REAR MOUNT ELECTRIC ATTACHMENT - FARM

COMPLETE UNIT INSTALLATION

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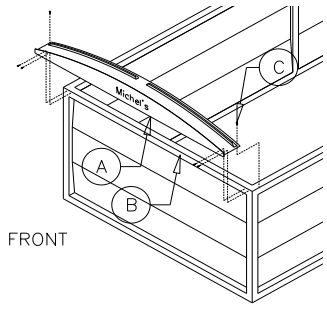
PLEASE READ ENTIRE INSTRUCTIONS BEFORE BEGINNING

THESE INSTRUCTIONS ARE FOR A STANDARD ROLLING TARP THAT LOCKS CLOSED ON THE DRIVER'S SIDE

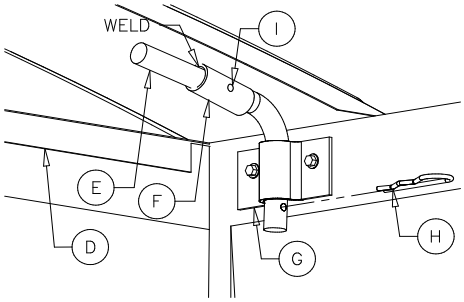
Step 1: Front Hood Installation

Procedure: Center the front hood on the front wall of the box with the lower 1 inch flange (A) positioned flush against the outside front edge of the box. Using a 3/16" drill bit, drill 14 holes through the 1 inch flange and into the box wall (B) placing 2 holes at approximately every 15 inches. Secure the front hood using the 1/4"x1" lag screws provided. Drill through the horizontal portion on each side of the front hood and secure using 1/4"x1" lag screws (C).



Step 2: Rear Hood Installation

Procedure: Temporarily place the rear hood on the rear ledge of the box with its depending flange (D) inside the box. Place two bent angles (E) into the tubular supports (F), which are welded to the underside of the rear hood. Slide the hoop holder bracket (G) vertically until it is positioned just below the bend in the bent angle (E). Mark hoop holder holes on the inside box wall and secure the hoop holder to the box wall using the 1/4"x1" lag screws provided. Apply firm downward force on the ends of the rear hood and clamp the hood down on both sides. Drill a 1/4" transverse hole through the bottom area of the bent angle (E). Be sure to drill the hole as close to the bottom of the hoop holder as possible to prevent the rear hood from moving. Insert the hitch pin (H). Weld the bent angle to the tube (F) on steel hoods only. Drill a 1/4" hole through the tube (F) and the bent angle (E). Secure using the roll pin (I) provided.

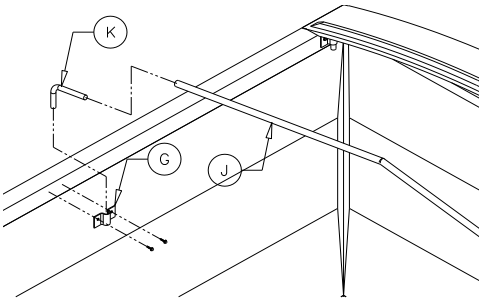


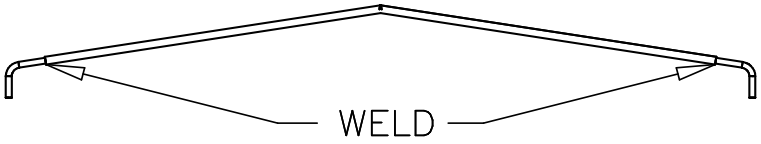
Step 3: Hoop Installation

Procedure: Three, four or five hoops (J) are provided according to the length of the box. Equally space the hoop holders (G) along the length of the box and locate the top edge of the hoop holder 1"down from the top edge of the inside box wall. Once in place mark the position of the hoop holder and drill two 3/16" holes into the box wall. Secure the hoop holder using the 1/4"x1" lag screws provided. Follow this procedure to the remaining hoop holders making sure that they

Step 3: Hoop Installation Cont.

are at the same level, equally spaced, and directly across from each other. Insert bent angle (K) with one end fitted into the hoop holder (G) and the other end in the hoop (J), then repeat for the opposite side of the box. Measure the vertical distance from the inside of the box floor to the top center of the front or rear hood. Record the measured distance. Center the hoop on the bent angles (K) and measure the vertical distance from the inside box floor to the top center of the hoop. The measurement to the top of the hoop should be 3/4 inch greater than the distance from the box floor to the top of either hood. If the distance is less than or greater than the required 3/4 inch, adjust the hoop and bent angles accordingly. Weld the hoop to the bent angles making sure that the hoop is parallel with the bent angles.



