PIONEER™

INSTALLATION
OPERATION
MAINTENANCE
MANUAL
FOR
MODEL HR 1500 E
AUTOMATIC COVERING SYSTEM

ATTENTION DISTRIBUTOR: DO NOT DISCARD.

PLEASE GIVE THIS MANUAL TO THE CUSTOMER

WHEN THE UNIT IS DELIVERED.

REVISED 01/30/2018

HR1500E SYSTEM INSTALLATION

This Pioneer pivot arm system for small hook lift hoists includes a 12-volt DC direct drive right angle electric gear motor that provides steady and quiet rotation of the roller assembly and a fixed gantry. To cover a load, the electric motor unwinds the tarp and the torsion spring powered arms pull it toward the back. To uncover a load, the electric motor winds the tarp onto the roller.

Applications: Single axle hook lift/cable hoist trucks
Container style: Containers from 8' to 16' long
Standard tarp: 9' wide expandable heavy duty mesh

MAINTENANCE TIPS

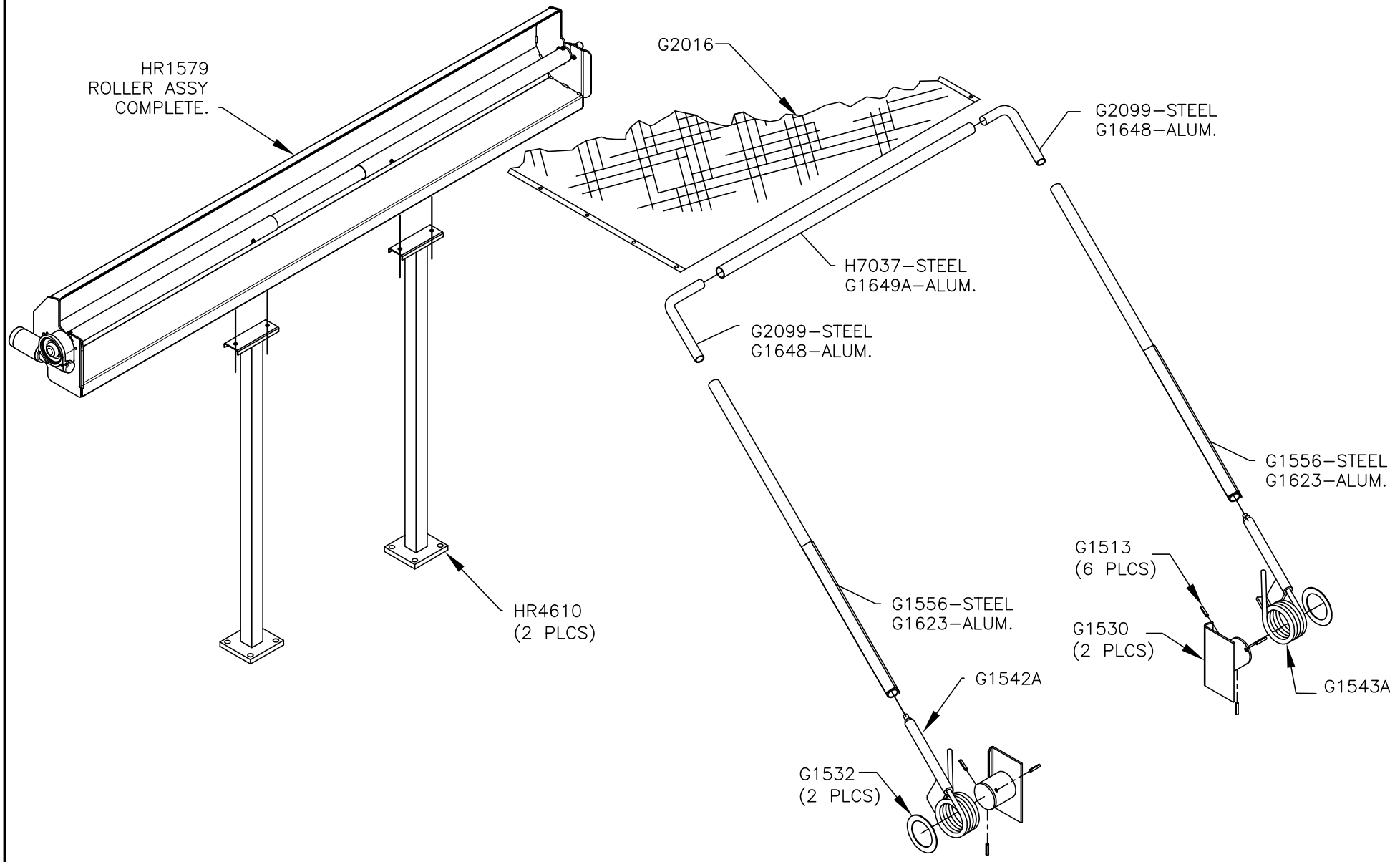
1. Keep the torsion spring at the base of the arms free from debris.
2. Periodically apply a spray lubricant such as WD-40 to the bearings.
3. Replace any worn or broken parts immediately.
4. Check all fittings and connections weekly. Correct as required.
5. Apply a dry film lubricant (Dry Moly) to the telescopic Gantry legs weekly.

