Combine Cover Manual

Please read entire Instructions before beginning!
<u>Pictures are for reference only and may not be of actual combine!</u>
*Note: Left side is referred to the unloading auger side.

For Model's:
John Deere S660, S670, S760, & S770
C/W BIG TOP Extension on top of Factory Extension

Please forward onto Customer

Installation Instructions

Step 1: Foam Tape and Vinyl Corner Installation (See Figure 1-4)

Fold the Big Top extensions down so the top edges of the factory extensions are showing. Clean the top edge of the factory extension so the foam tape will stick properly. Place the tape on the extension so it is flush with the outside of the Big Top extension when folded up. Peel the backing off and stick it to the extension. Place tape on all 8 sides of the extension. Once done fold the extensions back up.

Figure 1

Remove one of the angle irons holding one of the rubber corners on. Leave the rubber on the extension so it is still attached to one side. Place one of the vinyl corners that are supplied in the kit on the extension so it hangs down. (See below) There are 2 different sizes of corners, make sure that the corner being used matches the holes of the rubber corner you removed. Place the rubber back on the extension and secure with the angle iron and lynch pins. Repeat for other side of the rubber corner. Repeat for the other 3 corners.

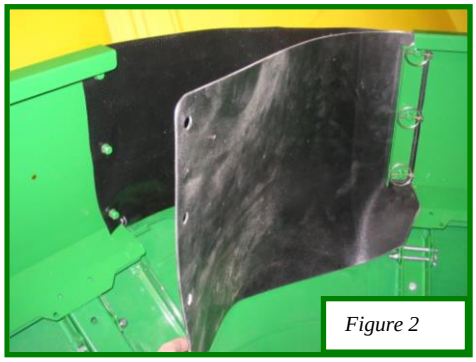


Figure 2

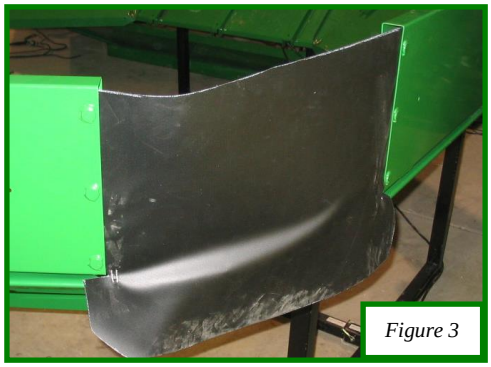


Figure 3

Figure 4

Step 2: Hood Support Channels Installation (See Figure 5-8)

Place one of the hood support channels on the front of the Big Top extension with cut outs to the inside of the hopper. (See Figure 5) Center the channel on the extension and drill (3) 1/4" holes through the extension using the existing holes in the channel as a template. Secure to the extension with 1/4"x3/4" bolts and nylon lock nuts.

Place the other hood support channel on the back extension, but do not center it on the extension. Align the hole in the support channel with the hole on the left side of the extension (Figure 6) and drill the middle and right holes through the extension.
Note: The rear extension is not centered to the overall width of the extension.

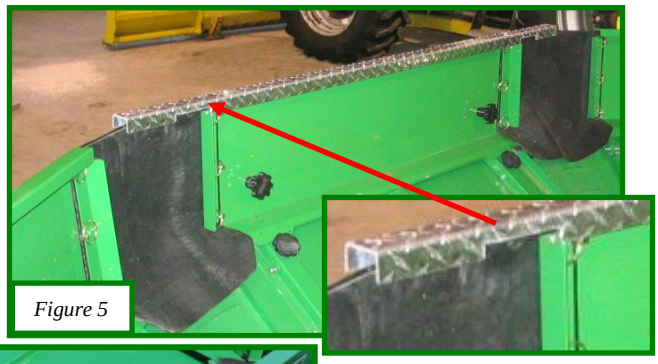


Figure 5

Figure 6

Place the side extension channel on the back of the right extension. Place the channel on so the cut out is aligned with the angle iron that is securing the rubber corner in place. (See Figure 7 & 8) Secure to the extension with (2) ¼”x1” lag screws.