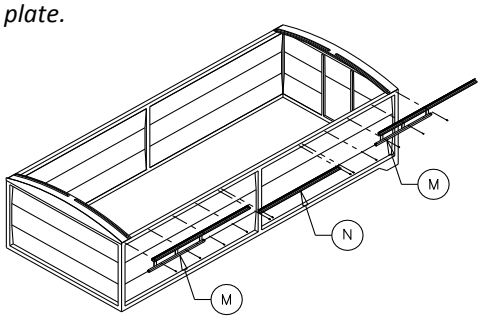


Step 4: Holdback (Tension Control Unit) & Filler Plate Installation

Note: *Standard Rolling Tarps have the Holdback System mounted on the driver side. Reverse rolling tarps have the Holdback System mounted on the passenger side.*

Procedure: To mount the front and rear holdbacks (M), clamp the top flange 1/4 inch lower than the upper edge of the box. Be sure that the 1-1/4 inch square tubing is facing down and that the PVC cable guide protrudes out 1-1/2 inches from the front and rear of the box. Predrill a 3/16" hole through the 1 inch flange and into the lip of the box, spacing each hole at approximately every 15 inches. Secure the holdbacks to the box with the 1/4"x1" lag screws provided. After both holdbacks are secured mount the filler plate (N).

Note: *In most cases the filler plate will have to be cut shorter depending on the length of the box. Do not leave a space between the holdbacks and the filler plate.*

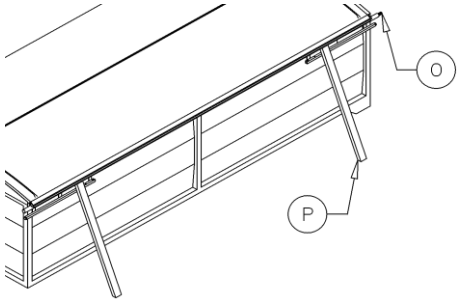


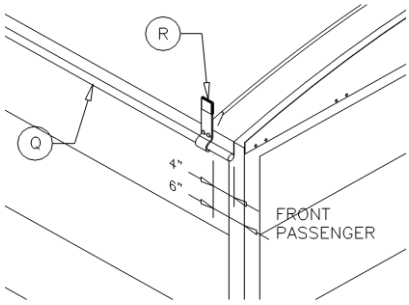
Step 5: Tarp & Round Tarp Stop Installation

Procedure: Raise the roll-tube and place it on the top passenger side of the bows and end caps making sure that the spline (O) is at the rear of the box. Reverse rolls would be placed on the driver side. Roll out the tarp to the driver side (passenger side for reverse roll). Position the tarp so that the material sits 2 inches in from the face of the front end cap. Smoothen the tarp out and apply as much tension to it as possible by pulling down on the loose end of the

Step 5: Tarp & Round Tarp Stop Installation Cont.

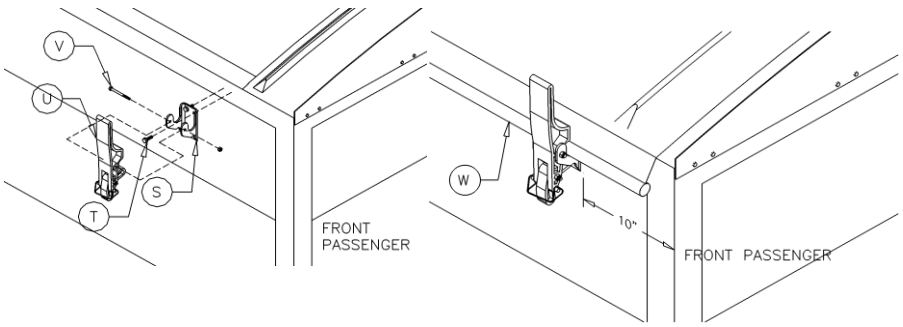
tarp. The pocket holding the quick release pipe (Q) should hang down the side of the box approximately 2_1/2 to 3_1/2 inches. The quick release pipe will be held against the side of the box by the round tarp stops (R). Make sure the tarp material is 2 inches in from the face of the front end- cap. Mount the front tarp stop 4 inches in from the front edge of the tarp material. Drill a 1/4" hole through the predrilled holes in the tarp stop and into the box. Secure the stops using the 3/8" x 1_1/4" self-threading bolts provided. Next mount the rear tarp stop 4 inches if from the rear edge of the tarp material. The remaining tarp stops are to be centered according to the length of the box. Make sure that the quick release pipe (Q) is positioned parallel with the box lip.