TIPS FOR THE OPERATOR

1. Make sure the truck is clear of overhead obstructions before operating the unit.
2. Do not operate under any overhead wires.
3. Keep Hands clear of any moving parts.
4. Make sure nobody is inside the container, or in the path of the arms before operating the unit.
5. Pay attention to safety decals.
6. Release the valve as soon as the Rear Section contacts the rear of the container, or when the Arms are seated on the Bearing plates.
7. Release the valve when the Gantry has been fully extended or retracted.

INDEX

REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
A	INITIAL RELEASE	04/07/2017	P.DOAN
B	HR1579 ROLLER ASSY, WAS HR1530	01/30/2018	ARP



Pioneer, A Wastequip Co. North Oxford, MA 01537		
HR1500E SCHEMATIC		
PART NO. HR1500E SCHEMATIC		DATE
SCALE: NONE	DRW. BY: P.DOAN	4/17/07

HR 1500 E

AUTOMATIC COVERING SYSTEM

INSTALLATION INSTRUCTIONS

Prior to installing the flow diverter and cover control valve into your truck's hydraulic system, we recommend that you check with the hoist manufacturer for possible warranty implications.

Read and understand these instructions completely before beginning the installation. Use these instructions with the drawings included to unpack, identify and familiarize oneself with the various components of the system.

1. MOUNTING THE LEGS AND ROLLER ASSEMBLY

Pick a suitable place on the chassis of the truck directly behind the cab to mount the *Fixed Legs*. Clear away or re-route any hoses, cables etc. that may interfere with mounting the *Fixed Legs* to the chassis.In determining the front to rear location of the *Fixed Legs*, you must keep a minimum of 5" of clearance between the front portion of the legs and the rearmost portion of the cab (including the exhaust stack) to allow room for the *Roller Assembly*. The *Fixed Legs* can be attached to the truck chassis with 3/4" "U" Bolts, Flat Washers and Locknuts or if space is a problem, they can be welded to existing plates that are already bolted to the chassis.

Another method that utilizes brackets, etc. that are already bolted to the chassis, is to weld a piece of channel or tube to existing brackets across the width of the chassis and then welding the *Fixed Legs* on top of the channel. Attach the *Fixed Legs* to the chassis using whichever method is best for your installation. Square the *Fixed Legs* to the hoist and plumb from side to side as well as front to rear. If there is a hydraulic tank between the cab and hoist, you can mount the legs on the side of the tank as long as you reinforce the top and side areas.

NOTE: One side of each leg has a small hole in the bottom to allow for water/condensate drainage. it is best to face this hole toward the rear of the truck to aid in draining the inside of the tubes.

Once the *Fixed Legs* are located and attached to the truck, add front to rear gussets to stabilize them and strengthen the mounting. A good way to make certain the fixed legs are square to the hoist is to clamp a straightedge across the inside of the "J" hooks and measure from this to the *Fixed Legs*.

NOTE: Do not drill into the chassis top and bottom flanges or any closer to the flanges than the truck manufacturer did.

HR1500E SYSTEM INSTALLATION

Mount the complete *Roller Assembly* (factory pre-assembled) on top of the *Fixed Legs* by aligning the four ½" studs on the bottom of the *Roller Assembly* base with the slots in the pads on the *Fixed Legs*. Secure the Roller *Assembly* to the top of the *Fixed Legs* with four ½-13 nuts and lock washers provided.

Note: Older Revisions of this assembly requires the installer to cut or grind off the studs and then weld the *Roller Assembly* to the *Fixed Legs*.

