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HR1500PTO
Automatic Covering System

Installation, Operations & Maintenance Manual

 **WARNING**: In order to prevent damage, the tarp must always be left in the uncovered position when the truck is not in use for a period of more than 2 consecutive hours.

 **WARNING:** All repairs and parts replacement should be undertaken by qualified technicians. The buyer assumes all risks and liabilities arising out of his or her repairs, modifications, or parts replacement on the original product.

 **WARNING:** Inspect the tarp system before each use for fit, wear and damage. Check tarp system at regular intervals during use. Replace parts at first sign of damage or material wear. If you find anything upon inspection that cannot be corrected, do not use as severe injury could result.

 **WARNING:** Do not operate vehicle until you are certain that the tarp system is properly installed and can be safely operated.

 **WARNING:** Do not operate the tarping system while the vehicle is in motion and make sure the vehicle is clear of any obstructions (such as overhead wires).

 **CAUTION:** Any piece of equipment can be dangerous, even deadly, if not used properly. You are responsible for the proper use of this product and the safe operation of any accessories or related equipment and vehicles. Common sense and caution cannot be built into the equipment and must be supplied by the operator.

 **CAUTION:** If for any reason you do not understand all portions of these instructions and warnings, contact the company at the number listed herein for assistance. Do not use, or allow others to use, the tarp system until you (and others) fully understand its operation, these instructions and warnings. Manufacturer assumes no liability or responsibility for injury or damage caused by improper use or failure to read and follow all instructions and warnings.

ATTENTION DISTRIBUTOR: DO NOT DISCARD.

Please give this manual to the customer when the unit is delivered.

HR 1500 PTO

AUTOMATIC COVERING SYSTEM

INSTALLATION INSTRUCTIONS

PRIOR TO INSTALLING THE FLOW DIVERTER AND COVER CONTROL VALVE INTO YOUR TRUCKS HYDRAULIC SYSTEM. WE RECOMMEND THAT YOU CHECK WITH HOIST MANUFACTURER FOR POSSIBLE WARRANTY IMPLICATIONS.

READ AND UNDERSTABD THESE INSTRUCTION COMPLETELY BEFORE BEGINNING THE INSTALLATION. USE THESE INSTRUCTIONS WITH THE DRAWINGS INCLUDED. UNPACK, IDENTIFY AND FAMILIARIZE YOURSELF WITH THE VARIOUS COMPONENTS OF THE SYSTEM.

1. MOUNTING THE GANTRY AND ROLLER ASSEMBLY

Pick a suitable place on the chassis of the truck directly behind the cab to mount the Gantry and Roll Assembly. Clear away or re-route any hoses, cables etc. that may interfere with mounting the Gantry to the chassis. Locate and clamp –2- Chassis Mounting Angles to the frame. You may turn these angles in over the chassis or out from the chassis depending on the chassis width of your truck. Allow a minimum of 3-4" between the front of these mounting angles and the back of the cab. This will provide clearance for the Roller Assembly as it moves up and down vertically. The mounting angles must be in the exact same position on either side of the chassis. A good way to ensure this is to check the squareness of a crossmember to the chassis rails and if square, use that as a reference point for locating the mounting angles. The height of the mounting angles should be the same if placed directly on top of the chassis flanges. If not, the height can be checked by measuring each side or with a level (assuming the truck is level). Once the mounting angles have been properly located and clamped, they must be bolted to the chassis with ½ grade 8 hardware (not supplied). Four bolts are recommended on each side.

NOTE: DO NOT DRILL INTO THE CHASSIS FLANGE OR ANY CLOSER TO THE FLANGES THAN THE TRUCK MANUFACTURER DID.

Drill the holes thru the mounting angles and chassis, then fasten securely with the hardware specified above. Follow the manufacturers recommendation for the proper amount of torque on the bolts.

Mount the complete Roller Assembly (factory pre-assembled) on top of the Gantry Assembly by aligning the four ½" studs on the bottom of the roll base with the slots in the pads on the gantry legs.

NOTE: THE WINDSCREEN MUST BE ON THE SAME SIDE OF THE GANTRY AS THE CROSS BRACE NEAR THE TOP OF THE GANTRY. THE HYDRAULIC MOTOR MUST BE ON THE DRIVERS SIDE.

Secure the roll base to the top of the gantry with –4- ½-13 nuts and lockwashers provided. Assemble the Gantry Cylinder to the Clevis Eye Pads found on the Gantry and roll base using –2- clevis pins and cotters.

NOTE: THE PORTS ON THE CYLINDER SHOULD FACE TO THE LEFT OR DRIVERS SIDE WHEN VIEWED FROM THE REAR.