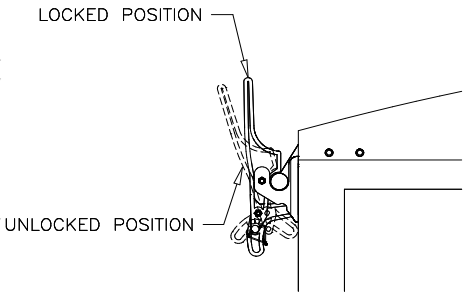




Step 6: Round Flip-Release Tarp Stop Installation (OPTIONAL)

Procedure: Locate the front bracket (S) 10 inches in from the face of the front end cap and 3/4 inch lower than the top edge of the box. Using a 1/4" drill bit, drill two holes through the predrilled holes in the bracket and into the box. Secure the bracket to the box using two 3/8" x 1_1/4" self-threading bolts (T) provided. Remove the 1/4"x3" hex bolt (V) from the round flip-release tarp stop (U). Insert the bolt through the bracket (S) and through the tarp stop (U). Secure using the 1/4" locknut. Torque the bolt appropriately so the flip-release tarp stop will remain in the unlocked position. Remove the quick pin from the bottom hole of the flip release tarp stop and adjust the tarp stop so it is in the unlocked position. Install the rear bracket 10 inches in from the face of the rear end cap and 3/4 inch lower than the top edge of the box. Evenly space the remaining flip-release tarp stops along the same side of the box making sure to mount the brackets 3/4 inch lower than the top edge of the box. Position the quick release pipe (U) in the brackets. Adjust the tarp so it sits 2 inches in from the front end cap wind deflector. Once the tarp is in position, engage the stops in the locked position. Reinsert the quick pins through the holes of the round-flip release stops. Roll the tarp to the closed position.



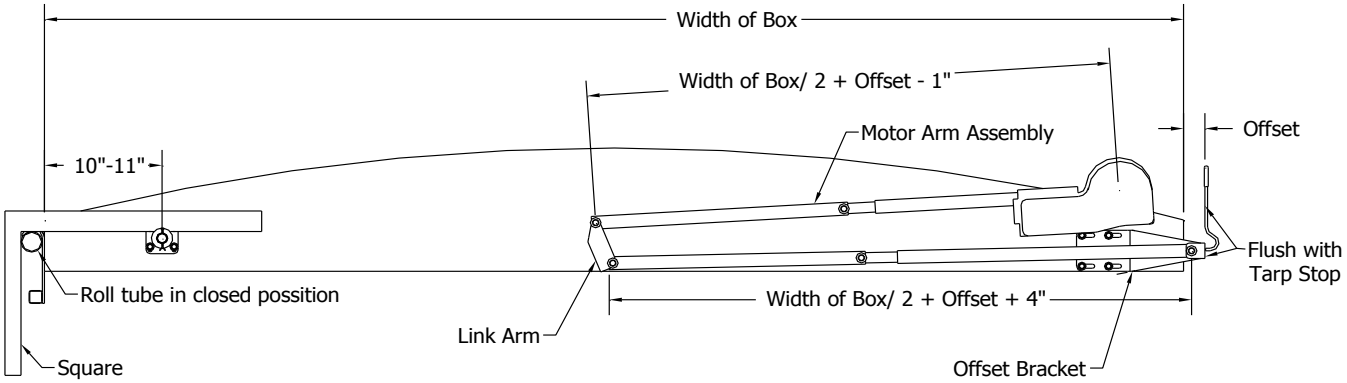


Step 7: Rear Attachment Arm Mounting Installation

Procedure: Mount the offset bracket flush with the tarp stop and at the bottom of the rear header. Drill 11/32" holes and mount with 3/8" self-taping bolts. Assemble the bottom arm by sliding the adjusting arm onto the bottom arm making sure that the holes are the same orientation. Set the length from pivot hole center to pivot hole center using the following starting calculation: Width of Box/2 + the offset of the tarp stop plus 4". Note: The Standard Tarp Stop will not have an offset. Tighten the 3/8" bolt in the arm to temporary clamp the arm into place. Mount the motor (B) to the electric bracket (C) with 5/16"x3/4" hex bolts and lock washers. Slide the other adjustable arm onto the motor arm making sure that the holes are orientated correctly. Measure the length from the center of the motor shaft to the pivot hole center using the following calculation: Width of Box/2 + the offset of the tarp stop minus 1". Tighten the 3/8" bolt in the arm to temporary clamp the arm into place. Bolt the link arm to the motor arm and bottom arm using 3/8" x 2_1/4" bolts, 3/8" Nylon lock nuts, and 3/8" washers.