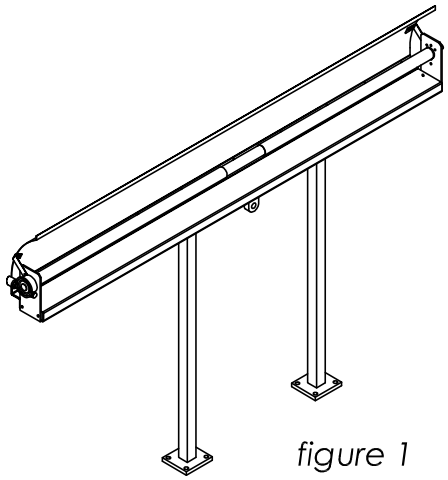


figure 1

HR1579 ROLLER ASSEMBLY

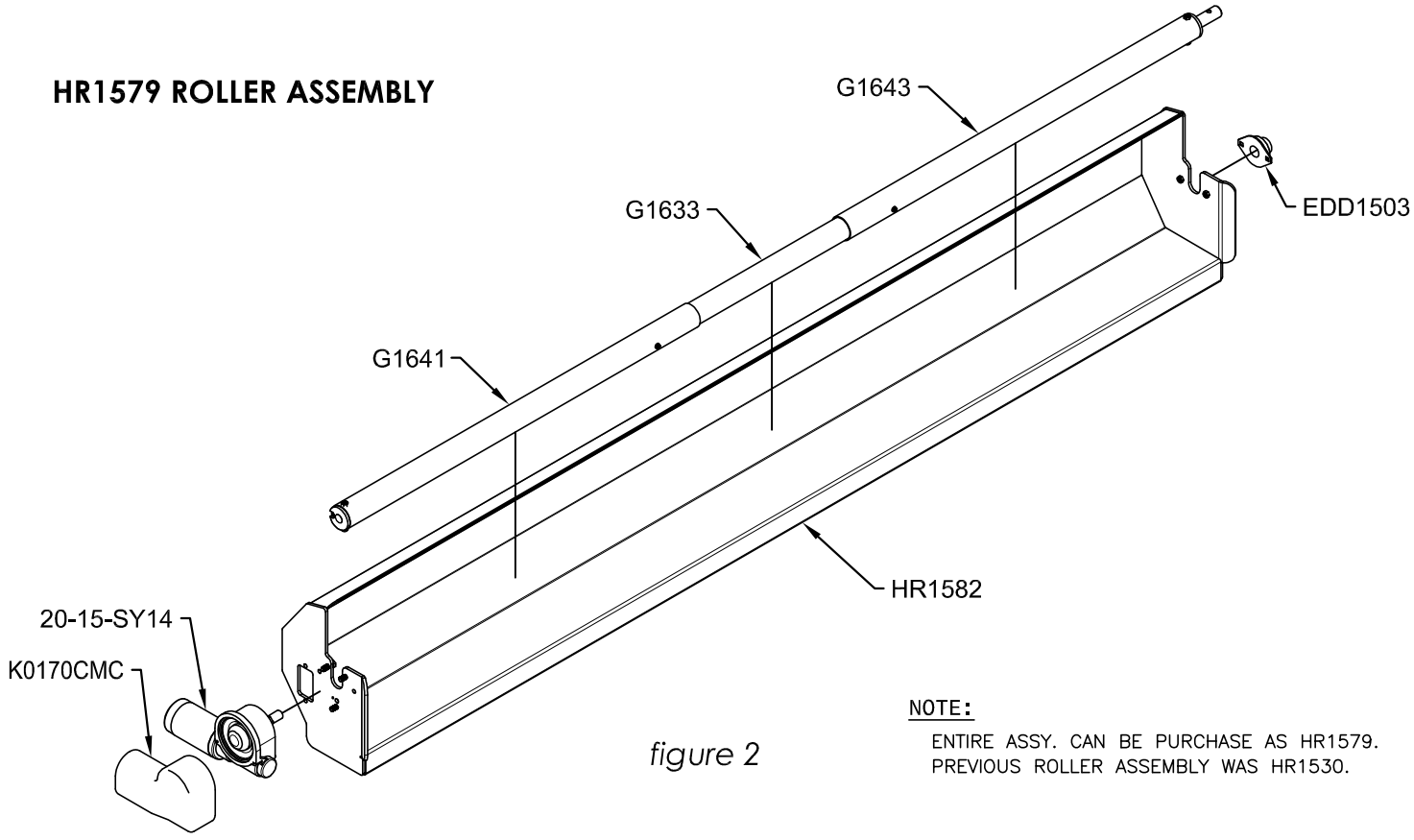


figure 2

NOTE:
ENTIRE ASSY. CAN BE PURCHASE AS HR1579.
PREVIOUS ROLLER ASSEMBLY WAS HR1530.

