on upper flex arm must face toward trailer as shown.

STEP 3: Assemble spiral torsion springs and lower flex arm onto pivot pin. Hook springs over 3/8" x 3 1/2" cap screw and spacer tube.

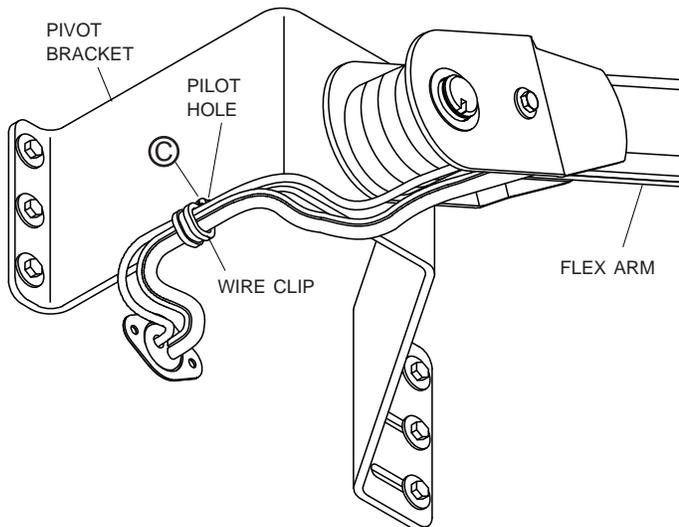


STEP 4: Secure with 1 1/4" flat washer and retaining ring.



NOTE: Motor assembly on upper flex arm must face toward trailer as shown.

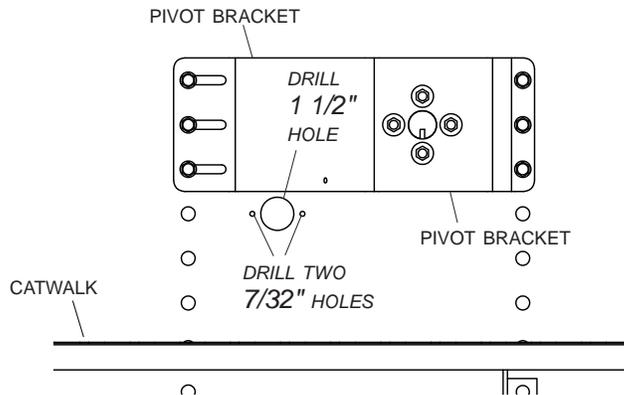
STEP 5: Choose appropriate pilot hole on pivot bracket to route 6-ga. wire from flex arm through trailer skin. Fasten wire clip to pilot hole with 1/4" x 3/4" self-drilling screw.



NOTE: Fasten wire clip to pilot hole on opposite side of pivot bracket from flex arm to prevent wire from being pinched during operation.

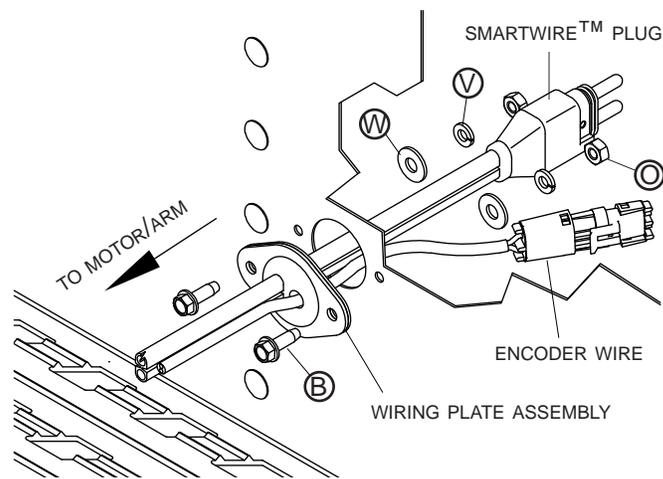
NOTE: Wire lengths are predetermined. Before installing SMARTwire™ components, review and confirm wire routing so wires reach components with ample room for connection.

STEP 6: Measure 11" horizontally from center line of trailer and 1" down from lower edge of pivot bracket. Mark and drill 1 1/2" hole through trailer skin.



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

STEP 8: Fasten wiring plate assembly to front of trailer with 1/4" x 3/4" self-tapping screws, flat washers, lock washers and nuts.

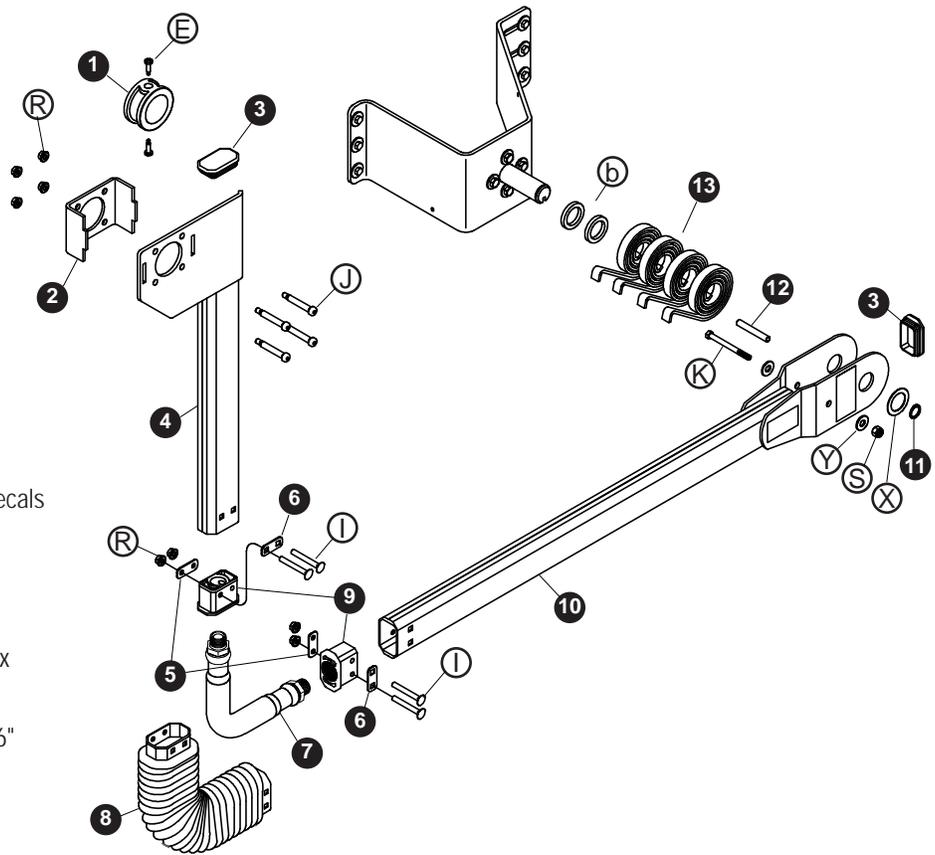


STEP 9: Remove cable tie from front arm/motor assembly before operating system.

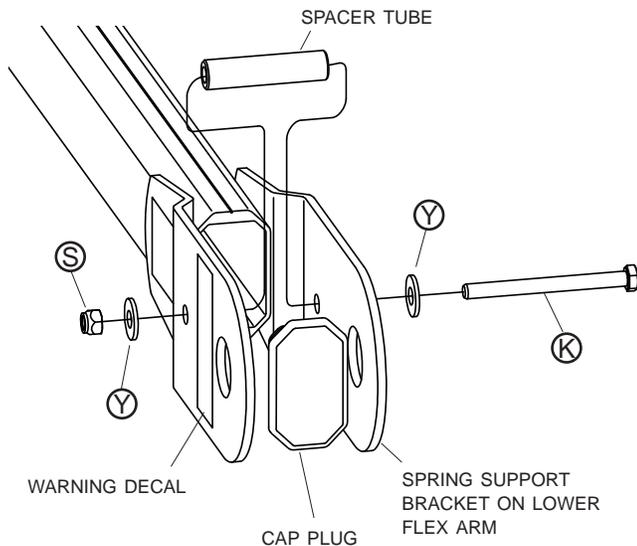
Rear Flex Arm Installation Standard Roll

P/N 1121681 Rev. E

Item	Part #	Description
1.	1704942	Rear Arm Bearing Ring
2.	1121430	Bearing Mount Box
3.	1704892	Cap Plug
4.	1121293	Upper Flex Arm - Bearing
5.	1121413	Bellow Plate - Round Holes
6.	1121414	Bellow Plate - Square Holes
7.	1703873	Flex Arm Joint
8.	1704775	Bellow - HD Series Arm
9.	1704891	End Fitting
10.		Lower Flex Arm w/Warning Decals
11.	1702888	Retaining Ring - 1 1/4"
12.	1117033	Spacer Tube - .35" x 2 5/8"
13.	1111027	Spiral Torsion Spring
E.	1704353	Self-Drilling Screw - 1/4" x 1"
I.	1701455	Carriage Bolt - 5/16" x 2 1/2"
J.	1704943	Shoulder Bolt - 3/8" x 2" Thd. x 5/16" x 1/2"
K.	1201022	Cap Screw - 5/16" x 3 1/2"
R.	1704931	Flanged Nylon Lock Nut - 5/16"
S.	1700419	Nylon Lock Nut - 5/16"
X.	1702890	Flat Washer - 1 1/4"
Y.	1700428	Flat Washer - 5/16"
b.	1118318	Spacer Washer - 1/4" x 1.28"

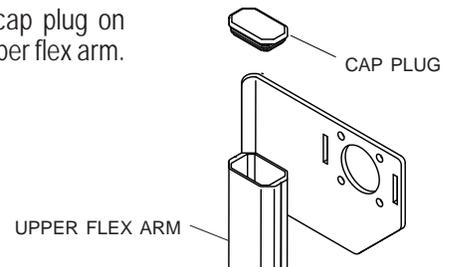


STEP 1: Install cap plug on lower flex arm. Fasten spacer tube into spring support bracket on lower flex arm with 5/16" x 3 1/2" cap screw, two flat washers and nylon lock nut.

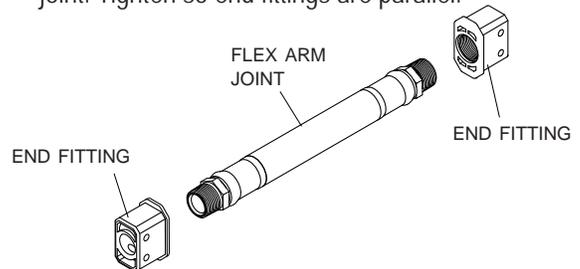


NOTE: Insert cap screw through flex arm so head of screw is on inside of assembly (towards trailer). Warning label must be in plain view on outside of assembly.