Note*: The orientation of the Link Arm, the angled side is mounted on the Motor Arm Assembly.*

Slide the motor shaft into the roll-tube and mount the bottom arm onto the Offset Bracket using a 3/8" x 2_1/2" bolt, 3/8" Nylon lock nut, and 3/8" washers. Once Step 11 is complete, run the motor back and forth and confirm that the arms stop in the right place. If the arms are low when the tarp is fully open loosen the bottom 3/8" clamp bolt and lengthen the arm and if the arms are to high shorten the bottom arm. Make sure that the arms are high enough for the rear door latches to clear the arms when the door is opened. When the system is operating properly, drill a 3/8" hole through the small tubing and bolt together using a 3/8"x2" bolt, 3/8" Nylon lock nut, and 3/8" washers on both arms.



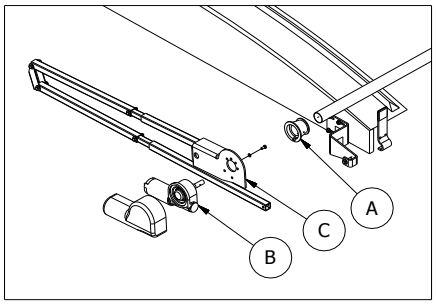
Step 8: Electric Motor Installation

Note*: Apply the supplied Dielectric Lubricant to all wire connections when each wire is hooked up. The Dielectric Lubricant will help to prevent corrosion.*

Procedure: The front beveled cable pulley is stamped FRONT STANDARD and the rear beveled pulley is stamped FRONT REVERSE (A). Cut the rear of the roll-tube so it sticks 9" past the rear of the box. Slide the rear beveled pulley on the roll-tube. Slide the front beveled pulley on the front of the roll-tube. Slide the motor assembly into the rear of the rolltube and attach the arm assembly into the offset bracket. Drill a 5/16" hole through the rolltube and the pre-drilled hole in the

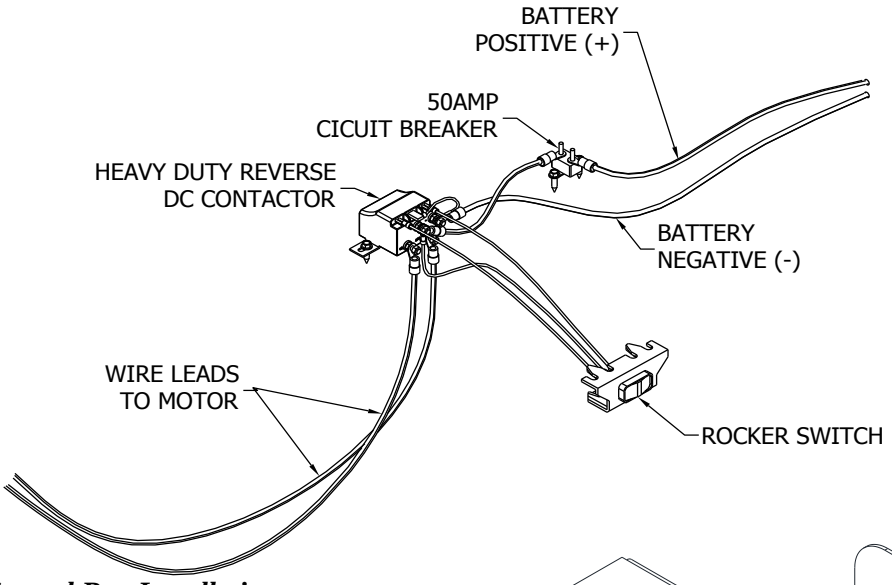
Step 8: Electric Motor Installation Cont.

motor shaft, approximately 1" from the bracket. Secure together with a 5/16"x2_1/4" hex bolt and jam nut. The 1/4"x3/8" set screws in the front and rear beveled pulleys are to be tightened in Step 9.