2. ACTIVATING THE ELECTRIC MOTOR

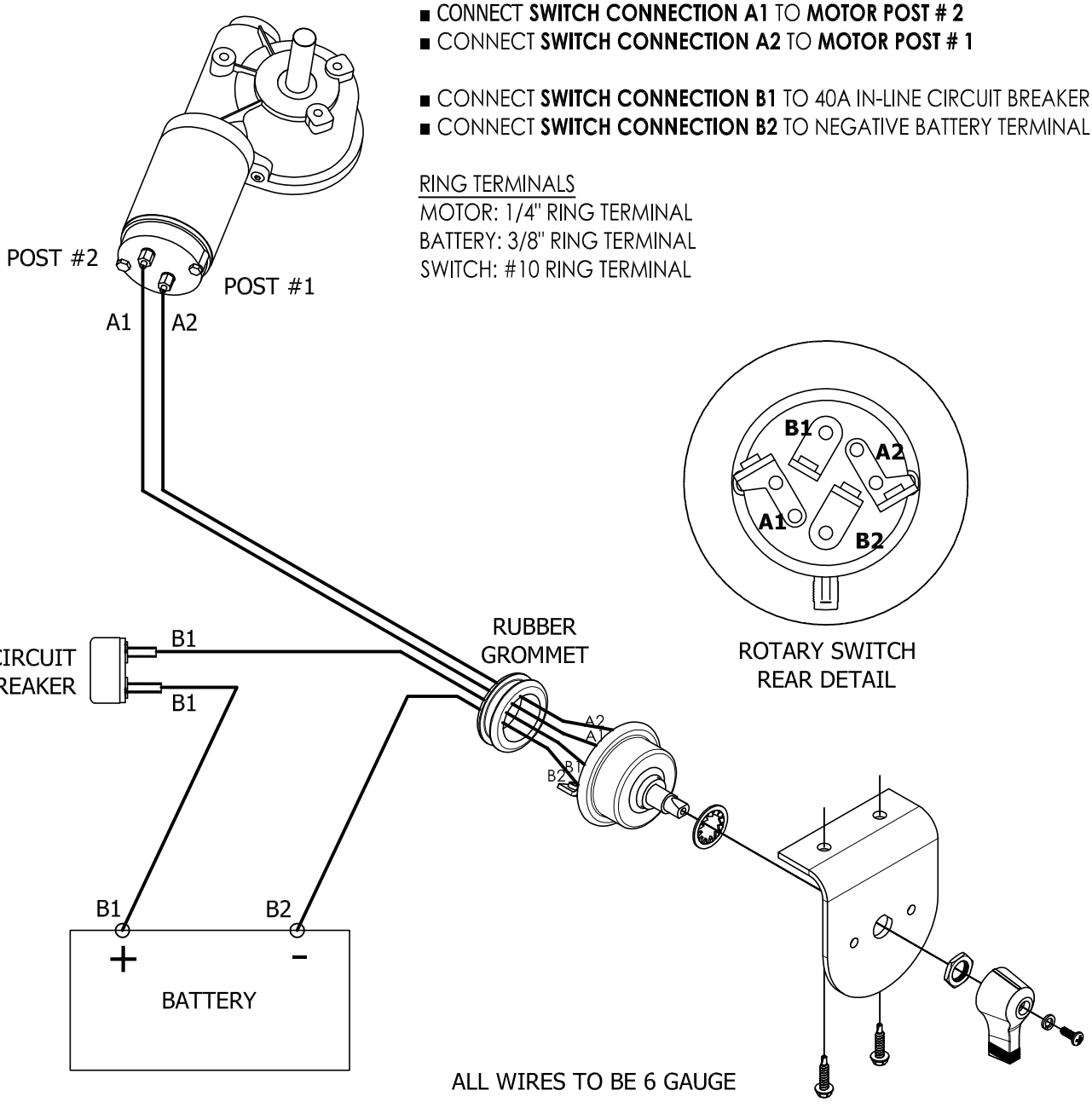
Follow the Wiring Diagram on *page 5* and wire the 12-volt motor and switch in accordance with the Diagram. Locate the switch in the cab of the truck in a suitable place where the driver can operate the system from either inside the cab or when standing outside (preferred). When looking at the roller from the driver's side of the truck the roller should turn clockwise when the switch is moved to the "COVER" position. If the roller turns the opposite way, then reverse the leads on the motor.

WIRING DIAGRAM FOR ROTARY SWITCH

- CONNECT **SWITCH CONNECTION A1** TO **MOTOR POST # 2**
- CONNECT **SWITCH CONNECTION A2** TO **MOTOR POST # 1**

- CONNECT **SWITCH CONNECTION B1** TO 40A IN-LINE CIRCUIT BREAKER
- CONNECT **SWITCH CONNECTION B2** TO NEGATIVE BATTERY TERMINAL

RING TERMINALS
MOTOR: 1/4" RING TERMINAL
BATTERY: 3/8" RING TERMINAL
SWITCH: #10 RING TERMINAL



ALL WIRES TO BE 6 GAUGE

IMPORTANT: WIRE EXACTLY PER DIAGRAM.
DO NOT WIRE ANY ACCESSORIES TO ROTARY SWITCH.