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



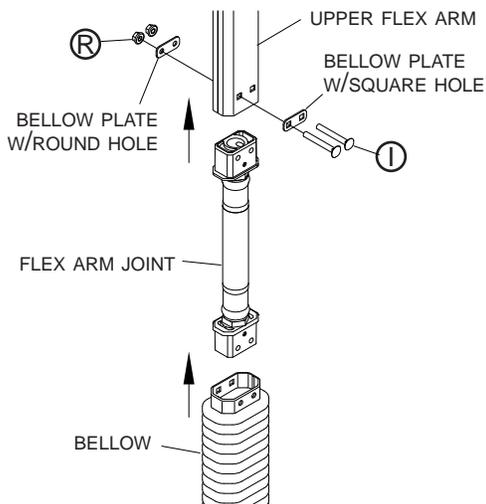
STEP 3: Fully thread end fittings onto both ends of flex arm joint. Tighten so end fittings are parallel.



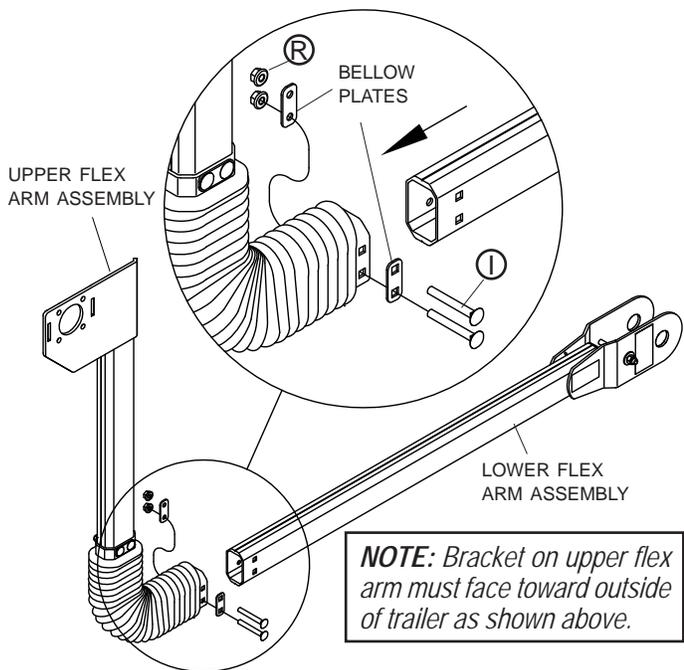
⚠ WARNING

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

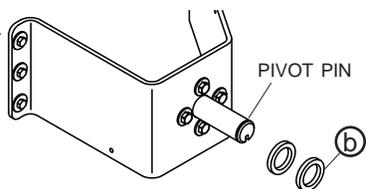
STEP 4: Insert flex arm joint into upper flex arm and slide bellow over flex arm joint. Align holes in upper flex arm, bellow plates, flex arm joint and bellow. Fasten with 5/16" carriage bolts and flanged nylon lock nuts.



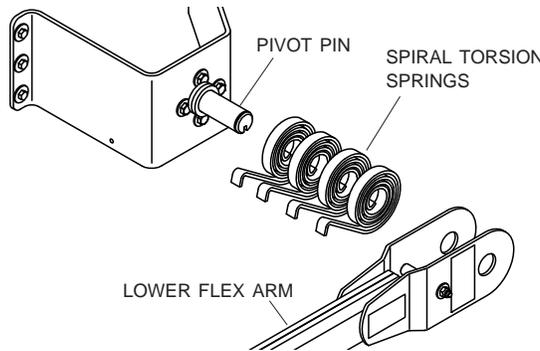
STEP 5: Insert lower end fitting into lower flex arm assembly with end of bellow over outside of arm. Align holes in lower flex arm assembly, bellow plates, end fitting and bellow. Fasten with 5/16" carriage bolts and flanged nylon lock nuts.



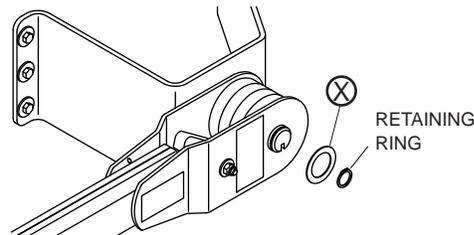
STEP 6: Assemble spacer washers onto pivot pin.



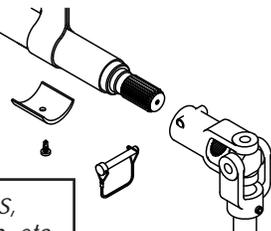
STEP 7: Assemble spiral torsion springs and lower flex arm onto pivot pin. Hook springs over 3/8" x 3 1/2" cap screw.



STEP 8: Secure with 1 1/4" flat washer and retaining ring.

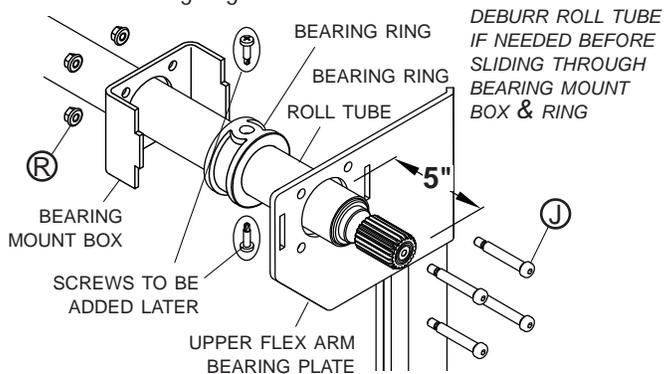


STEP 9: Roll tarp closed over box with roll tube hanging below latchplate. Remove crank assembly and U-clamps from roll tube.



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

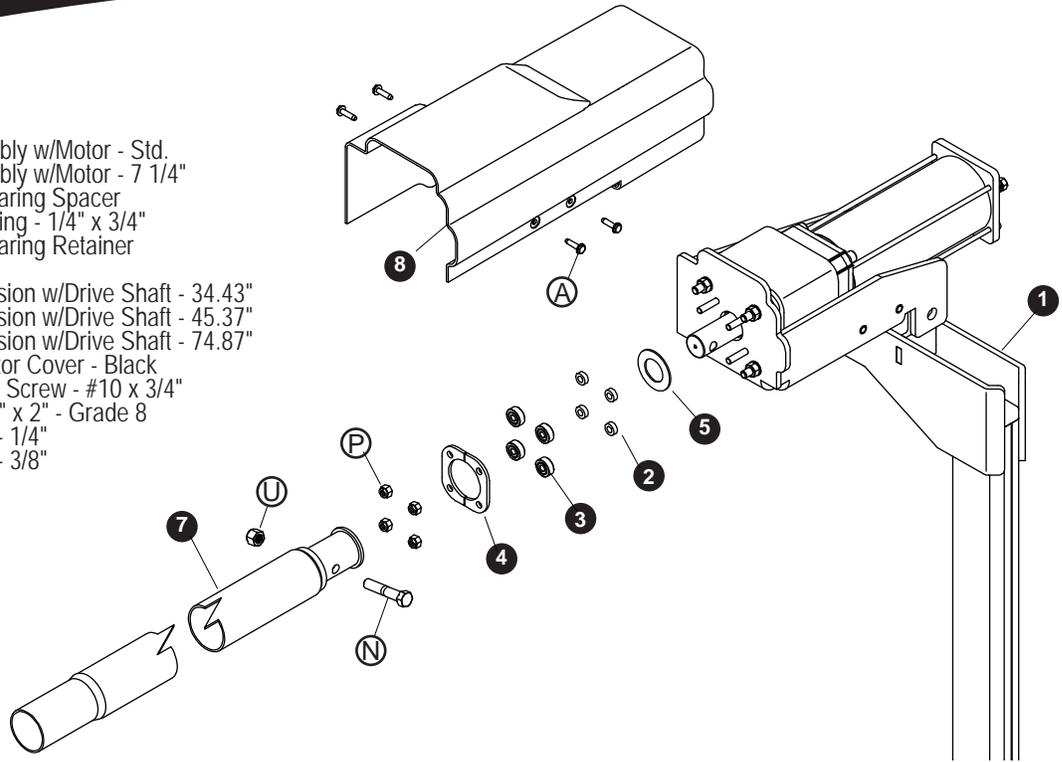
STEP 10: Insert roll tube through bearing mount box, bearing ring and upper flex arm bearing plate, aligning end of splined shaft 5" past bearing plate as shown. Fasten with 5/16" shoulder bolts and nuts as shown, anchoring bearing ring between bolts.



Roll Tube Extension Installation Standard Roll

P/N 1121681 Rev. E

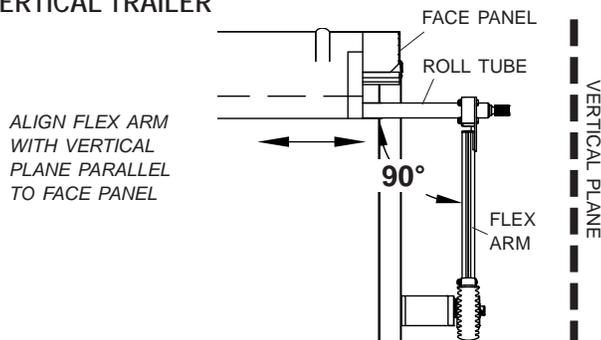
Item	Part #	Description
1.	1121296	Flex Arm Assembly w/Motor - Std.
	1121298	Flex Arm Assembly w/Motor - 7 1/4"
2.	1120680	Motor Mount Bearing Spacer
3.	1704736	Radial Ball Bearing - 1/4" x 3/4"
4.	1120681	Motor Mount Bearing Retainer
5.	1120679	Motor Spacer
7.	1120697	Roll Tube Extension w/Drive Shaft - 34.43"
	1120698	Roll Tube Extension w/Drive Shaft - 45.37"
	1120699	Roll Tube Extension w/Drive Shaft - 74.87"
8.		4500 Series Motor Cover - Black
A.	1704367	Hex Flange Cap Screw - #10 x 3/4"
N.	1704264	Cap Screw - 3/8" x 2" - Grade 8
P.	1701543	Nylon Lock Nut - 1/4"
U.	1701580	Nylon Lock Nut - 3/8"