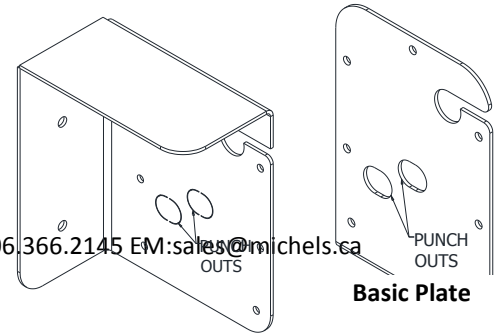
Step 9A: Rocker Switch Installation

Procedure: Mount the rocker switch in an obstruction free area inside the truck cab. Then mount the solenoid on the truck in the battery box or in a sealed enclosed box. Run the #6 double strand wire from the solenoid along the truck frame to the rear box hinge point. The ends at the solenoid both get a black rubber boot and a #6-1/4" stud crimped on. Now run the wires along the rear to the passenger outside side of the box and up to the top. Leave a slight amount of slack at the offset bracket and continue running the wire along the pivot arm. Secure the wire to the pivot arms with the tie straps provided. Attach the wire to the truck with wire clips and 1/4"x1" self-tapping screws that are provided. Connect the wires to the motor posts. Run 14-3 wire from the solenoid to the rocker switch. At the switch side the wires get a 14G female ends crimped on and at the solenoid each wire gets a 14G female end except for the wire connected to the middle post of the switch gets a 14G-1/4" ring terminal crimped on to connect to the positive post of the solenoid. Follow wiring schematic below. Slide a red rubber boot onto the positive wire and a black rubber boot onto the negative wire. Then crimp two #6-1/4" ring terminal crimped to the ends. The wire with the red stripe will be the positive wire and will get bolted on the positive post marked (+) along with the black 14Ga wire running from the switch. The black wire or negative wire will be bolted onto the bottom negative post (-). Insert the 50A circuit breaker in line with the positive wire. Raise and lower the hoist to make sure that the wires are free from obstructions. Once everything is wired and working properly, secure the motor cover to the motor with the 2 self-tapping screws provided.



Step 9B: MIC210 Control Box Installation

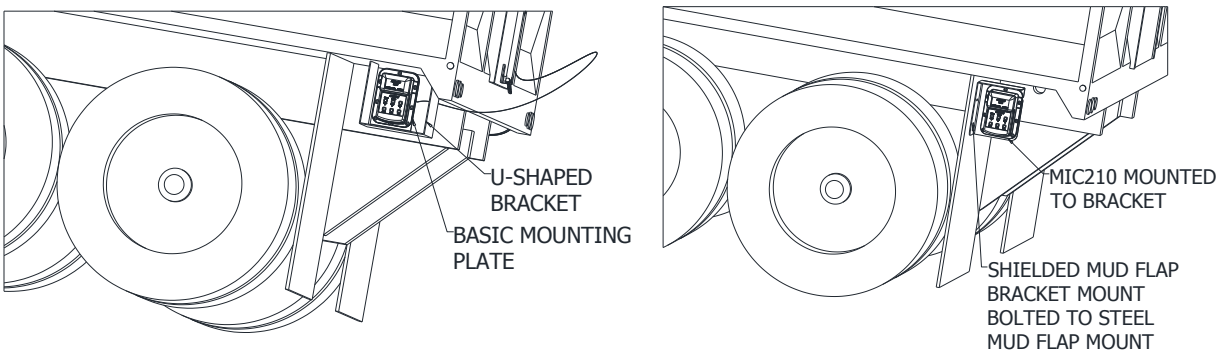
Depending on the grain box, two different mounting brackets may be used. If the grain box already has a large 'U'-shaped bracket



Basic Plate

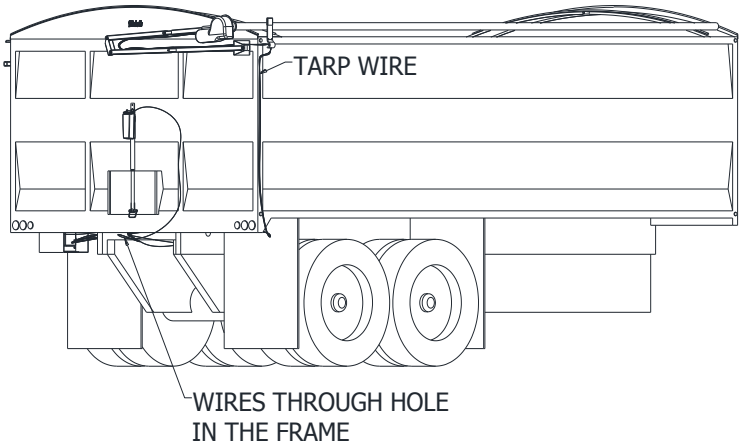
which houses air controls, use the basic plate. If not equipped with this 'U' –shaped bracket then the shielded bracket which mounts to the back side of the mud flap bracket should be used. The MIC210 Control Box mounting plate will be mounted to the box using the 3/8" bolts provided. Wire in the power wire and the electric tarp motor wires (if applicable) before securing the MIC210 Control Box to the mounting plate.