Using an overhead crane, chain fall or forklift, with a sling, lift the entire Gantry and Roller Assembly up on top of the mounting angles. Center the Gantry on the mounting angles making sure the center of the gantry is aligned with the center of the chassis. Check to make sure the gantry is plumb and square to the chassis. Weld all around the bottom of the gantry legs to the mounting angles adding gussets and or braces (not provided) where necessary. It is strongly recommended that triangular gussets be added to the gantry to anchor it firmly to the chassis in a front to rear position to minimize front to rear movement.

2. INSTALLING THE FLOW DIVERTER AND COVER CONTROL VALVE

Reference: Hydraulic Schematic Drawing

NOTE: FILTRATION OF 30 MICRON OR BETTER MUST BE USED WITH THESE COMPONENTS.

Select a suitable place for the Cover Control Valve that will allow for ease in operation while not interfering with the hoist, container or hoist controls. It is suggested that this valve be mounted on the drivers side of the truck directly behind the cab. This position will allow for safe and easy operation. In addition, if the hoist controls are located there, the operator can run both systems from the same location. Fabricate a mounting plate for the Cover Control Valve that will bolt to the chassis or weld to an existing bracket. Bolt the valve to the bracket using 5/16 grade 5 hardware (not provided).

The Flow Diverter, on a conventional hoist may be installed between the pump and the main control for the hoist, (the Pioneer covering system requires 5 G.P.M. flow which may adversely affect the hoist function, in this case mount the diverter after the hoist controls) but on a hook lift, the Flow diverter, must be installed after the hoist controls (downstream, utilizing a power beyond valve). Pick a suitable place to mount the Flow Diverter. These components may be hard piped or the diverter may be bolted to a bracket (not supplied).

Hoses and fittings for connecting the diverter to the pump, the diverter to the hoist controls, the cover control valve to tank, are not supplied because of the many places these parts can be mounted.

NOTE: USE ONLY PIPE DOPE SUCH AS RECTORSEAL ON PIPE THREADS
DO NOT USE TEFLON TAPE!!!

Follow the hydraulic schematic and make the proper connections from the pump or valve to the flow diverter, from the diverter to the hoist control (excess flow side) (if necessary), from the diverter to the Cover Control Valve (priority side), from the cover control valve back to tank and from the PRV back to tank. Hoses that are used to make these connections must be equivalent to the original equipment provided by the hoist manufacturer. If the Diverter are is installed between the pump and the hoist control, set the Diverters' PRV, 100 PSI higher than the hoist. If the Diverter is installed after the hoist control (downstream) then the Diverters' PRV can be set to match the pressure required by the hydraulic motor.

3. ACTIVATING THE GANTRY LIFT CYLINDER

Follow the hydraulic schematic and install the proper fittings into the gantry lift cylinder. Attach –1- 9' hose to the rod end fitting on the cylinder and attach –1- 6' hose to the base end fitting on the cylinder.
The valve section labeled "UP – DOWN" is used to control the vertical motion of the gantry. Install –2- elbows onto the top of this section. Lead the hoses from the gantry cylinder toward the cover control valve using wire ties etc. to secure the hoses along the way. Connect the hoses to the elbows on top of the valve. At this point it doesn't matter which hose goes to which side of the valve. They can be swapped later on.
To bleed the lines, start the truck and engage the PTO. Operate the "UP-DOWN" valve in both directions to fill the cylinder with oil. Operate the valve so the cylinder moves upward. Move the cylinder to the end of its stroke crack open the fitting at the rod end of the cylinder to let any air escape that may be trapped in the cylinder. Re-tighten the fitting and move the cylinder downward to its collapsed position. Crack open the fitting at the base end of the cylinder to let any air escape that may be trapped in the bottom of the cylinder. Re-tighten the fitting and run the gantry up and down a few times to force any air in the cylinder or lines back to tank. If the hoses are reversed, that is, if the gantry goes up when the handle is moved to the down position, exchange the hoses. Re-bleed if necessary.
Apply a dry film lubricant (Dry Moly) to the telescopic gantry legs to cut down on friction when moving up and down.
The relief valve on the left front of the cover control valve has been factory pre-set. If the gantry does not move smoothly or if the hydraulic motor does not wind the cover onto the roller smoothly when the cover control valve has been engaged, the the relief valve may need to be adjusted. This is done as follows:

Remove the acorn cap that covers the adjusting screw.
Loosen the Jam Nut.
Turn the screw ¼ turn clockwise and try the system.

Repeat until the motor winds the cover smoothly and fluid is not dumping over relief.
Tighten the Jam Nut and replace the acorn nut.

