

**AIR POWER HOOP – INTEGRAL OPERATION**  
**INSTALLATION INSTRUCTIONS**  
**A 2165**

**WARNING**

**FEDERAL MOTOR VEHICLE REGULATION, FMVSS 121, REQUIRES THAT A PRESSURE PROTECTION VALVE BE INSTALLED IN EVERY TRUCK WITH AN AIR ACCESSORY TO ENSURE SUPPLY LINE RETENTION OF 70 PSI. IN ORDER TO COMPLY WITH THIS REGULATION, YOU MUST INSTALL A PRESSURE PROTECTION VALVE INTO THE AIR TANK FROM WHICH YOU ARE DRAWING AIR, UNLESS ONE IS ALREADY PROVIDED, TO MAINTAIN SUPPLY LINE PRESSURE IN THE EVENT OF A LOSS IN PRESSURE RESULTING FROM A HOSE OR FITTING FAILURE.**

**IF YOUR INSTALLATION REQUIRES THIS PRESSURE PROTECTION VALVE, A KIT CAN BE PURCHASED FROM PIONEER (Part Number A 2159).**

**USE THESE INSTRUCTIONS WITH THE DRAWINGS INCLUDED TO INSTALL THE POWER HOOP ONTO YOUR BODY.**

**THESE INSTRUCTIONS COVER THE INSTALLATION OF THIS ACCESSORY ON A TRUCK THAT HAS AN EXISTING AIR TARPING SYSTEM AS WELL AS A NEW AIR SYSTEM INSTALLATION.**

**TO INSTALL A POWER HOOP, THE BEARING PLATES SHOULD BE POSITIONED A MINIMUM OF 6” FORWARD OF THE REAR OF THE CAB SHIELD TO ALLOW SPACE ON THE CAB SHIELD FOR THE POWER HOOP AND REAR SECTION. THE BEARING PLATES CAN BE POSITIONED FURTHER FORWARD THAN 6”, HOWEVER THE BOW CORNERS MUST START OUT VERTICAL IN THE UNCOVERED POSITION. IF THEY ARE NOT VERTICAL TO START WITH, THE POWER HOOP MAY NOT ROTATE DOWN TO THE TOP OF THE BODY AS FAR AS YOU WOULD LIKE. (120 degrees Max. Rotation)**

**IF THIS POWER HOOP IS BEING INSTALLED AT THE SAME TIME AS AN AIR SYSTEM, COMPLETE THE MECHANICAL PORTION OF THE INSTALLATION AND THEN INSTALL THE POWER HOOP FRAMEWORK.**

**TO INSTALL:**

- 1. Move the arms to the front of the truck to the uncover position.**
- 2. Measure the height of the cab shield from the highest part of the side (including the sideboard if used) to the top of the cab shield (“A” on drawing). Dividing this**

measurement in half will give you a starting place for locating the Shaft Supports on the side of the front of the body under the cab shield. (1/2 "A" on drawing) Measure down from the top of the cab shield and mark this dimension horizontally on the front corner of the body. Check to make sure this dimension will not interfere with the doghouse, the lift cylinder or the cab shield gussets. If so, modify the mounting to eliminate the interference.

**3.** Tack weld –1- shaft support to the front corner of the body on each side making sure:

- A. The center of the hole is in alignment with the dimension marked above.
- B. The mounting plate portion of the shaft support is even to the outside of the body.
- C. The flange on the bushing is facing the outside of the body.
- D. The shaft supports remains square to the front of the body.

**4.** Measure the width of the body at the shaft supports. To this measurement add 6 ¼" and cut the shaft to length and deburr.

Ex: Body Width at shaft supports = 94".  $94" + 6 \frac{1}{4}" = 100 \frac{1}{4}"$  long

**5.** Install the shaft into the shaft supports adding –2- more shaft supports and –2- shaft collars onto the shaft as you push it in from one side. Make sure that these additional shaft supports have the flanges facing in toward the center of the body and the shaft collars are between the shaft supports. Center the shaft on the body.

**6.** Install –1- 1" SAE Flat Washer and –1- Base Bow onto –1- end of the shaft. Place -1- Bow Corner into the Base Bow. Check to make sure the POWER HOOP bows do not interfere with the arms, bows or rear section of the tarping system. Move the arms manually to the rear of the truck. Swing the Base Bow and the Bow Corner thru an arc to make sure it clears the rear corner of the cab shield. A Minimum of 1" should be maintained between the underside of the bow corner and the rearmost portion of the cab shield. If the Bow Corner extends too high above the roller, the bow corner may be shortened. Be careful and do not cut the bow too short so it does not clear the rear of the cab shield or the doghouse. Remove pieces from shaft, cut bow corners if required and deburr.