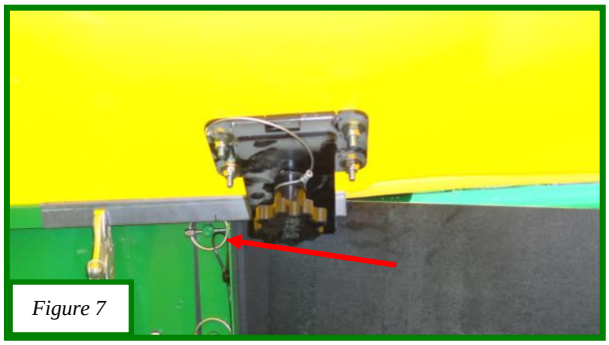


Figure 7

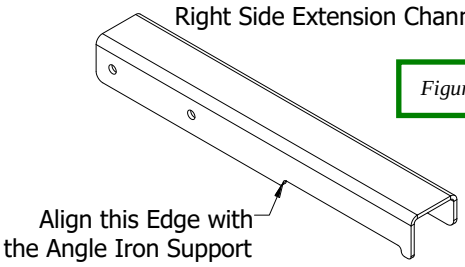


Figure 8

Step 3: Front Rolltube Assembly Installation (See Figure 9-11)

Drill through the front factory extension through the existing top holes in the two outside support braces on the extension with a 13/32" bit. (See Figure 9) Place the front rolltube bracket on top of the cab. Using (2) 3/8" x 3" carriage head bolts and (2) plastic knobs secure the bracket to the factory extension by sliding the carriage bolts through the bottom slots and securing it on the inside of the hopper with the plastic knobs. Position the rolltube bracket so the bolts go through roughly the center of the slots. Using a 13/32" bit drill through the middle of the top (2) slots and the Big Top extension. Secure with (2) 3/8" x 2-1/4" carriage head bolts and (2) plastic knobs.

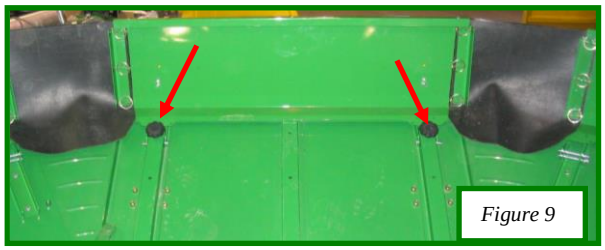


Figure 9

Carry up the rolltube assembly with the tarp on it and place it on the rolltube bracket (See Figure 10). The side of the rolltube marked "PS" goes on the passenger side of the combine. Secure the rolltube assembly to the bracket with the (6) 5/16" x 3/4" carriage head bolts and nylon lock nuts.

Figure 10

Figure 11

Step 4: Rear Rolltube Assembly Installation (See Figure 12-13)

Note: The hand railing needs to be in the UP position before the rear rolltube assembly is installed. The engine compartment will not be accessible without the railing in the upright position.

Slide the motor into the rear rolltube. Secure the motor to the rolltube with the 5/16" x 2-1/2" bolt and nylon lock nut. Mount the motor to the bracket using (3) 5/16" x 3/4" bolts and lock washers. (See Figure 12-13)

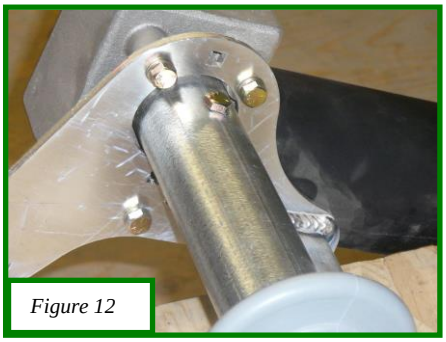


Figure 12

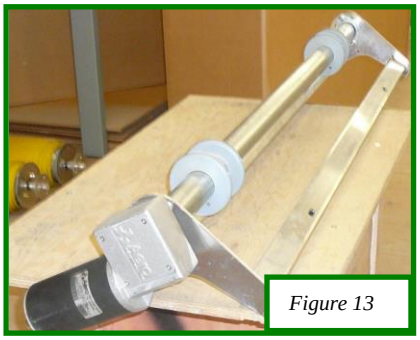


Figure 13

With the rear extension up, drill through the existing holes in the two outside support braces on the factory extension the same as in Step 3. Place two 3/8" x 3" carriage bolts through the 1" x 2" aluminum tubing. Place the assembly up against the rear extension so the motor is on the right side of the combine. Install the carriage head bolts through the extension and secure with 3/8" plastic knobs. Mark the center of the slots on the top mounting bracket. Remove the bracket and drill two 13/32" holes through the extension. Reattach the bracket to the factory extension with the 3"carriage bolts and 2-1/4" bolts to the big top extension. Tighten the bolts with the plastic knobs. Tuck the vinyl corners in behind the tubing so it doesn't interfere with the straps later.