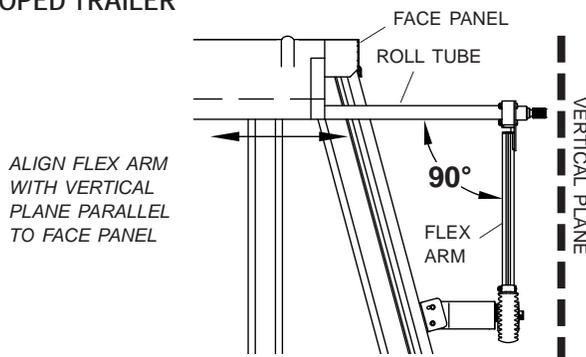
REAR OF TRAILER

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



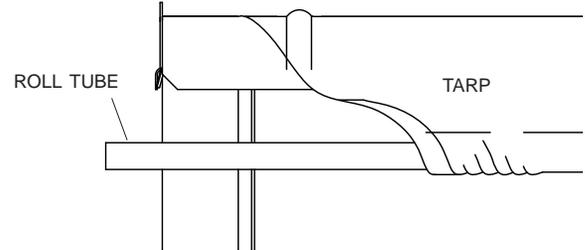
SLOPED TRAILER



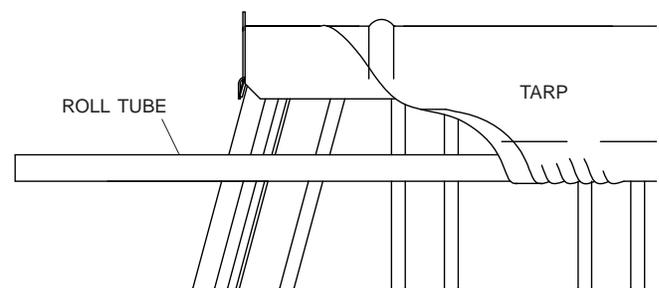
FRONT OF TRAILER

STEP 2: Slide tarp back on roll tube.

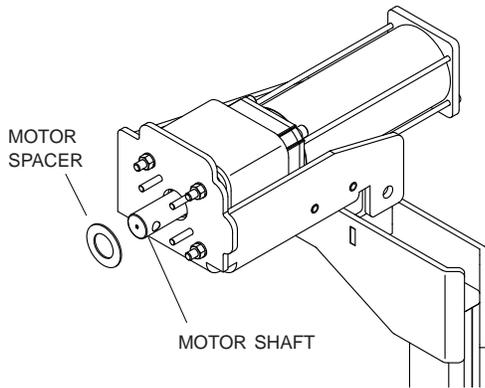
VERTICAL TRAILER



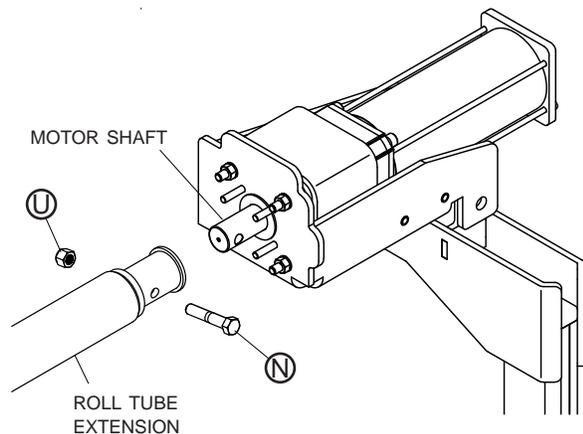
SLOPED TRAILER



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 3/8" x 2" cap screws and lock nuts. 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.

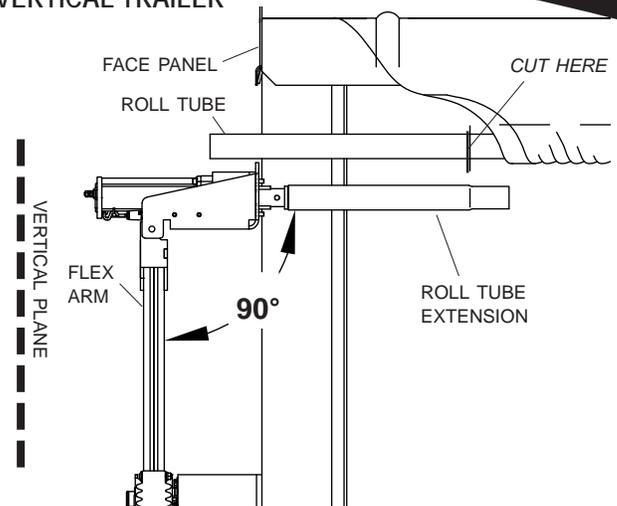
NOTE: Requires two people for safe installation.



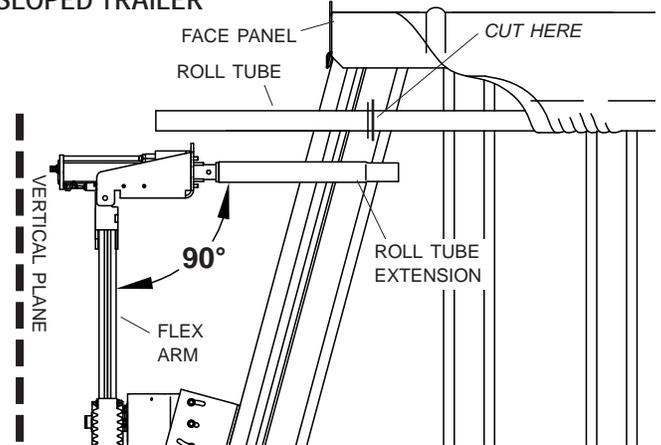
CAUTION

On certain trailers, clearance lights might be in way of roll tube and can be damaged if caution is not taken. In some instances, a 'deflector' might have to be installed to prevent roll tube from causing damage to lights.

VERTICAL TRAILER



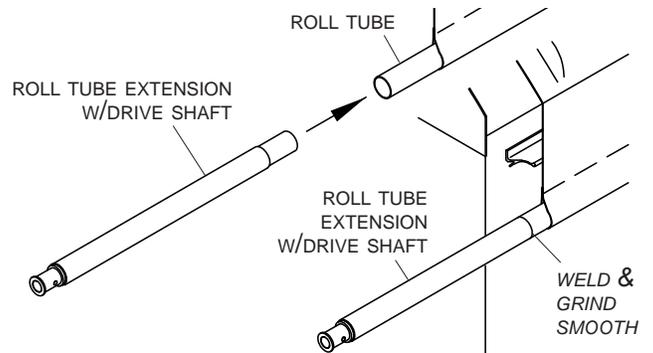
SLOPED TRAILER



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.

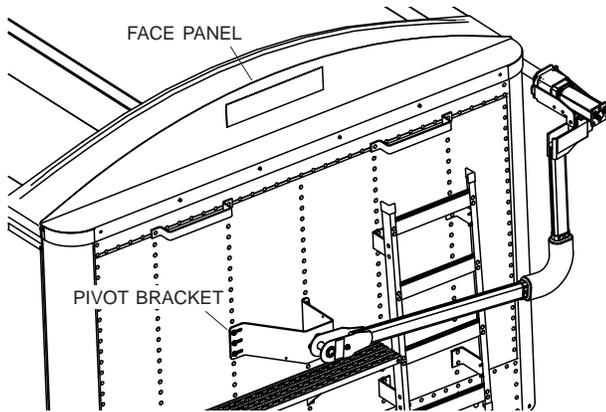
STEP 6: Insert swaged end of roll tube extension w/drive shaft into roll tube. Align extension straight with roll tube and weld all around. Grind smooth.

NOTE: Pull roll tube away from tarp and trailer before welding to protect from weld spatter. Align roll tube extension straight with roll tube before welding so tarp system will roll smoothly.



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

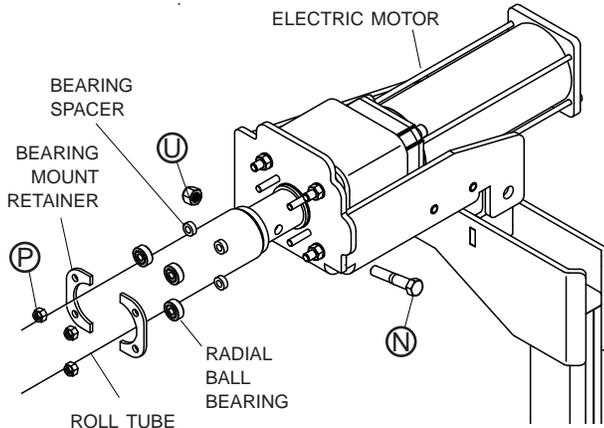
STEP 7: Slide roll tube/roll tube extension weldment back into position and align upper flex arm on front of trailer. Follow step 8 to install motor, positioning motor as shown below. Make sure torsion springs load when tarp opens.



WARNING

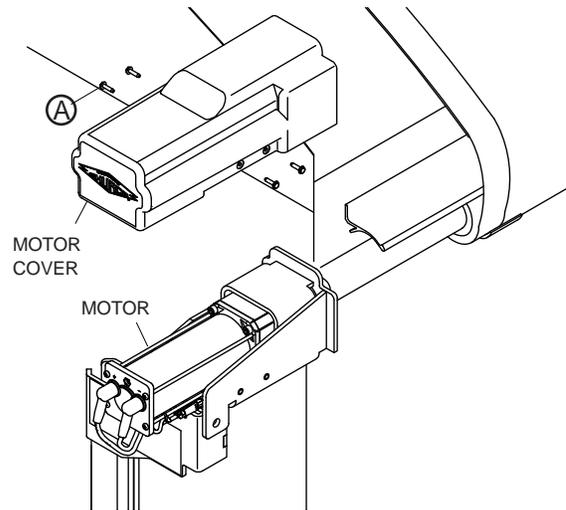
Flex arms are under tension while torsion springs are engaged. Use caution while assembling and disassembling arms. Failure to read and follow instructions could result in serious injury or death.

STEP 8: Refasten and secure roll tube to electric motor shaft with 3/8" x 2" cap screw and lock nut. Install bearing spacers, radial ball bearings and bearing mount retainer and secure with 1/4" lock nuts.