**7.** Reposition the shaft supports if necessary. Once you are satisfied the correct pivot position has been established, you can prepare to weld the other –2- shaft supports to the front of the body using the shaft as an alignment guide. Before welding the shaft supports to the body, determine where you will mount the cylinder. It is very important to have shaft supports within 6" on either side of the bellcrank. Position the shaft supports in their proper locations, keep them square to the front of the body and weld in place. Finish welding the first two shaft supports to the body. Make sure the shaft continues to rotate easily while welding. After welding, center the shaft on the body. The shaft should stick out from the body 3

1/8” on both sides. Slide the two shaft collars up against the bushing flanges and tighten the setscrews securely.

**8.** At the place where the cylinder is to be mounted, measure 19 ½” down from the center of the shaft and make a mark. This becomes the location for the Cylinder Base Mount. Carefully align the hole in the Cylinder Base Mount with the 19 ½” mark. Square the bracket to the shaft and weld in place to the front of the body. Reinforce the front bulkhead, on the inside of the body, where the Cylinder Base Mount welds to the body to prevent flexing.

**9.** Install the Cylinder Yoke all the way onto the threaded end of the cylinder. Install the Cylinder onto the mounting bracket using the clevis pin provided. Install the bellcrank onto the yoke using the clevis pin provided. Make sure the cylinder is fully collapsed and the ports are where you want them, place the scalloped end of the bellcrank up against the shaft. Carefully align the bellcrank on the shaft so the left to right centerline of the bellcrank is on the same centerline as the Cylinder Mounting Bracket. Weld the Bellcrank to the shaft, keeping it square. Install the cotter pins into the clevis pins and open fully.

**10.** Remove the port plugs from the cylinder and rotate the shaft by hand to check for any interference. Return the cylinder to its fully collapsed position.

**11.** Onto each end of the shaft install –1- 1” SAE Flat Washer and –1- Base Bow. Insert –1- Bow Corner into each Base Bow and clamp in place so they are vertical. Measure the distance between their inside ends. Add 10 inches to this dimension to get the length of the Cross Tube. Cut to length if necessary and deburr the ID & OD on both ends. Assemble the cross tube to the Bow Corners and center. Drill a ¼” 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 x 2” bolt and locknut provided on both sides. Make sure the bow corners are plumb vertically before drilling the holes. Correct as necessary.

**12.** Using a spacer block under the cross tube to keep it straight, from side to side, drill a ¼” hole thru the base bows and bow corners from the rear to the front and fasten with a ¼” x 2” bolt and locknut provided. Manually rotate the bows from the vertical position to the covered position to make sure everything is square and parallel.

Return the bow corners to the vertical position and weld the Base Bows to the shaft making sure the bow is pressed in up against the washer and the cylinder is fully retracted.

**13.** Follow the Pneumatic Diagram and install the Sequencing Valve, Flow Controls, fittings and air lines per the diagram. If this Power Hoop is being installed at the same time as an Air Tarping System, all the pneumatics can be installed at the same time.

ON VEHICLES NOT EQUIPPED WITH A PRESSURE PROTECTION VALVE, INSTALL THE PRESSURE PROTECTION VALVE INTO THE AIR TANK.

Pay close attention to the arrow on the Flow Controls that are installed on the Power Hoop cylinder. The point of the arrow **MUST** point toward the cylinder. (Direction of adjustable flow)

Please note that all the tube fittings are DOT approved push in style with sealant already applied to the pipe threads which makes installation easy. The only fittings that will require thread sealant are: the nipple and street ell that connect the flow control to the cylinder and the 1/8 NPTM x 1/4 NPTF adapter used on the sequencing valve.

The air line itself is furnished in one continuous length so it can be cut to fit with a sharp utility knife. Make the cuts as square as possible to ensure a good connection. When running the air lines along the chassis or on the underside of the body, attach the air lines to stationary objects along the way to make a neat installation. Watch out for sharp edges or chafe points, which can cut or abrade the air lines. If any of these conditions exist, move the air line or cover with chafe guard.

The **POWER HOOP**, when plumbed properly is designed to tuck the tarp down when the Air Valve button is pushed **IN (COVER)** and release the tarp when it is pulled **OUT (UNCOVER)**. **THE CENTER (NEUTRAL) POSITION OF THE VALVE IS NOT TO BE USED.**

The Sequencing Valve is meant to be mounted to the chassis of the vehicle or under the cab using #10 machine screws and nuts (not provided). When mounting this valve allow enough clearance for the air lines and fittings. This valve has an exhaust port on the same side as the "C" port, which cannot be blocked. Allow clearance for the air to exhaust properly.

Start installing the pneumatics by installing the proper fittings into the sequencing valve and then install the sequencing valve to the chassis.