Shielded Mud Flap Bracket Mount



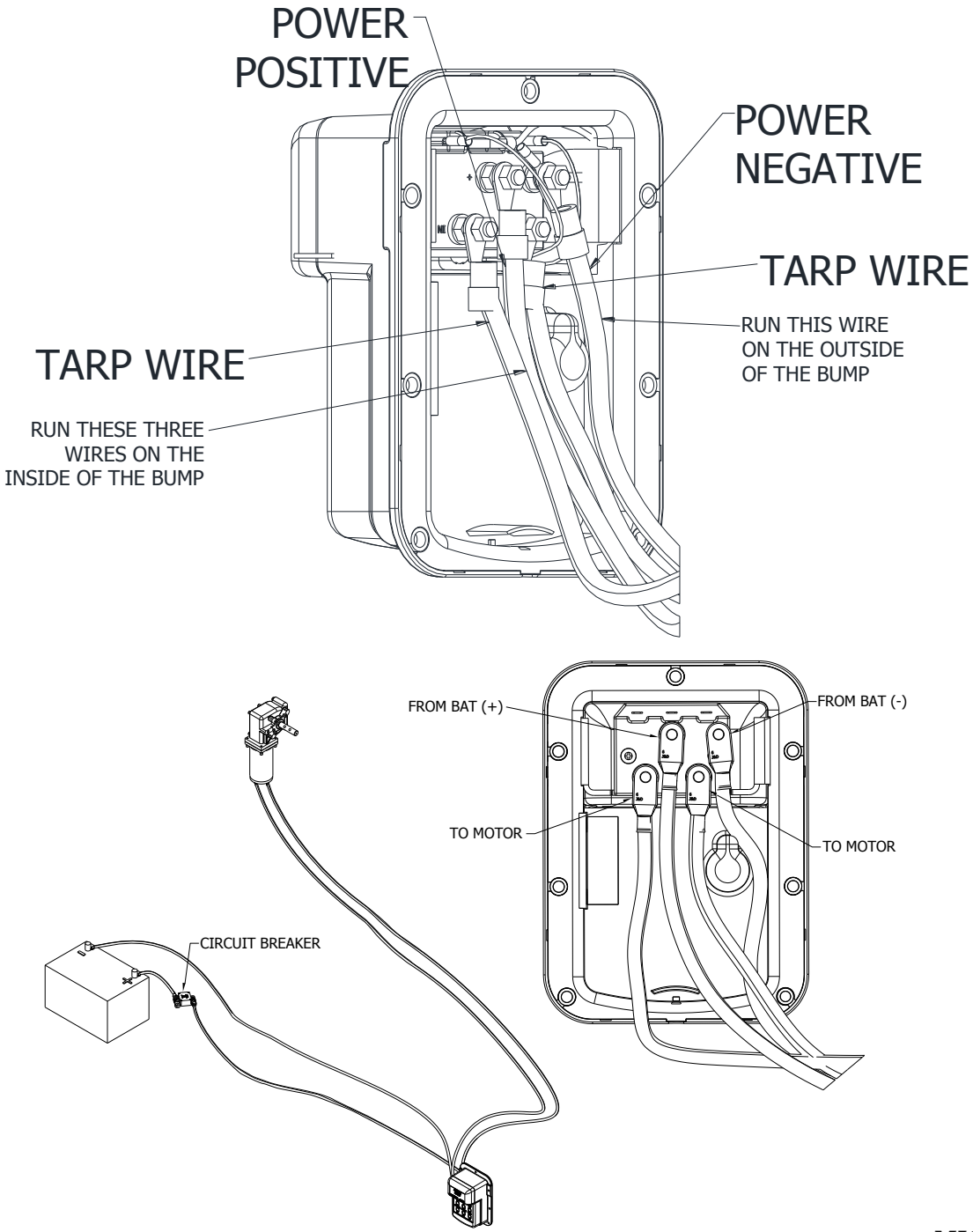
Step 9B: Wiring the MIC210 System on a grain truck equipped with an electric tarp

Run 6 AWG wire from the battery underneath the truck, along the frame to the MIC210 control box. Make sure the inline circuit breaker is connected to the positive wire near the battery, **but do not connect to the battery until all wire ends are connected correctly to refrain from shorting anything out**. Once the wires are installed and secured to the truck, thread the wires through the appropriate hole (described below) of the mounting plate coming in from behind the plate. Remove the punch outs with a chisel and hammer. Place a grommet in each of the slots to protect the wires. Run the #6 double strand wire from the MIC210 box along the truck frame to the rear box hinge point. Now run the wires along the box frame to the front box sill. Leave a slight amount of slack at point and continue running the wire along the pivot arm. Secure the wire to the top pivot arm with the tie straps provided. Attach the wire to the truck with the wire clips and 1/4"x1" self-tapping screws that are provided.