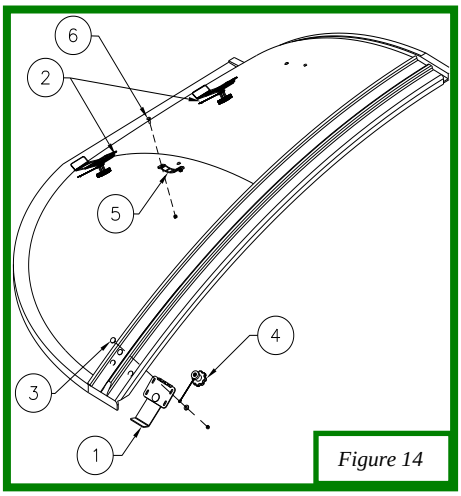


Figure 14

Step 5: Hood Assembly Installation (See Figure 14-21)

Attach the hood latches to the plastic hoods with 1/4"x1" truss head bolts (3) 1/4" flat washers, 1/4" nylon and washers. There are three latches per hood (1 &2).

When bolting the latches onto the hoods add the cable with the plastic knob (4) to one of the bottom corner bolts. Slide the cable over the bolt and then place the washer and secure with nylon lock nut. When tightening the bolts you will need to use a Robinson screw driver on the bolt so it will not turn. Tighten the bolt so the head of it is slightly indented in the hood. Once tighten make sure the head of the bolts are smooth or they will wear the tarp.

Install the strap handles (5) onto the inside of the hoods with 1/4" x 3/4" truss head bolts (6), 1/4" flat washers, 1/4" nylon lock nuts. Fold the ends of the straps over and slide the bolt through both holes. Install a cable and plastic knob on the hoods without a decal/writing on it. On the inside lip of the hood, drill close to the same area as shown in the Figure 7 & 12. Secure it with a 1/4" x 3/4" bolt, washer and nylon lock nut.

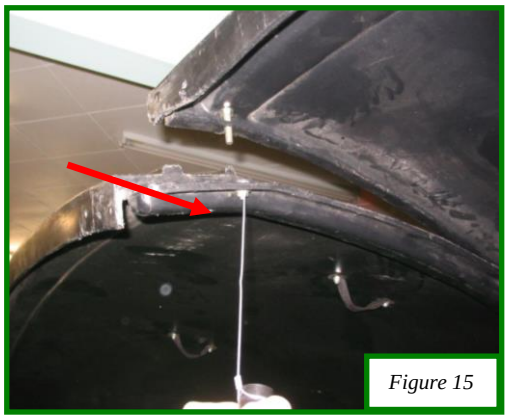


Figure 15

Figure 16

Once the hoods are prepped, carry the hood that looks like the one in Figure 14 and place it in either the front right (passenger) or rear left (driver) corner. With the hood in place swing the latch plate down so the lip catches under the lip on the extension and thread the plastic knob to secure to combine. It is easier to attach the latch on the front (for the passenger side) or rear (for the driver side) factory extension panels and then the two side latches on the side extension panels. Next bring up one of the hoods with a decal/writing on it. Place the hood so it locks into the water trough of the first hood you brought up. Secure the hood to the combine with the latches.

NOTE: If the lip of the second hood doesn't want to go into the trough of the first hood lift both hoods up in the middle until the lip goes into the trough and then lower them down. The end latches may have to be unhooked to do this.