NOTE: THE RELIEF VALVE SHOULD ONLY BE TURNED IN ENOUGH TO MAKE THE MOTOR ROLL THE COVER UP SMOOTHLY. FURTHER ADJUSTING OF THE RELIEF VALVE WILL NOT MAKE THE MOTOR GO ANY FASTER. IF THE RELIEF VALVE IS TURNED IN TOO FAR, DAMAGE TO THE UNIT OR PERSONAL INJURY COULD RESULT.

4. ACTIVATING THE HYDRAULIC MOTOR

The valve labeled "COVER – UNCOVER: is used to control the Hydraulic Motor which winds and unwinds the cover from the roller. Follow the hydraulic schematic and install the proper fittings into the Cover Control Valve and the Hydraulic Motor. The hoses that connect to the motor and valve are already connected to the Gantry. The lower ends go to the Cover Control Valve and the upper ends connect to the motor. Make the proper connections and affix the hoses to stationary objects. Make sure the hoses that connect to the hydraulic motor have a nice loop in them and there are no kinks in the hoses. It is advisable to run the Gantry up and down to make sure the hoses track properly from the collapsed position of the gantry to the extended position of the gantry. The hoses should have enough slack in them to allow the gantry to extend and retract completely without kinking the hoses. If adjustments need to be made to the hoses, they can be slid thru the clamps securing them to the gantry. It is important that the hoses have enough slack in them to allow for full vertical movement of the gantry, but no so much slack that they flop around when the gantry is collapsed.
Operate the "COVER – UNCOVER" section of the control valve to make sure the roller is turning in the proper direction. With the valve in the UNCOVER position, the roller should turn in a counterclockwise direction as viewed from the driver side. The tarp is always wound onto the roller in a clockwise direction as viewed from the drivers side. Swap the hoses if necessary to make the roller turn in the proper direction. Make any corrections or adjustments necessary. Make sure the hoses are secured to immoveable objects and no chafe points are evident.

5. 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. (ex: self contained compactor containers) THIS OUTSIDE WIDTH FROM ARM MOUNTING BRACKET TO ARM MOUNTING BRACKET CANNOT BE MORE THAN 108" TO BE IN COMPLIANCE FEDERAL DOT REGULATIONS. CHECK WITH YOUR STATE OR 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 AND BRACED, 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 roller to the front side of the rear door on the container. Dividing this measurement in half will give you a starting point for locating the Arm Mounting Brackets (G 1531).
   If the center line measurement obtained above falls over a fender, it is 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 (G 1531) 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 -1- 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). It is advisable to have the greatest included angle that you can derive between the arm and an imaginary horizontal line thru the center of the Arm Mounting Bracket in a front to rear plane.

C. Insert -1- Bow Corner (G 2099) into an Arm and place the Arm onto the Arm Mounting Bracket. Swing the Arm towards the gantry and adjust the bow in or out so that it is approximately 2” to the rear of the bearing plate. 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, 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. If the bow falls short of the rear of the container, move the Arm Mounting Bracket toward the rear of the truck. Re-position the bracket if necessary and re-check as outlined above.
   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 of 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 manufacturers 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 clear 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.
-Must be the same distance out from the chassis on both sides.

D. Install both arms, with the bows clamped in place, onto the Arm Mounting Brackets using -2- Retaining Rings (G 1532) (one on each side) and -6- Roll Pins (G 1513) (three on each side). Place the Arm onto the Arm Mounting Bracket so that the short leg of the spring is on the inside of the Arm Mounting Bracket facing the front of the truck. Tap -1- retaining ring over the round part of the Arm Mounting Bracket. Insert -1- 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.
E. With both Arms sitting on the top rear of the container, measure the distance between the arms just above the Arm Mounting Brackets. 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.

Measure the distance between the ends of the bows. Taking this measurement and adding 12" to it will give you the proper length of the Rear Section (H 7037). Cut the rear section to length, if necessary, and install onto the bows, allowing it to overlap the bows by 6" on both sides. Attach the bows 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). Insert -1- cotter pin (provided) thru the hole and open fully.

You are now ready to attach the rear section to the bows and attach the cover to the unit.

6. INSTALLING THE COVER

A. Remove the Rear Section (H 7037) from -1- Bow to allow the cover to be slid over. Unfold the cover and find the rear boot (pocket). 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 -1- ¼" Cotter Pin (provided) thru each hole and open fully. Attach one end of -1- 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.

B. Attach the cover to the roll using -5- sheet metal screws and fender washers (provided) as follows:
Wrap the cover ¾ of the way around the roller in a clockwise manner as viewed from the drivers side. Center the cover on the roller and the 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.