3. DETERMINING THE PIVOT POINT AND MOUNTING THE ARMS

NOTE: The arms and brackets must be mounted to a fabricated structure that is bolted to the chassis. This structure must extend outward from the chassis so as to allow for the widest width container that will be carried on the truck, whether or not the container is to be covered. (ie: self-contained compactors) The overall outside width from arm mounting bracket to arm mounting bracket cannot be wider than 108" to be in compliance with Federal DOT regulations. Check with your State and local DOT to find out if this standard applies in your area. If it does not apply, then you must mount the unit in compliance with your local DOT Regulations.

NOTE: If the fenders on the truck are well constructed, that is heavily gusseted, braced and the material thick enough, it may be possible to utilize the fenders as part of the support structure for the arm mounting brackets.

A. Put the longest and highest container that is to be covered on the truck. This container is used to determine the pivot point for the arms and to determine the arm length. If your containers are not the same length, you may have to modify this guideline to comply with the majority of containers you have.

B. Measure the distance from the back side of the tarp roller to the front side of the rear door on the container (Dimension "A"). Dividing this measurement in half will give you a starting point for locating the Arm Mounting Brackets (G1530). See *figure 3* for reference.

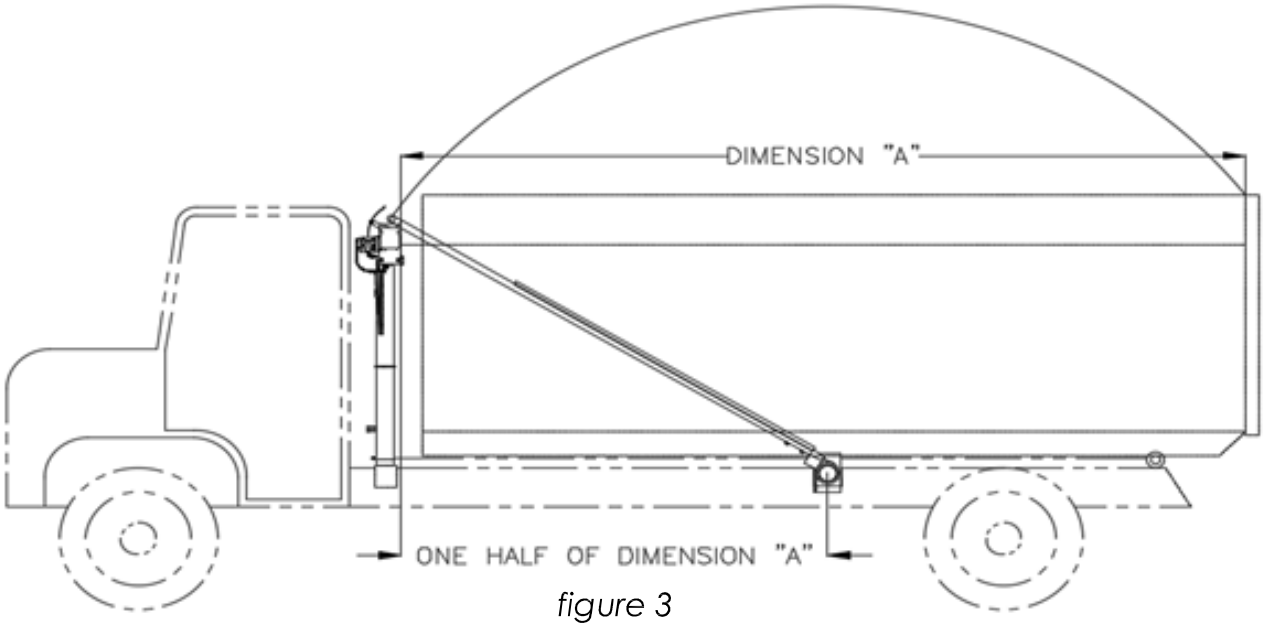


figure 3

If the center line measurement obtained above falls over a fender, it may be possible to utilize the fender in determining the exact pivot point. If the centerline measurement does not fall near a fender then you will have to construct some type of **TEMPORARY** support for the Arm Mounting Bracket, while the exact pivot point is found. Temporary support can take the form of tack welding the Arm Mounting Bracket (G1530) to the container itself or tack welding a plate to the container, to lower the bracket down to its proper position and the tacking the bracket to the plate.

In either case, proceed as follows: Tack weld one (G1530) Arm Mounting Bracket to the fender or to the temporary support, so that the front of the bracket (the front has the bend on it) lines up with the measurement determined above.
Mount the Arm Mounting Bracket as low as possible without interfering with the tires or the hoist cylinder(s).