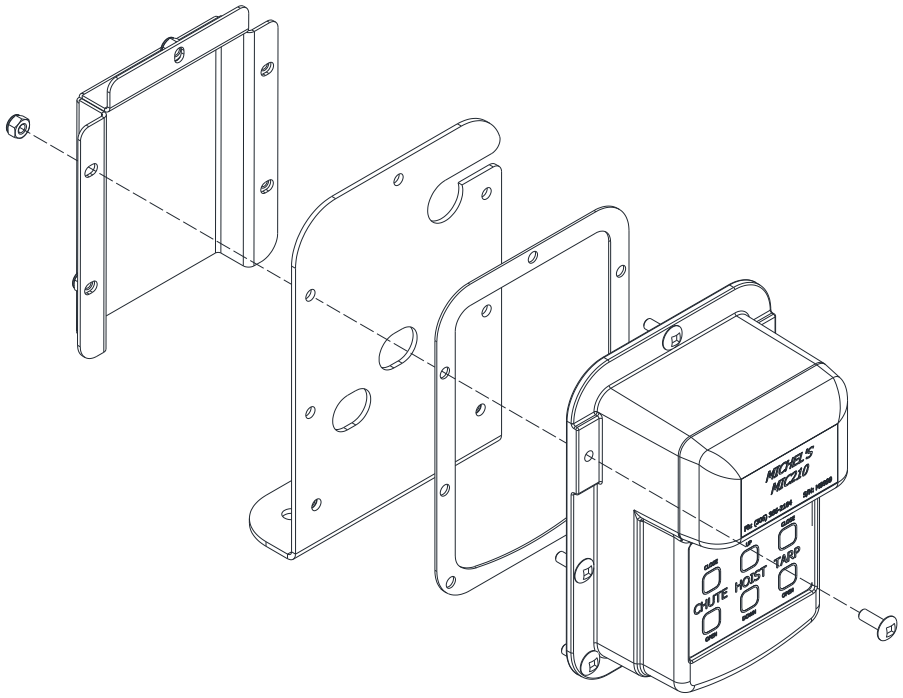
Connect the wires to the motor posts. The ends at the MIC210 box and the motor all get a #6-1/4" stud crimped on. These motor wires thread through the middle hole on the mounting plate. The incoming power wires thread through the bottom hole of the bracket. Make sure the grommets have been installed to protect the wire. The third hole at the top of the bracket is for the hoist and the Power Pro leads. Slide them into the top hole using the slot. The third grommet will need to be split using a pair of side cutters or a knife. Wrap the split grommet around the actuator and hoist leads. Then insert it into the top hole. Next, connect the power wires to the solenoid. The positive wire goes on the positive post (top left) of the solenoid. The negative wire goes on the negative post (top right) of the solenoid. Then, connect the tarp motor wires to the solenoid. These wires connect to the remaining bottom posts on the solenoid. It does not matter which wire goes where on these two posts. If they end up being backwards to the remote there is a very simple setting in the remote which can reverse them without having to physically switch the wires. Please see the R200 Remote instruction manual, Section 4.2.2. **There is a specific way in which the 6 AWG wires must be positioned in order to fit inside the MIC210 Control Box**. Please refer to the Diagram. Once all

the wires are connected to the MIC210 box connect the wires to the battery to ensure everything works before carrying on to securing the box to the mounting plate.



Securing ***MIC210***
Control box to Mounting Plate

Start by mounting the control box and gasket to the mounting plate by using the bottom two holes in the control box, this will aid in holding everything in place before you install the back cover. Next make sure your wires are still remaining in the correct positions according to the diagram to refrain from pinching anything, install the back protective cover using the remaining five holes in the control box.

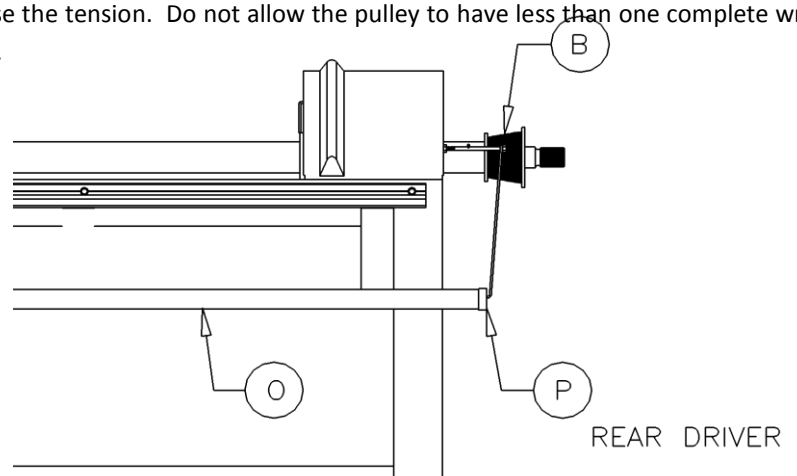


Step 10: Beveled Cable Pulley Installation & Tension Control Adjustment

Procedure: Roll the tarp to the open position.