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 Labeled COVER-UNCOVER which controls the arms and cover, and a VALVE 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. Move the arms upward from the roll approximately 2-3 feet by using the Cover-Uncover Valve.
4. Raise the Gantry to its maximum height using the Up-Down Valve.
5. Load the container onto the truck.
6. Move the arms to the rear of the container to cover the load. Release the valve when the rear section is firmly seated on the rear of the container.
7. Lower the Gantry so that the top of the windscreen is even with the top of the container. This stretches the cover taut, preventing wind from getting under the cover and the bellowing and whipping that may occur.

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. Raise the Gantry up to its maximum height.
4. Using the Uncover valve, move the arms to the front of the truck stopping 4-6 feet from the roll.
5. Unload the container from the truck.
6. Lower the Gantry to its rest/travel position.
7. Wind the cover onto the roller and release the valve when the Arms and Bows contact the Bearing Plates.

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. Grease 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.

SPECIAL NOTE

NOT MANUFACTURED OR INTENDED FOR USE WITH HAZARDOUS WASTE

Pioneer Consolodated Corporation 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 Consolodated Corp.

WARRANTY

Pioneer Consolodated Corp oration warrants this automatic container covering system for a period of (90) days, against proven defective parts and workmanship. 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 Consolodated Corp. has authorized a return and has received satisfactory evidence that the part(s) is (are) defective.

PIONEER CONSOLIDATED CORP.

Route 20 North Oxford, MA 01537

UNIT SPECIFICATIONS

MODEL HR 1500 PTO

TUFF TARPER - HYDRAULIC

FRAMEWORK

GANTRY - Vertical movement of Roll Base/Rest assembly from 60" to 96"
STATIONARY SECTION LEGS - 4" x 3" x 3/16" A 500B Steel Tube.
CYLINDER BASE MOUNT - C4 x 5.4 lbs./ft. "C" Channel
TELESCOPIC SECTION LEGS - 3 1/2" x 2 1/2" x 3/16" A 500 B Steel Tube.

ROLL BASE - 1/8" C.R.S. fabricated weldment with internal bracing, 1/2" C.R.S. End Plates and integral mounting studs.

WINDSCREEN - 11 Ga. C.R.S. fabrication to prevent "whipping" of the tarp Which results in longer tarp life.

BEARING PLATES –1/4" H.R.S.

LEFT ROLLER TUBE -2.140 O.D. x 2.000 I.D. 6105-T6 Aluminum Extrusion With UHMW Bushing. 1" O.D. Steel Shaft and Stainless Steel Roll Pin.

RIGHT ROLLER TUBE -2.140 O.D. x 2.000 I.D. 6105-T6 Aluminum With UHMW Bushing. 1" O.D. 6061-T6 Aluminum Shaft and Stainless Steel Roll pin.

CENTER SECTION -1.960" O.D. x 1.820 I.D. 6105-T6 Aluminum Extrusion.

BEARING - Flush Mounted Sealed Ball Bearing on Right Side Roller.

HYDRAULIC MOTOR/GEARBOX – 90:1 ratio Right Angle Gearbox, directly connected to the tarp roller. Gerotor type hydraulic motor coupled directly to the gearbox thru an adapter plate.

PIVOT ARM FRAMEWORK

PIVOT ARMS - 1 5/8" O.D. x 11 Ga. Steel Tubing, 2 Piece construction.

REAR SECTION- 1 5/8" O.D. x 11 Ga. Steel Tubing.

BOWS - 1 5/16 O.D. x 11 Ga. Steel Tubing.

ARM MOUNTING BRACKETS - Steel Weldment
Base Plate - 1/4" H.R.S.
Mounting Hub - 4" O.D. Steel Tube.

SPRING - Reverse Wound Torsion Spring – 9/16" Diameter Wire.
Spring Wire per ASTM A229 Class I.

HYDRAULICS

FLOW DIVERTER - 5 GPM constant flow from control port side

COVER CONTROL VALVE
Open Center Configuration
Double Manually operated 4 way valves
Adjustable Pressure Relief Valve

GANTRY LIFT CYLINDER
2" Bore x 1 1/4" Rod x 36" Stroke
Double Acting
Chromed Rod
Welded and Rebuildable

HOSES & FITTINGS
Aeroquip

COVER (TARP)

FABRIC
Heavy Duty Mesh

CONSTRUCTION
Reinforced rear pocket.
Shock cords allow the EXTRA WIDE (9') Tarp to be rolled up onto the roller assembly.

MISCELLANEOUS

All Brackets etc. are Fabricated Steel Weldments