Line the two hoods up so that the top is flush and the ribs are lined up. Find the pre drilled hole in the top hood with the decal/writing on it and drill through the bottom hood. Make sure the drill is straight up and down. (See Figure 17)


Figure 17

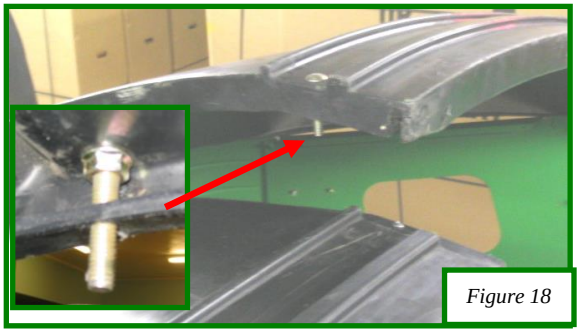


Figure 18

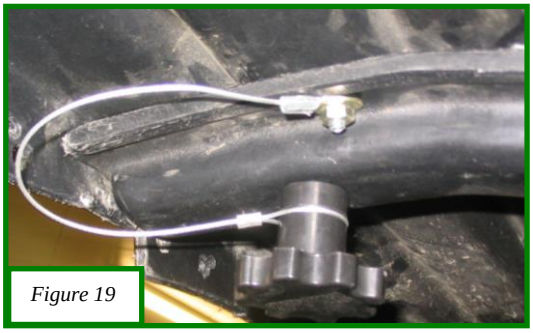


Figure 19

Pull the hoods apart. On the top hood with the decal/writing install a 3/8" x 2-1/4" carriage head bolt through the pre drilled hole that was just used as a guide to drill the bottom hood. Slide the bolt through the top and thread a 3/8" serrated flange nut on. (See Figure 18) Hammer the head of the carriage bolt into the hood so it pulls into the plastic easier.

Put the hoods back together so the bolt goes through the bottom hood and screw the plastic knob on to clamp the hoods together. (See Figure 14) Tighten all of the hood latches up using the plastic knobs.

Repeat for other side of the combine.


Figure 20

With all hoods on the combine place the middle support bracket between the hoods. You have to push the hoods apart to get the bracket between the hoods. The hoods sit between the plates the middle support bracket. This will keep your hoods at the correct spacing.

Position the middle support bracket so the pipe is at the splice of 2 hoods. Makes sure the bracket is below the top of the hood and drill 1/4" holes through the hood and the back tab of the bracket using the holes in the bracket as a template. Insert the 1/4"x1-3/8" quick lock pins to secure the bracket in place. (See Figure 21)


Figure 21

Step 6: Hood Support Installation (Refer to Figure 22-24)

Measure 2" up from the hinge on the extension panel brace that is under the "Trough Hood" at the bottom edge to the Bottom Hood Support Bracket. (See Figure 22) Lag the bracket to the extension support with the self-drilling lag screws. Hold the Top Hood Support Bracket into the upper corner of the "Trough Hood" so that it is lined up with the brace on the extension. Drill ¼" holes through the hood and bolt together with ¼" x ¾" truss head bolts and lock nuts. (See Figure 23) Attach the Hood Support Tubing to the bracket using ¼" x 2 ½" quick pins.


Figure 22

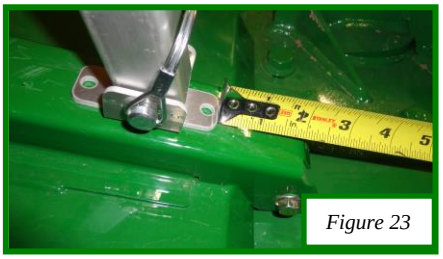


Figure 23


Figure 24

Hood Support Installation 2020 Update

(Refer to Figure 24-25)

On 2020 and newer model combines, there was an update to the right-hand side extension support brace. The brace does not go to the bottom of the extension like the other side, see Figures 23 & 24. The Bottom Support Brace now needs to be mounted at the bottom of the short extension support as shown in Figures 24 & 25. It is then required, to use the longer Hood Support Brace on the right side of the combine. Note: there are 2 short braces and 1 long brace in the supplied kit.

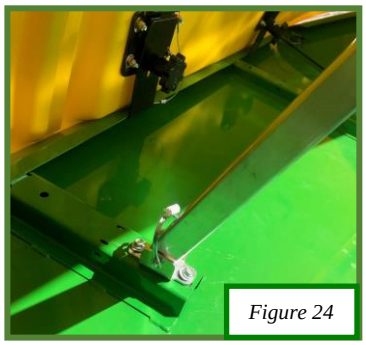


Figure 24


Figure 25

Step 7: Electrical Installation (See Figure 27 - 28)

Mount the switch bracket to the inside of the sample door. (Figure 27)

Figure 27

The solenoid block connects to the battery, switch and motor so place it in an area where all 3 wires will meet. The motor will be located at the rear right of the combine hopper. Secure the solenoid block to combine with ¼"x1" hex bolts and nylon lock nuts.