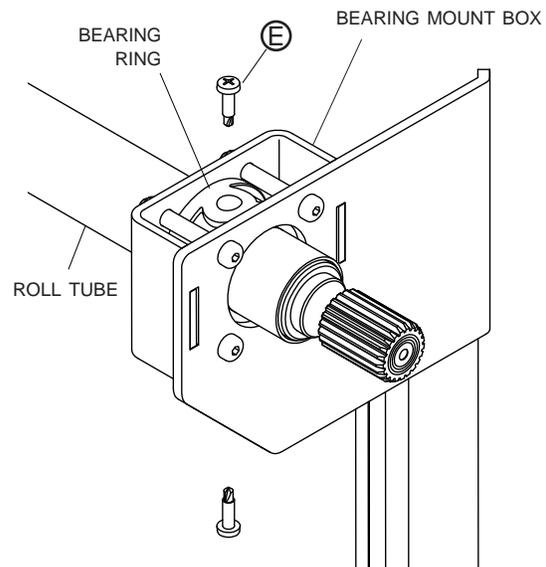
NOTE: Verify again that flex arm is on vertical plane and parallel to face panel before proceeding. Make sure all fasteners holding motor to upper flex arm bracket are tightened securely.

STEP 9: Fasten motor cover onto motor with #10 x 3/4" screws.



STEP 10: Adjust rear roll tube extension to align flex arm on a vertical plane that is 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, fasten bearing ring to roll tube with two 1/4" x 1" self-drilling screws.

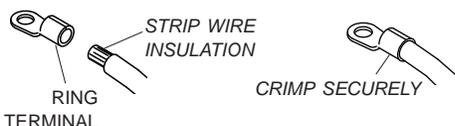
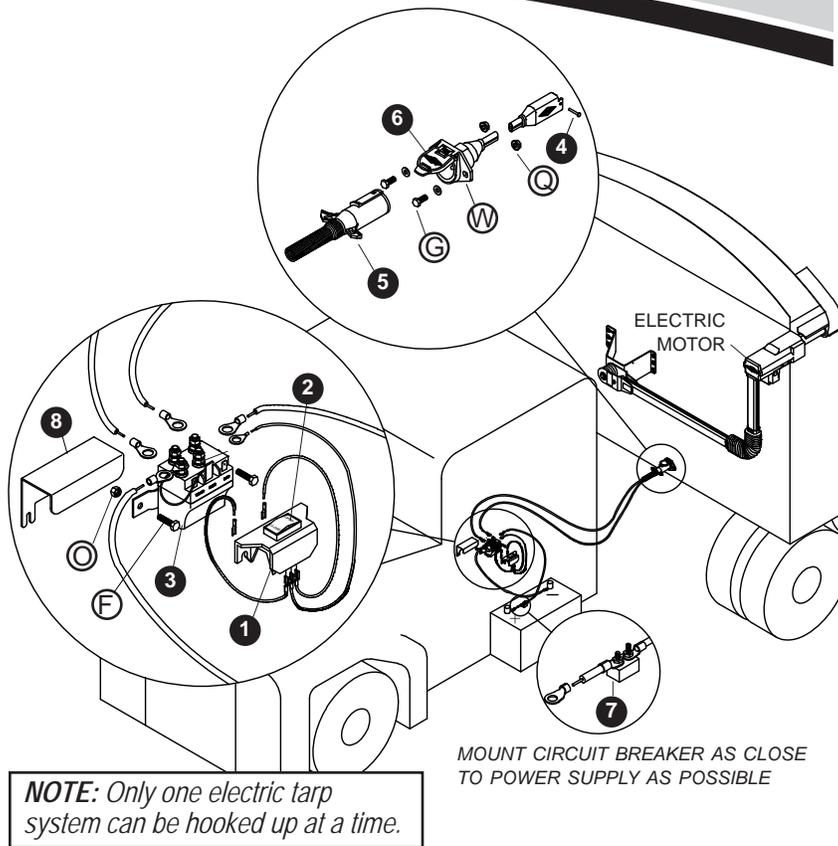


STEP 12: Re-fasten tarp to roll tube with existing U-clamps and screws. Tighten all fasteners securely. Tighten front and rear flex arm connections.

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 Modified-Reset Circuit Breaker
8.	1703896	Solenoid Cover
F.	1700381	Cap Screw - 1/4" x 1"
G.	1701045	Cap Screw - 5/16" x 3/4"
O.	1700408	Hex Nut - 1/4"
Q.	1704946	Flanged Top Lock Nut - 5/16"
W.	1700427	Flat Washer - 1/4"

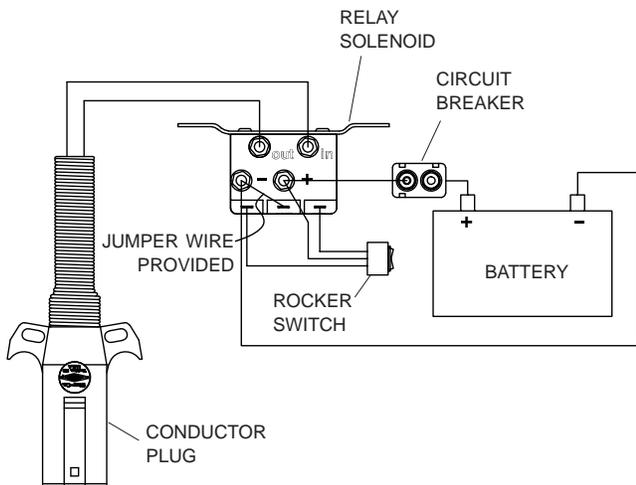
⚠ WARNING
 When transporting trailer, wiring from in-cab rocker switch must be connected to 4500HD system on trailer. If motor is not connected to cab-wired solenoid while in transit, tarp may unwind and blow off.

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

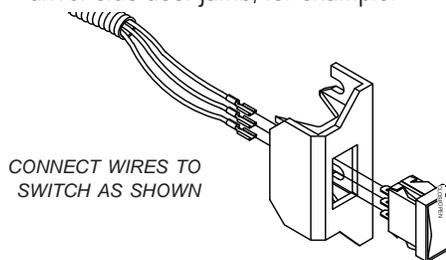



STEP 1: Mount circuit breaker as close as possible to battery or power supply.

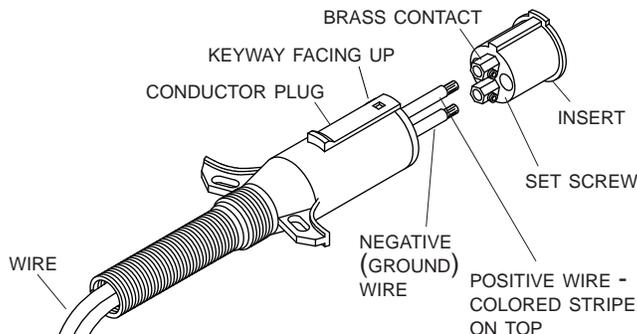
STEP 2: Mount solenoid in a suitable location - a ventilated area near the battery is ideal. Determine best route for wire, usually along frame with existing wire harness. Run 6-ga. wire from conductor plug to solenoid and from power supply to solenoid as shown in diagram. Run 14-ga. wires from solenoid to switch.

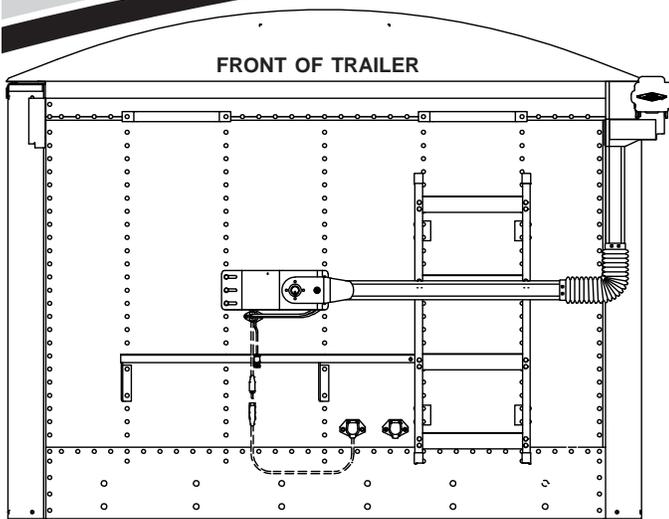


STEP 3: Locate rocker switch in convenient operating location. Switch can be mounted in cab, on dash panel or on driver side door jamb, for example.



STEP 4: Unfasten and remove insert from conductor 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.

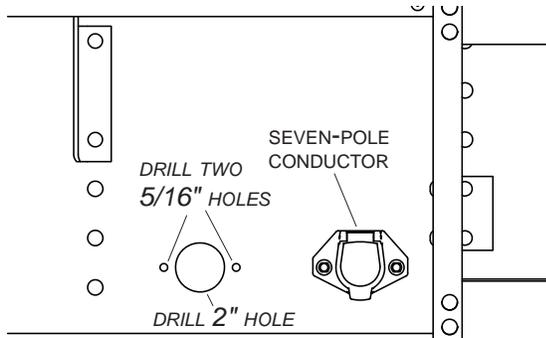




NOTE: Wire lengths are predetermined. Before installing SMARTwire™ components, review and confirm wire routing so wires reach components with ample room for connection.

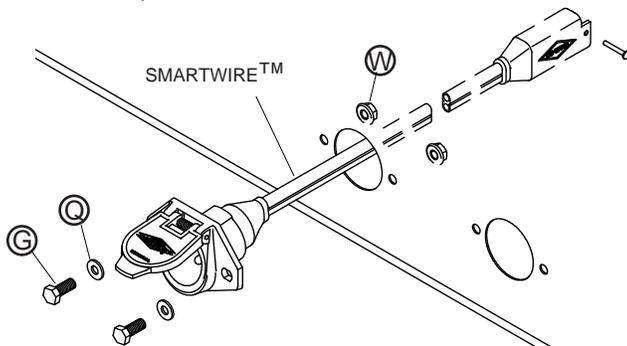
DUAL CONDUCTOR

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

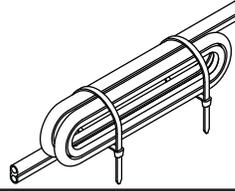


STEP 2: Align socket over 2" hole. Using holes in flanges on socket as guide, mark and drill two 5/16" holes.

STEP 3: Fasten conductor socket to trailer with 5/16" x 3/4" cap screws, flat washers and nuts.



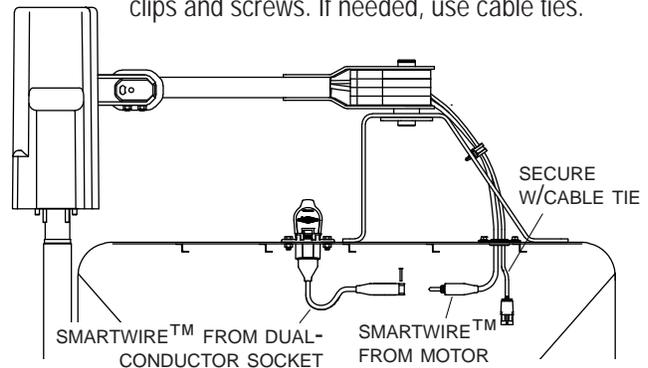
CAUTION



Do not cut SMARTwire™. Bind excess wire with cable ties.