C. Insert one Bow Corner (G2099) into an Upper Arm and slide the Arm onto the Arm Mounting Bracket pivot tube. Swing the Arm towards the gantry and adjust the bow in or out so that it is rests approximately above the center of the roller shaft on the end bearing plate of the roll assembly. Secure the bow to the arm with clamps and swing the arm thru its arc to the rear of the truck. The bow, which will hold the rear section cross tube, should line up with the front edge of the door on the container. If the bow goes past the rear of the container, the Arm Mounting Bracket will have to be moved forward and the arm length shortened accordingly. If the bow falls short of the rear of the container, move the Arm Mounting Bracket toward the rear of the truck and lengthen the arm. Re-position the bracket if necessary and re-check as outlined above in *figure 4*.
Once you are satisfied that the position of the Arm Mounting Bracket is correct, carefully mark the exact location of the bracket on either the fender or the temporary support. You are now ready to construct a support structure for the Arm Mounting Bracket.

Some points to remember are:

- **DO NOT WELD TO THE TRUCK CHASSIS, DRILL AND BOLT ONLY.**
- Follow the chassis manufacturer's recommendations.
- Utilize existing bolts if you can.
- Make sure that the structure is well supported and gusseted. There is apt to be considerable vibration at this point along the chassis which can lead to failed welds.

The structure must be:

- Plumb (vertical) and level (horizontal).
- Low enough so that it will not interfere with any container or its accessories.
- High enough to allow access to the tires and wheels.
- Wide enough apart so ANY container you may be hauling will fit between the arms of the covering system, even if the container is not to be covered.
- **KEEP IN MIND LOCAL AND STATE WIDTH REGULATIONS AS WELL AS FEDERAL DOT REGULATIONS.**

Must be the same distance out from the chassis on both sides.

D. Install both Base Arms onto the Arm Mounting Brackets using two Retaining Rings (G1532) (one on each side) and six (G1513) Roll Pins (three per side). Place the Base Arm onto the Arm Mounting racket so that the short leg of the spring is on the inside of the Arm Mounting Bracket facing the front of the truck and pointed up. Install one retaining ring over the end of the center tube on the Arm Mounting Bracket. Drive one roll pin into each of the three holes in the bracket and tap down until they are flush with the outside of the retaining ring.

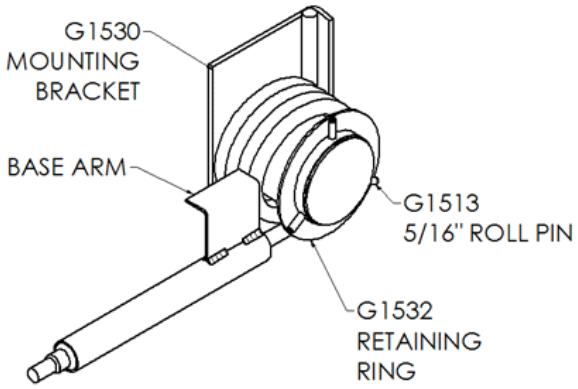


figure 4

E. Attach the Corner Bows (G2099) to the arms by drilling a ¼" hole thru the arm and bow approximately 8" down from the top of the arm. This measurement may vary depending on how much bow is left inside the arm (the long leg of the bow is 24" long). Fasten with a 1/4"-20 x 2" bolt and locknut (provided) on both arms.