TRUCK WITH EXISTING AIR TARP: Install the sequencing valve. Remove the 3/8 NPT x 3/8 Tube adapter from the Pressure Protection Valve and install -1- 3/8 NPT x 3/8 Tube Branch Tee into the Pressure Protection Valve. Set the air pressure on the truck so the tank pressure will be 120 PSI.

TRUCK WITH NEW AIR TARP INSTALLATION: Install the air valve in the cab. Install the sequencing valve. Install the Pressure Protection Valve into the air tank. Set the air pressure on the truck so the tank pressure will be 120 PSI.

Follow the pneumatic diagram and install the fittings into the cylinders per the diagram. Install the flow controls into the Power Hoop Cylinder using a close nipple and street ell provided. Install the air lines from the Air Valve in the cab and from the sequencing valve to the cylinders by running them from the cab,

down along the chassis to the pivot point of the body. Leave enough slack in the lines to allow for dumping the body, and then go along the underside of the body to the front of the body and then upward to the cylinder. Follow the diagram carefully making the proper connections.

Close the Flow Controls on the POWER HOOP cylinder all the way by pulling up on the red ring and then turning clockwise. The speed of the POWER HOOP in the cover and uncover mode is governed by these Flow Controls. These controls restrict the amount of air flowing into the cylinder. Make sure these Flow Controls are installed with the point of the arrow facing the cylinder port.

Make sure all the connections are made per the pneumatic diagram.

Move the arms manually to the front of the truck. On both new installations as well as retrofits, the Air Valve in the cab must be pulled up (uncover) and the arms must be at the front of the truck to prevent damage to the system or personal injury. Start the truck and build air pressure in the tank.

**EXISTING AIR SYSTEM:** Push the knob in to COVER. The Flow Controls on the air valve should already be set. Once the arms get to the rear of the truck, wait approx. 15 seconds and slowly open the flow control that is connected to the POWER HOOP cylinder to allow air to enter the cylinder and rotate the POWER HOOP. Adjusting this Flow Control will prevent the POWER HOOP from slamming into the body. Uncover by pulling up on the knob. The POWER HOOP should rotate back to its rest position immediately and then the arms should follow. Cover & Uncover a few times to make sure the unit is working properly and the Flow Control is adjusted correctly. Once the Flow Control is set properly, pull up on the red ring to lock the knob in place.

**NEW INSTALLATION:** Push the knob in to COVER. Follow the installation instructions for the Air Tarping system to set the speed of the arms using the Flow Controls. Once the arms get to the rear of the truck, wait approx. 15 seconds and slowly open the flow control that is connected to the base of the POWER HOOP cylinder to allow air to enter the cylinder and rotate the POWER HOOP. Adjusting this Flow Control will prevent the POWER HOOP from slamming into the body. Uncover by pulling up on the knob. Slowly open the flow control that is connected to the rod end of the POWER HOOP cylinder to allow air to enter the cylinder and rotate the POWER HOOP. The POWER HOOP should rotate back to its rest position immediately and then the arms should follow. Cover & Uncover a few times to make sure the unit is working properly and the Flow Control is adjusted correctly. Once the Flow Control is set properly, pull up on the red ring to lock the knob in place.

## **OPERATING THE POWER HOOP**

### **TO COVER**

1. PUSH the knob on the Air Valve IN to COVER the load. The POWER HOOP will engage approx. 15 seconds after the arms come to rest at the rear of the body.

### **TO UNCOVER**

1. PULL the knob on the Air Valve OUT to UNCOVER the load. The POWER HOOP will immediately rotate out of the way to its rest position.

### **MAINTENANCE TIPS**

1. Replace any worn or broken parts immediately.
2. Check all pneumatic connections, to make sure that nothing has loosened up causing air leaks.
3. Periodically check all fasteners, screws, nuts, bolts, cotter pins, etc. Tighten and/or replace as necessary.
4. Drain the air tanks on a regular basis to prevent water from entering the system.

### **TIPS FOR THE OPERATOR**

1. Make sure that the truck is clear of any overhead obstructions before use
2. Do not operate under any overhead wires.
3. Keep hands clear of any moving parts.
4. Make sure that nobody is in the truck body or in the path of the arms or Power Hoop when using the unit.
5. DO NOT USE THE PIVOT ARMS or POWER HOOP AS HANDLES OR STEPS WHEN CLIMBING UP ON THE BODY.
6. Only operate the tarping system and Power Hoop when the body is horizontal, that is, when the body is in the down position.
7. DO NOT OPERATE THE TARPING SYSTEM or POWER HOOP WHILE THE VEHICLE IS IN MOTION.
8. Drain the air tanks on a regular basis to prevent water from entering the system.
9. If during covering or uncovering, you need to reverse the movement of the arms or Power Hoop, because of a possible interference with something overhead, you can at any time during the cycle, move the knob in the opposite direction.

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