WIRING SCHEMATIC

STEP 1: Connect SMARTwire™ from electric motor to SMARTwire™ from dual-conductor socket and secure connection with lock pin. Secure all wires to trailer with cable clips and screws. If needed, use cable ties.

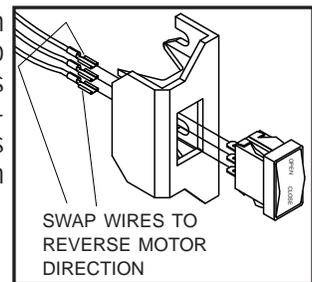


NOTE: Coat each connection with dielectric grease (P/N 1704378) to prevent corrosion.

CAUTION

Check all hardware for complete assembly before operating. Inspect system at this time and adjust as required.

STEP 2: 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.

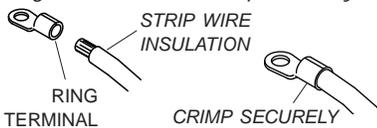
B) Open tarp: Push switch to "OPEN" and hold. Observe tarp and release switch when tarp is fully open.

NOTE: 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.		Shur-Co® Wireless Receiver - SMART1+™ SMARTwire™
		Shur-Co® Wireless Receiver - SMART2™ w/SMARTwire™
D.	1704338	Self-Tapping Screw - 1/4" x 1"
G.	1701045	Cap Screw - 5/16" x 3/4"
H.	1702926	Cap Screw - 5/16" x 7/8"
Q.	1704946	Flanged Top Lock Nut - 5/16"
S.	1700419	Lock Nut - 5/16"
W.	1700427	Flat Washer - 1/4"
Y.	1700428	Flat Washer - 5/16"

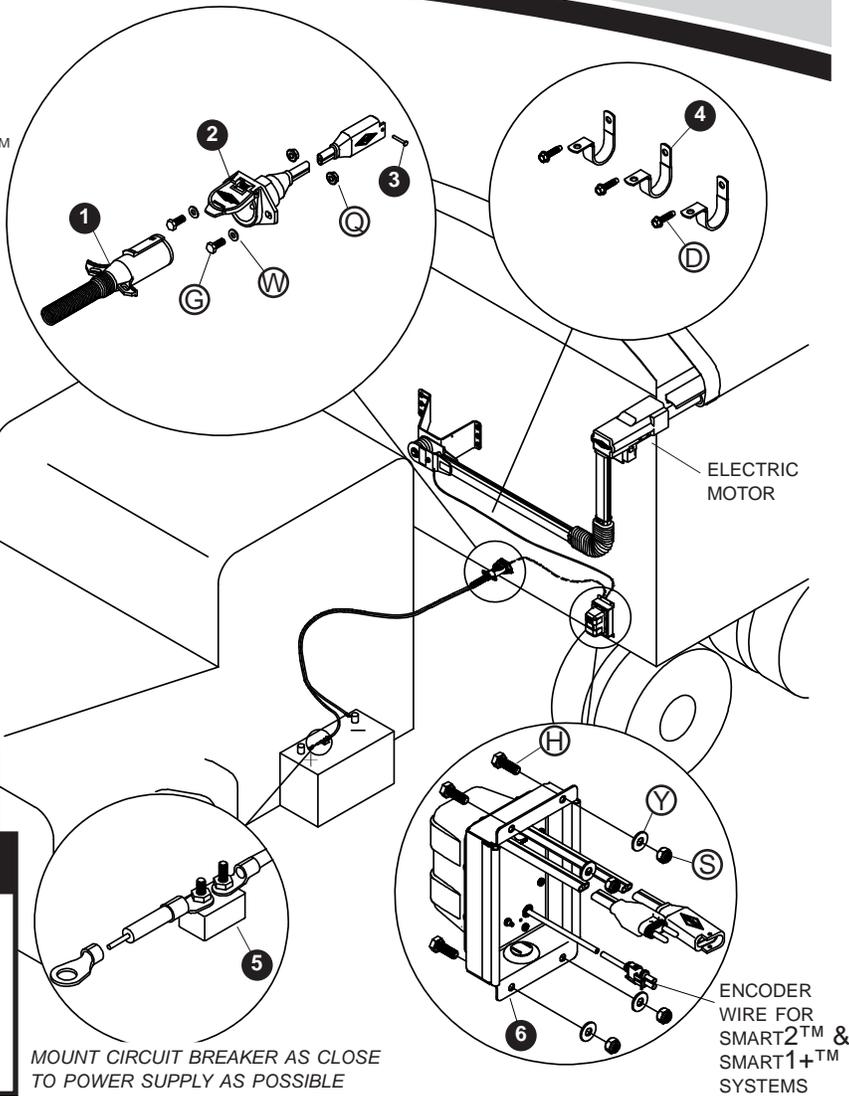
NOTE: Only one electric tarp system can be hooked up at a time.

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



NOTICE

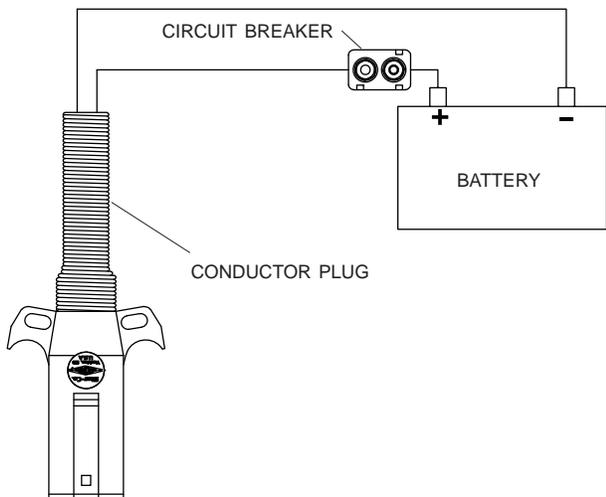
Do not power any Shur-Co® wireless system with battery charger alone, as this will likely cause system abnormalities and/or system malfunction. Instead, use a 12-volt truck/automobile battery to provide power to trailer.



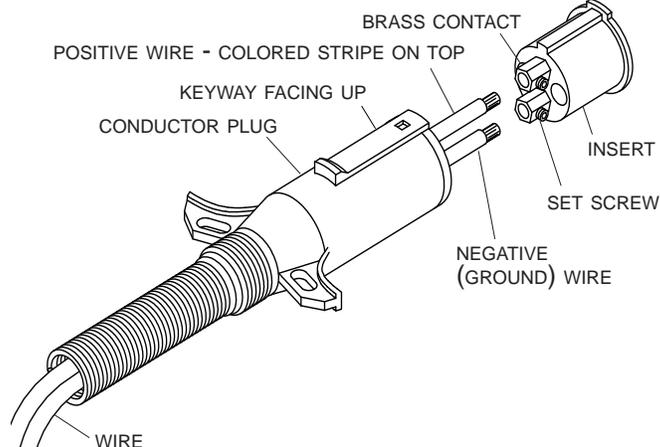
MOUNT CIRCUIT BREAKER AS CLOSE TO POWER SUPPLY AS POSSIBLE

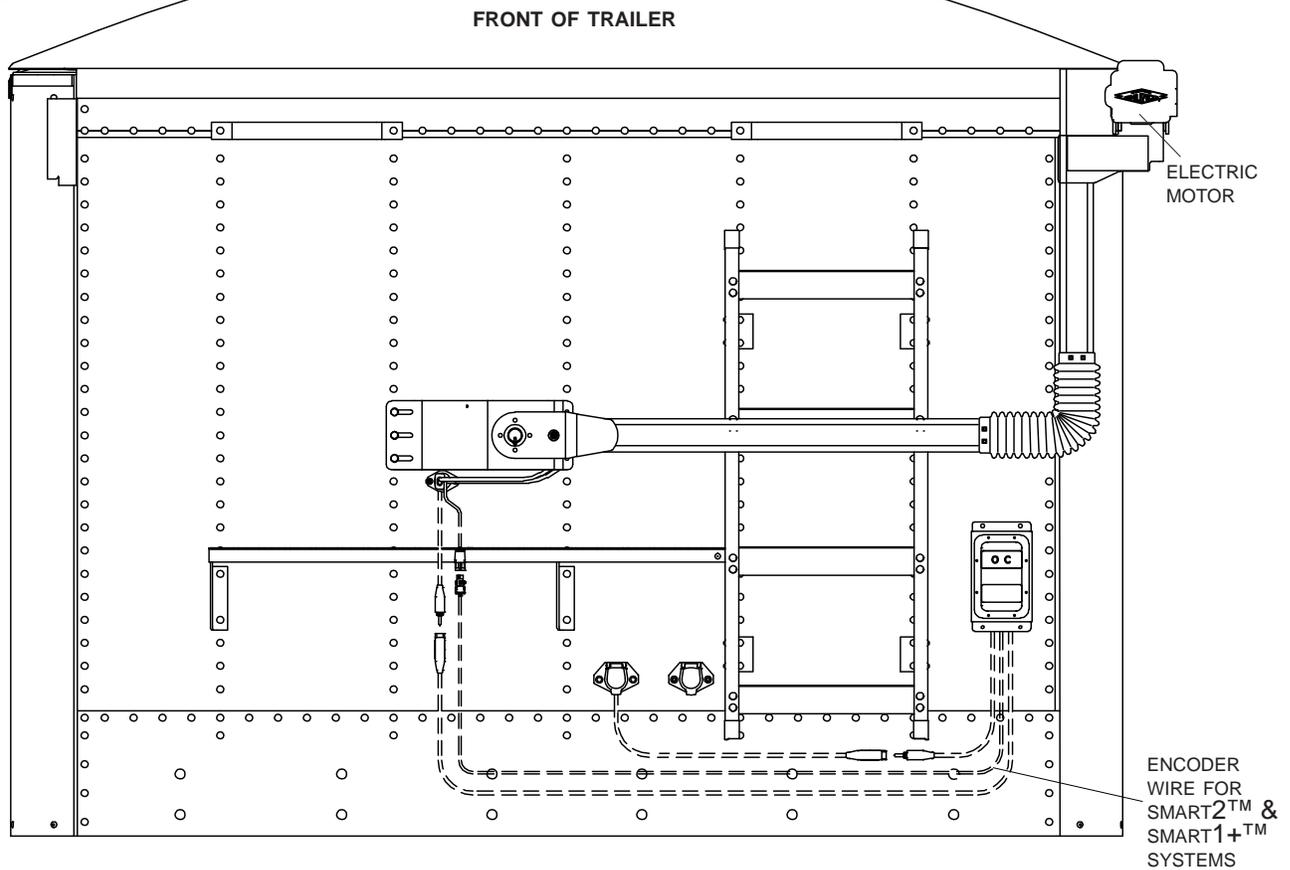
ENCODER WIRE FOR SMART2™ & SMART1+™ SYSTEMS

STEP 1: Mount circuit breaker as close as possible to battery or power supply.