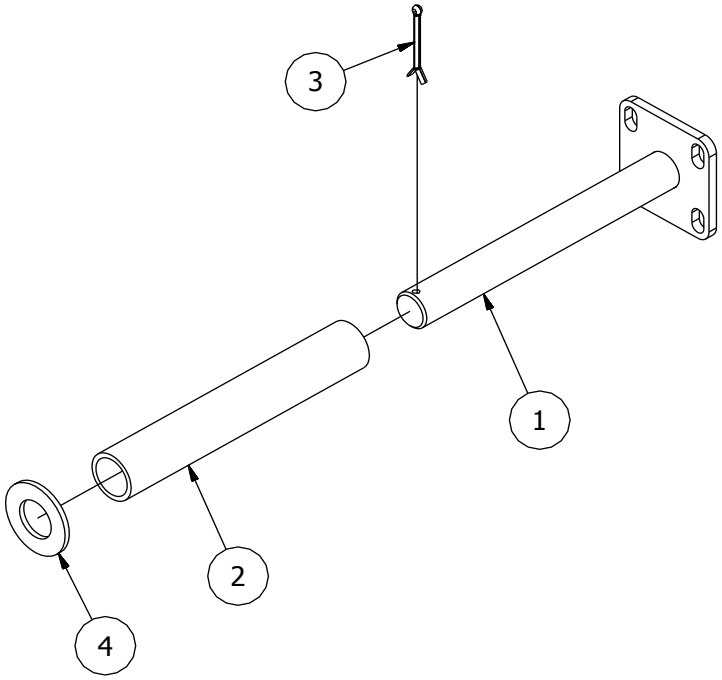
Installing cable onto rear beveled pulley: Pull the cable from the rear holdback system (O) towards the rear beveled pulley stamped FRONT REVERSE (B). Insert cable end into pulley slot and rotate beveled pulley 1_3/4 turns for an 8-1/2ft box or 2_1/4 turns for an 8ft box. Rotate the pulley from the underside of it on the large diameter. Properly position the beveled pulley on the rolltube so that the nylon cable guide (P) on the holdback lines up with the small diameter on the pulley. Tighten the 1/4"x3/8" set screws (E) to hold the pulley in place.

Installing cable onto front beveled pulley: Pull the cable from the front holdback system towards the front beveled pulley stamped FRONT STANDARD. Repeat the rear beveled pulley procedure. Roll the tarp open and closed several times checking each time to make sure that the cable follows in the pulley grooves and the tarp rolls evenly. If the cable does not follow in the grooves, move the beveled pulley in or out until the correct position is achieved. If the tarp does not roll evenly, roll the tarp to the open position; loosen the 1/4"x3/8" set screws in the front and rear pulleys and increase the wrap. This will increase the tension. Do not allow the pulley to have less than one complete wrap of cable when the tarp is in the open position.



Step 11: Pivot Pipe Assembly and Installation

Procedure: Assemble the pivot pipe assembly by sliding the 1" PVC pipe (2) onto the Pivot Mounting Bracket (1). Followed by a 1" washer (4) and secured by a 3/16" x 2" cotter pin (3). The pivot pipe bracket mounts level with the top of the roll tube when the roll tube is in the **Closed Position**. Use a square and the side of the box to make the top of the roll tube and the plastic pivot tube level. The center of the plastic pivot should be mounted between 10"-11" in from the side of the box. Drill and screw the mounting plate with the slots vertical so fine adjusting can be done. When the tarp is both fully closed, the arms should be under the hood line and above the doors out of the way. If the arms are low when fully closed raise the pivot point. If the arms are high lower the pivot point.



Optional Manual Override

Step 1: Remove the motor cover and disconnect the motor from the power supply.

Step 2: Remove the plastic cap covering the manual input shaft. **Do not use the manual override when the motor is running or the motor is connected to the power supply.**

Step 3: Using a 1/2in socket and a speed ratchet or impact driver, simply slide onto the manual input shaft and drive the gearbox as needed. Keep in mind that 90 revolutions of input will result in one revolution of output.

Step 4: Remove the driver and re-install the plastic cap.

Warranty: Michel's Industries warrants their products for a period of one year from date of purchase. Any parts returned to Michel's Industries LTD. Will be shipped prepaid and will be returned F.O.B. St.Gregor, Sk. Canada. We will not assume responsibility for shipping, labor or travel expenses.

Note: *We reserve the right to make improvements; therefore specifications are subject to change without notice.*