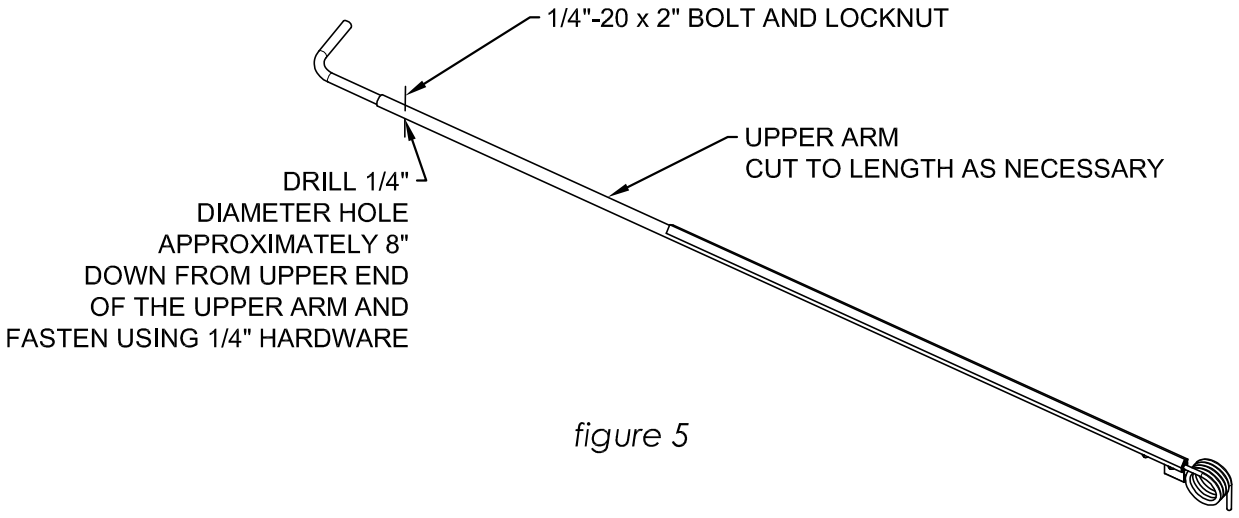


figure 5

F. With both side tarping arms (consisting of Base Arm with spring, Upper Arm and Corner Bow) sitting on the top rear of the container, measure the distance between the Upper Arms just above the Arm Mounting Brackets [***Step #1***]. You will have to raise the hoist to make this measurement so be careful that the arms don't slide off the container and fall to the ground, which may cause physical injury or damage to the unit. Lower the hoist and measure the distance between the top of the arms (where the bows go into the arms) and adjust the arms in or out so that the distance between the arms at the top is the same as the bottom.

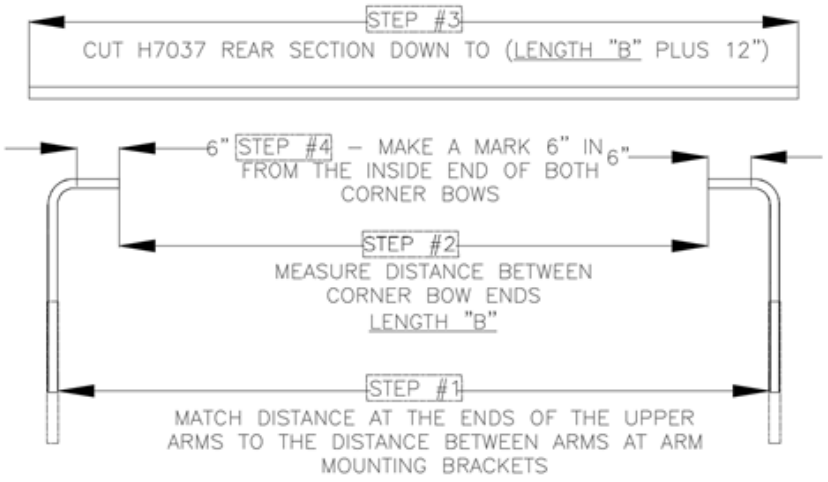


figure 6

[***Step #2***] Measure the distance between the ends of the bows (Length "B").

[***Step #3***]Taking this measurement and adding 12" to it will give you the proper length to cute the Rear Section (H 7037) cross tube down to.

For example, if you mounted the G1530 mounting brackets at the maximum width of 108" outside to outside of the arm pivot tube cap, the Upper Arms will be approximately 103 ¼" ID. This will put the ID of the corner bow ends at approximately 84 ½". Adding 12" to this gives us a measurement of 96 ½", and that will be the length to cut the H7037 Rear Section.

[***Step #4***] To ensure that maintain the proper width between the Upper Arms, measure in from the inner end of both corner bows six inches and make a mark with a marker. Take the rear section cross tube that you just cut to length and slide it over the corner bows, allowing it to overlap the bows by 6" to the mark you just made on both sides.

[***Step #5***] Drill a 1/4" hole from the rear to the front, making sure the bolt that goes into this hole will be out of the way of the tarp, thru the bow corner & cross tube and fasten with a 1/4 bolt and locknut provided on both sides. Make sure the bow corners are plumb vertically before drilling the holes. Correct as necessary.

6. **INSTALLING THE COVER**

A. Remove the Rear Section (H 7037) cross tube from one corner bow to allow the cover to be slid onto the rear section tube. Unfold the cover and find the rear boot (pocket). If you have an expandable width tarp, be sure to have the shock cord ties on the top side of the cover when installing. Slide the cover onto the Rear Section making sure that the bows go inside the Rear Section as previously described. Fasten the Rear Section to the Bows by drilling a ¼" hole thru the Rear Section and Bow approximately 3" in from the end of the Rear Section on each side. Insert one ¼" Cotter Pin (provided) thru each hole and open fully. Attach one end of a Cover Spring (G 2014) to the eye portion of the cotter pin and attach the other end of the cover spring to the grommet on the rear corner of the cover on each side.