STEP 2: Unfasten and remove insert from conductor 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.

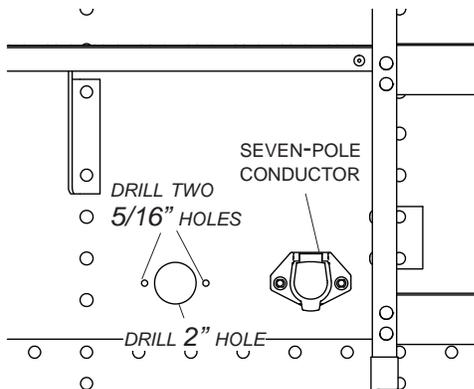




NOTE: Wire lengths are predetermined. Before installing SMARTwire™ components, review and confirm wire routing so wires reach components with ample room for connection.

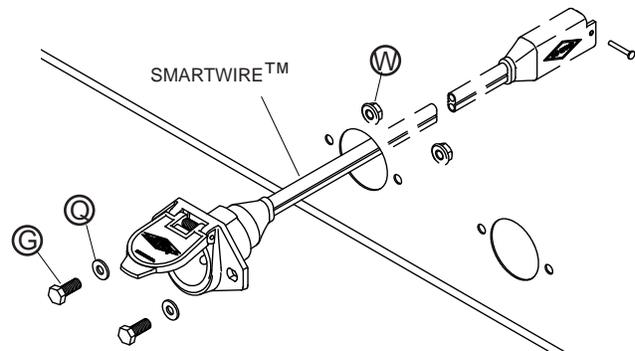
DUAL-CONDUCTOR SOCKET

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



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

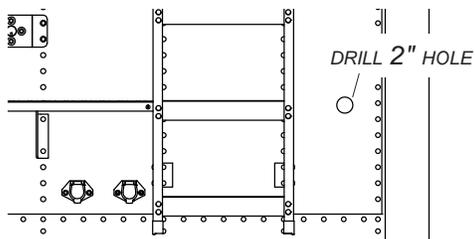
STEP 3: Fasten conductor socket to trailer with 5/16" x 3/4" cap screws, flat washers and nuts.



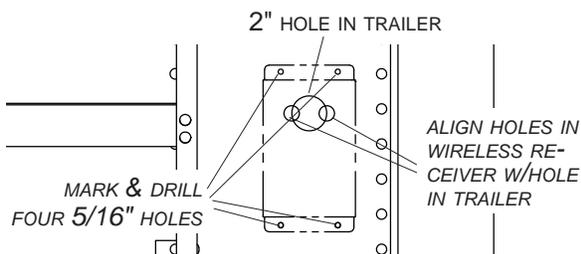
CAUTION
Do not fasten SMARTwire™ components to trailer through hopper walls.

SHUR-CO® WIRELESS RECEIVER

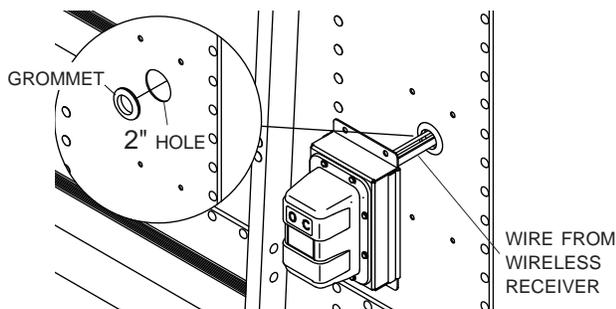
STEP 1: Locate Shur-Co® wireless receiver as shown in front view. Determine location and drill 2" hole through trailer skin.



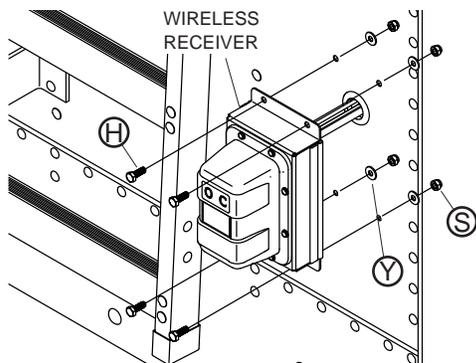
STEP 2: Align holes in wireless receiver over 2" hole in trailer as shown below. Using holes on flanges on receiver as a guide, mark and drill four 5/16" holes as shown.



STEP 3: Install grommet into 2" hole. Insert wire from wireless receiver through grommet.

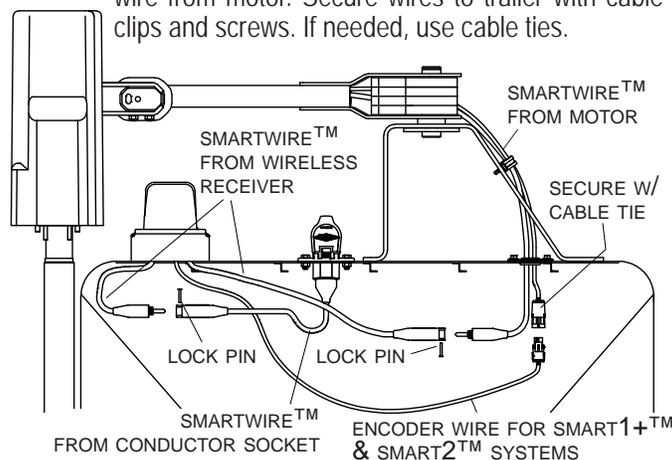


STEP 4: Align holes on wireless receiver with holes on trailer. Fasten receiver to trailer with 5/16" x 7/8" cap screws, lock washers and nuts.



WIRING SCHEMATIC

STEP 1: Connect SMARTwire™ from wireless receiver to SMARTwire™ from electric motor. Connect SMARTwire™ plug from wireless receiver to SMARTwire™ from dual-conductor socket. Secure connections with lock pins. If you have a SMART1+ or SMART2™ system, connect encoder wire from receiver to encoder wire from motor. Secure wires to trailer with cable clips and screws. If needed, use cable ties.



NOTE: Coat each connection with dielectric grease (P/N 1704378) to prevent corrosion.

CAUTION

Check all hardware for complete assembly before operating. Inspect system at this time and adjust as required.

STEP 2: Check motor direction by activating switch to "OPEN." If switch is running system backwards, program remote to wireless receiver and rewire as directed in troubleshooting guide in remote instructions.

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.

C) Remote operation: Refer to remote instruction manual.

NOTE: 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. SMART2™ systems will shut down automatically. Refer to remote instruction manual.

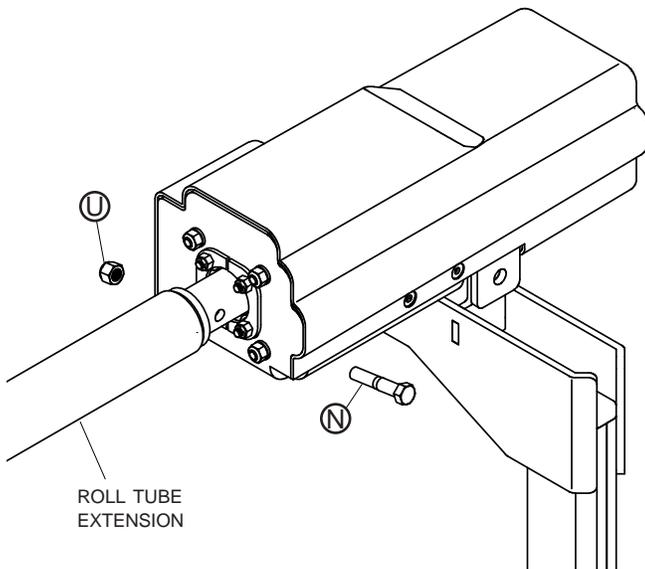
NOTE: Receiver may be pressure washed, but keep nozzle at least 3' from system while spraying.

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

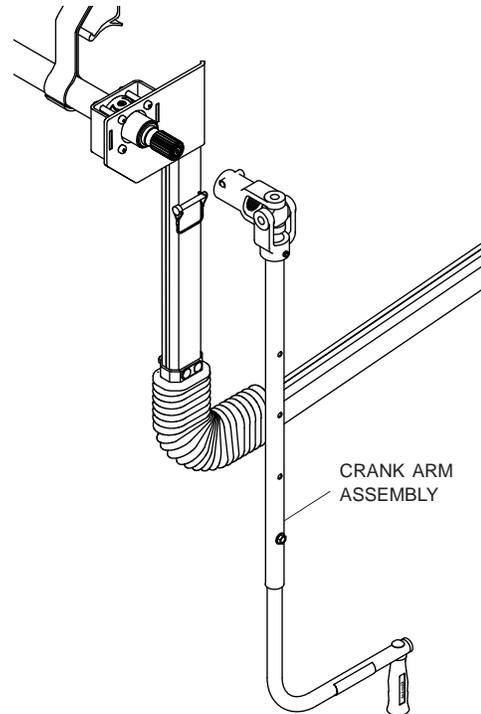
NOTE: Store manual crank arm in truck or mounted to trailer.
(Example - above kingpin in the apex.)

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

STEP 2: At front of trailer, remove 3/8" x 2" cap screw and lock nut from motor shaft and roll tube extension connection.



STEP 3: Remove protective cap and install crank arm assembly as shown in Shur-Lok® owner's manual. View owner's manual at <http://www.shurco.com>.



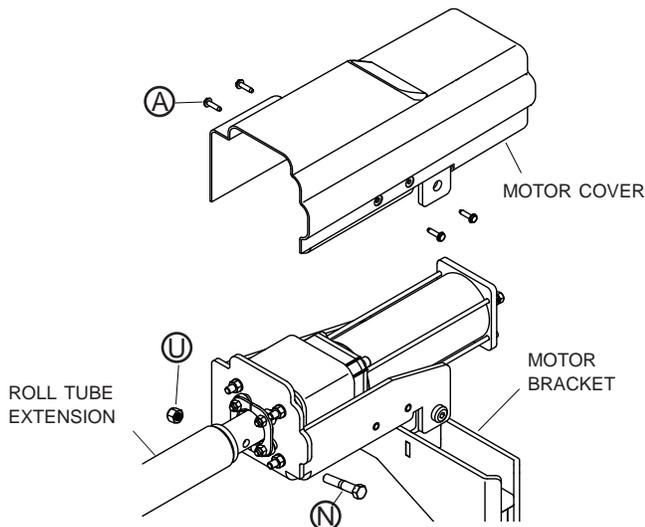
CAUTION

Do not open or close tarp without U-joint securely fastened to splined shaft with wire lock pin. Failure to do so could result in injury.

REMOVE EXISTING MOTOR

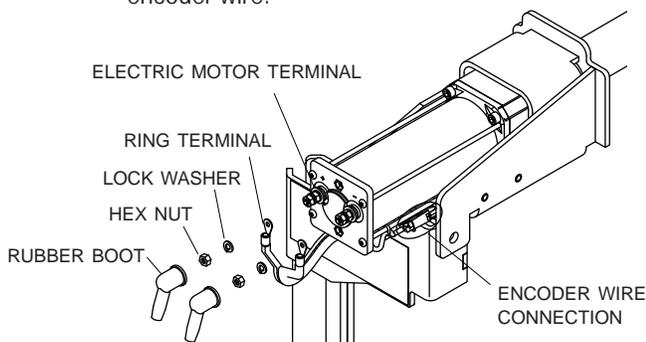
STEP 1: Close tarp, letting roll tube hang loose under latchplate.

STEP 2: Disconnect electric power to trailer. Unfasten and remove motor cover. Unfasten 3/8" x 2" cap screw and lock nut holding motor shaft to roll tube extension.

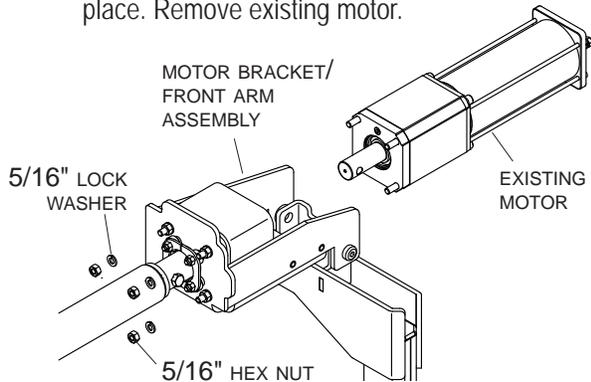


NOTE: Leave roll tube fastened to motor bracket.

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

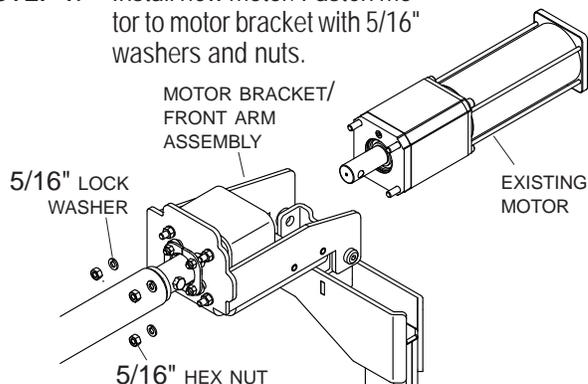


STEP 4: Unfasten and remove only 5/16" lock washers and hex nuts holding motor to motor bracket/front arm assembly, leaving motor mount bearing retainers in place. Remove existing motor.

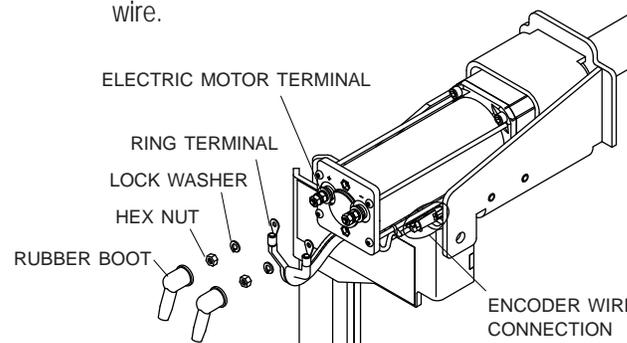


INSTALL NEW MOTOR

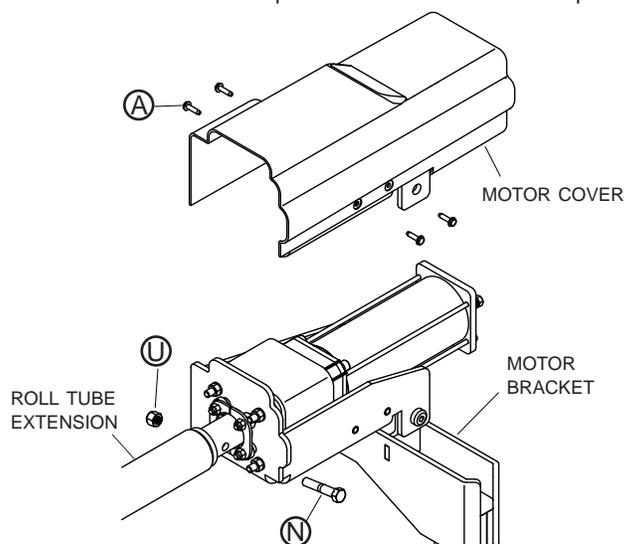
STEP 1: Install new motor. Fasten motor to motor bracket with 5/16" washers and nuts.



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



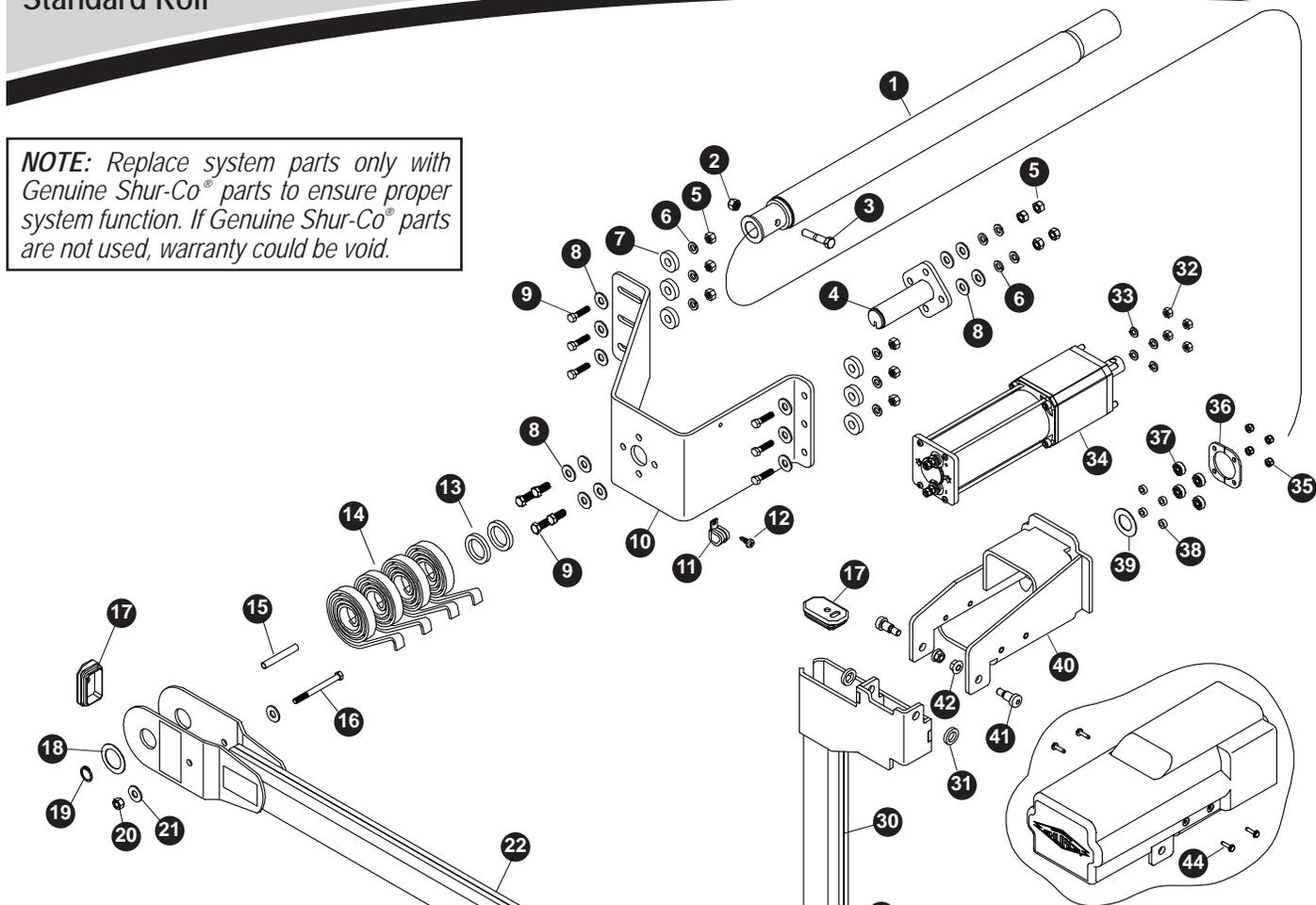
STEP 3: Fasten motor shaft to roll tube with 3/8" x 2" cap screw and lock nut. Replace motor cover and fasten to motor with #10 x 3/4" cap screws. Reconnect electric power.



CAUTION

Check all hardware for complete assembly before operating. Inspect system at this time and adjust as required.