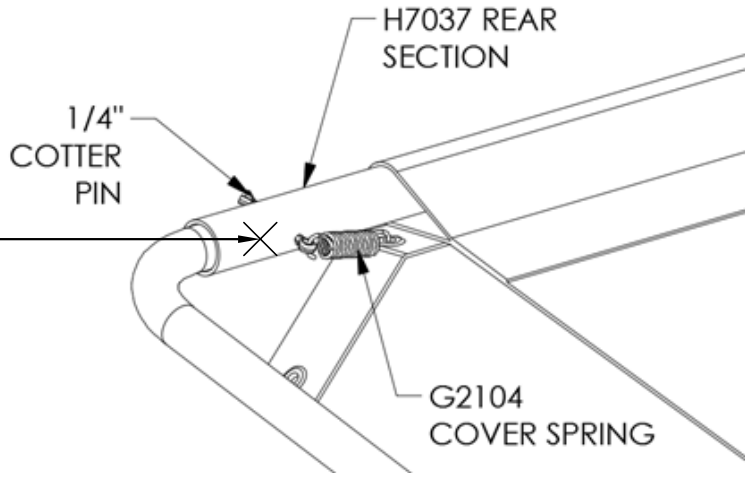


figure 7

B. Attach the cover to the roll using seven sheet metal screws and fender washers (provided) as follows:
Wrap the cover three quarters of the way around the roller in a clockwise manner as viewed from the driver's side. Center the cover on the roller and then attach the cover to the roller, starting in the middle and working out to the left and right. Make sure that the cover is straight on the roller and that the fender washers are firmly in place over the grommets. Note that the sheet metal screws should be screwed into the smooth portion of the roller, not into the roll extrusion alignment slot. The extrusion slot can be used as a guide to fasten the tarp straight to the roll.

7. TYING THE COVER SHOCK CORDS (EXPANDABLE TARP ONLY.)

The shock cords on the top of the cover are designed to fold the cover upward and inward so that the 9' wide cover will roll up between the bearing plates on the roll assembly. This is accomplished by firmly tying one end of the shock cord to the a loop on one side of the cover and then passing the other end of the shock cord thru the loop in the center of the cover towards the other side and stretching the shock cord so that pulls the cover up and in. It is only necessary to put enough tension on the shock cords so that the sides of the cover do not rub on the bearing plates when the cover is being wound onto the roller.

Pass the shock cord thru the loop on the other side of the cover and tie a knot securely when adequate tension has been achieved. The best test for the proper amount of tension, is to check the cover while it is being wound on the roller. The cover should not "bunch up" and/or rub on the bearing plates nor should it pull in too far away from the edges of the container. Shock cords that are tight are as bad as those that are too loose. Be patient, they may have to be adjusted a couple times in order to get them right. Make sure that the first couple of winds that go onto the roller are smooth and square. If not, the cover will wind up faster on one side than the other, causing the arms to go out of synchronization because of the extra material, which makes a larger circumference to that side of the roller.

8. OPERATING THE UNIT

The controls used to operate this unit are a VALVE SECTION Labeled COVER-UNCOVER which controls the arms and cover, and a VALVE SECTION labeled UP-DOWN which controls the vertical motion of the Gantry.

TO COVER THE CONTAINER:

1. Make sure the truck is clear of overhead wires.
2. Make sure that there is nobody in the container or in the path of the arms.
3. Load the container onto the truck.
4. Move the arms to the rear of the container to cover the load. Release the switch when the rear section is firmly seated on the rear of the container.

TO UNCOVER THE CONTAINER

1. Make sure that the truck is clear of overhead wires.
2. Make sure that nobody is in the container or in the path of the arms.
3. Using the switch to move the arms to the front of the container to uncover the load.
4. Unload the container from the truck.

NOTES

SPECIAL NOTE

NOT MANUFACTURED OR INTENDED FOR USE WITH HAZARDOUS WASTE

Pioneer, A Wastequip Company will not be held responsible for damages to, or caused by their container covering systems when they have not been installed or used in the manner prescribed in this manual. Any modifications to the unit or deviations from the procedures outlined in this manual must be authorized in writing by Pioneer, A Wastequip Company.

WARRANTY

Pioneer, A Wastequip Company warrants this automatic container covering system for a period of twelve (12) months, against proven defective parts and workmanship. Excluded from this warranty is the fabric tarp. Our liability is limited to the replacement parts and does not include freight, labor or lost time due to or in connection with the failure of the parts. Any part will be replaced under the conditions of this warranty when Pioneer, A Wastequip Company has authorized a return and has received satisfactory evidence that the part(s) is(are) defective.