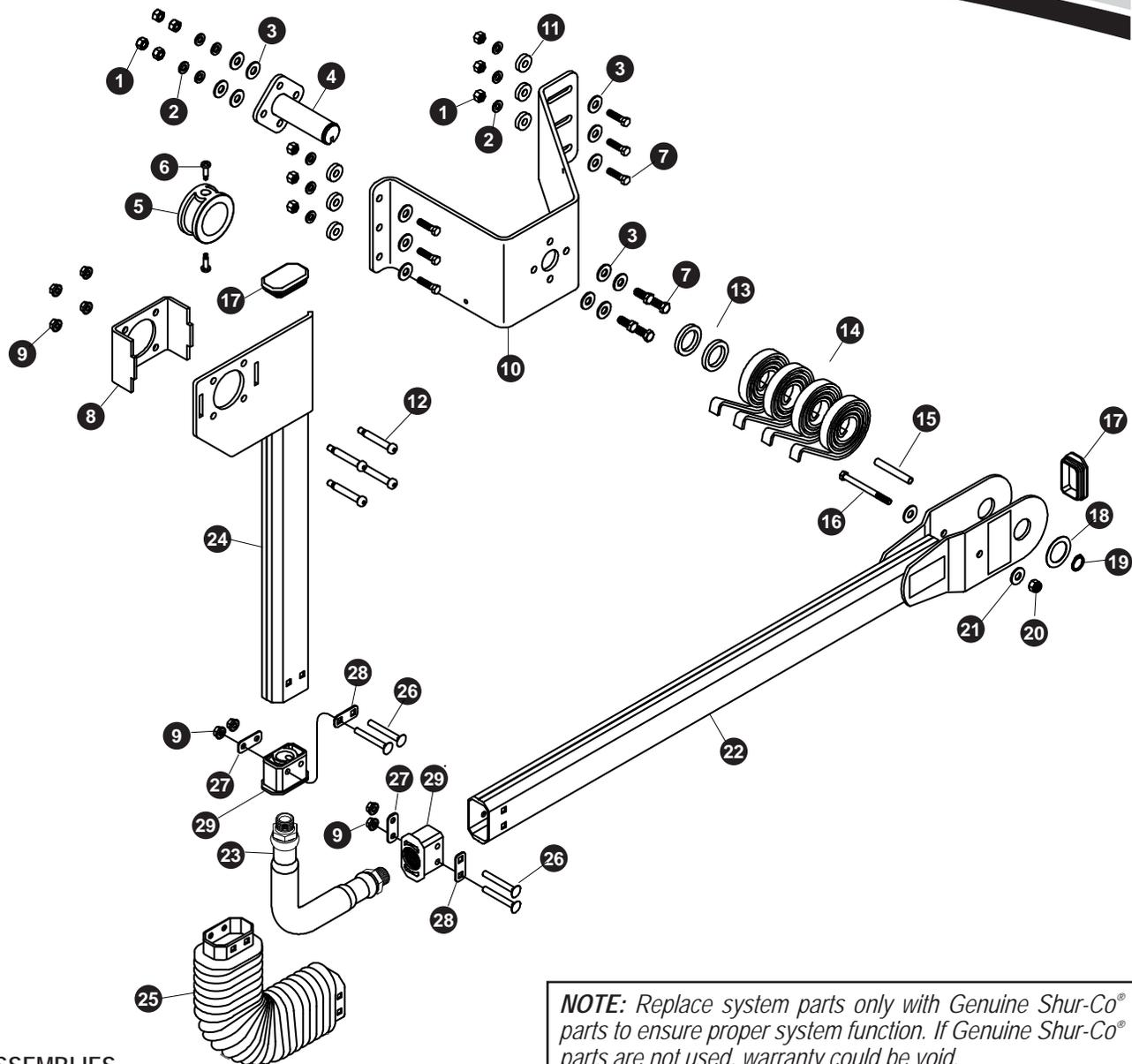
NOTE: Replace system parts only with Genuine Shur-Co® parts to ensure proper system function. If Genuine Shur-Co® parts are not used, warranty could be void.



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" - Grade 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 - 1/4" 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.	1121617	Lower Flex Arm w/Warning Decals & Spring Pin (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"

Item	Part #	Description
28.	1703873	Flex Arm Joint
29.	1704775	4500 Series HD Bellow
30.	1121289	Upper Flex Arm - Motor
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.	1120681	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.	1704945	Flanged Top Lock Nut - 5/16"
43.	1121659	4500 Series HD Motor Cover Kit - Black
44.	1704367	Hex Flange Cap Screw - #10 x 3/4"



NOTE: Replace system parts only with Genuine Shur-Co® parts to ensure proper system function. If Genuine Shur-Co® parts are not used, warranty could be void.

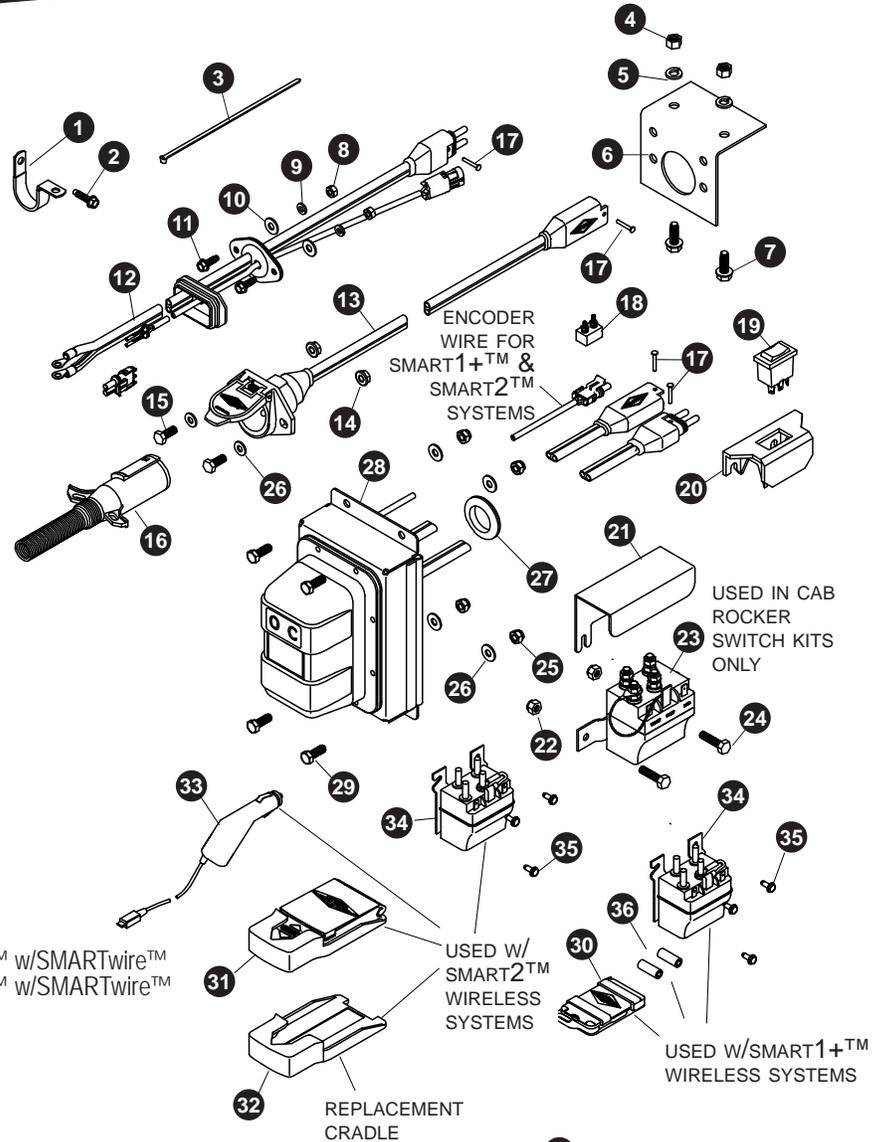
REAR ASSEMBLIES

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
6.	1704353	Self-Drilling Screw - 1/4" x 1"
7.	1702891	Cap Screw - 3/8" x 1 1/4"
8.	1121430	Bearing Mount Box
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" Thd. x 5/16" x 1/2"
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 & Spring Pin (Includes items 15; 16; 20; 21; 22)
23.	1703873	Flex Arm Joint
24.	1121293	Upper Flex Arm - Bearing
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

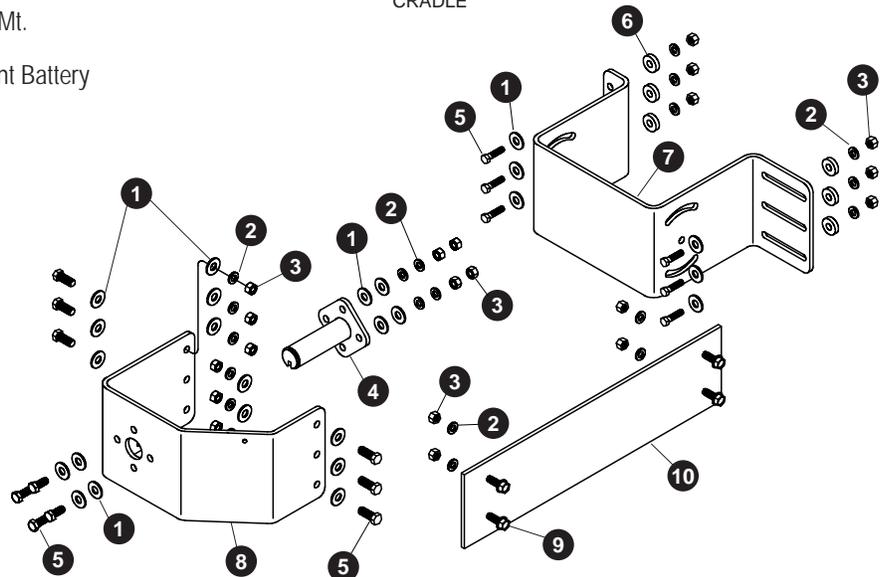
4500 SERIES HD ELECTRIC COMPONENTS

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.	1700408	Hex Nut - 1/4"
9.	1700436	Lock Washer - 1/4"
10.	1700427	Flat Washer - 1/4"
11.	1700403	Self-Tapping Screw - 1/4" x 3/4"
12.		SMARTwire™ - 6 Ga. - Plug - 9' 9" w/Encoder Wire
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.	1116020	Rocker Switch
20.	1703661	Rocker Switch Mounting Bracket
21.	1703896	Solenoid Cover
22.	1701543	Nylon Lock Nut - 1/4"
23.	1703845	Motor-Reversing Solenoid
24.	1700381	Cap Screw - 1/4" x 1"
25.	1700419	Lock Nut - 5/16"
26.	1700428	Flat Washer - 5/16"
27.	1202938	Rubber Grommet - 1 1/2" Insert
28.	1123508	Shur-Co® Wireless Receiver - SMART1+™ w/SMARTwire™
	1122137	Shur-Co® Wireless Receiver - SMART2™ w/SMARTwire™
29.	1702926	Cap Screw - 5/16" x 7/8"
30.	1123160	5-Channel SMART1+™ Remote
31.	1122231	SMART2™ Remote w/Cradle
32.	1704957	SMART2™ Cradle
33.	1704958	SMART2™ Charger Cable
34.	1704312	Motor-Reversing Solenoid - 3 Pt. Mt.
35.	1704308	Flanged Cap Screw - #10 x 1/2"
36.	1705163	SMART1+™ Remote Replacement Battery



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"



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 - SMART1 +™ Remote
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