Electrical Wire

Wire from Switch to Solenoid Block (14-3 Wire) - Run the 14-3 wire from the solenoid block to the rocker switch located in the sample door. Run the wire along the existing wiring and hydraulic hoses and secure with plastic tie straps. Secure the wire by the switch with a wire clip and bolt it to the hopper with bolt holding on the switch bracket.

The three wires at the switch all get 14ga female spade ends crimped on. The black wire is attached to the center post. The GREEN wire goes on the post that is on the same side of the switch marked CLOSE. The WHITE wire goes on the post that is on the same side of the switch marked OPEN. At the solenoid the WHITE and GREEN wires both get 14ga female spade connectors crimped on and the BLACK wire gets a 14ga – ¼" ring terminal crimped on. Bolt the BLACK wire onto the positive post (+) of the solenoid. The GREEN wire connects to the left post on the solenoid block and the WHITE wire connects to the right post. **NOTE:** If the motor runs the wrong way reverse the WHITE and GREEN wires at the solenoid.

Wire from Battery to Solenoid Block Run the #6 double strand wire from the battery to the solenoid block. Secure along the way with plastic ties and wire clips. Cut the wire leaving a little slack in the wire so you are able to crimp the wire ends on at each end.

Mount the 50 amp auto reset circuit breaker with in 6" of the battery so it can be spliced into the positive #6 wire running to the solenoid block. Slide a red rubber boot onto the positive wire and a black rubber boot onto the negative wire. Crimp two #6-1/4" ring terminals 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 (-). Cut the positive wire by the circuit breaker and crimp two #6-#10 studs on and bolt circuit breaker. Wrap the circuit breaker with electrical tape to help prevent shorts. Connect the wire ends to battery later.

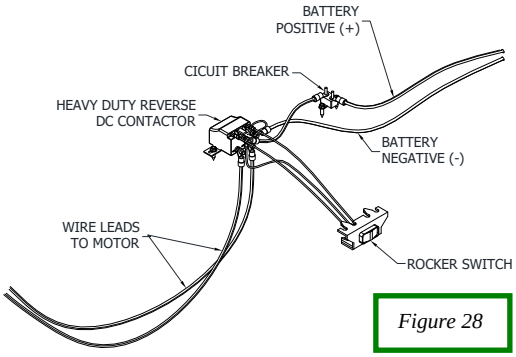


Figure 28

Wire from Solenoid Block to Motor (#6 Double Strand)

Run the remaining #6 double strand wire to the rear right side of the combine hopper and up to the motor. Secure the wire with the supplied wire clips and plastic ties to the combine. The ends at the solenoid both get a black rubber boot and a #6-1/4" stud crimped on. Connect the wires to the bottom posts on the solenoid. It does not matter which wire goes on which post. The wire ends at the motor each get #6-1/4" studs crimped on.

Connect the wire ends to the battery with the red wire going to the positive terminal.

Step 8: Tarp Installation

(See Figure 29-31)

At to the front rolltube assembly wrap the tarp around the front rolltube (clockwise when looking from the left driver side) once or twice until there is a little bit of tension on the tarp. Slide the pipe into the pocket and put one of the straps on the pipe in the cut out in the tarp. Repeat for the other side. Center the pipe in the pocket and run the straps to the back.

Figure 29

Figure 30

Remove the quick pins from the plastic strap pulleys and secure the strap to the pulley by sliding the quick pin back through the pulley and through the pocket in the strap. Adjust the position of the strap pulley on the rear rolltube by loosening the set screws in the pulley. Once close, tighten the **4 set screws** and repeat for other side. The strap runs in-between the ribs on the hood.

Once both straps are connected, close the tarp by pressing the **CLOSE** direction on the switch. When the tarp is closed check alignment of the strap pulleys to see if one side is tighter than the other. If one side is tighter than the other, loosen the sets screws of the tight pulley and turn the pulley back so it has the same tension as the other strap. There are 4 set screws on each pulley. The set screws are 90 degrees from each other. Note: Once the straps are tensioned and the tarp roles open and closed properly, drill 3/16" holes at each set screw location. This will prevent the pullies from slipping on the roll tube.

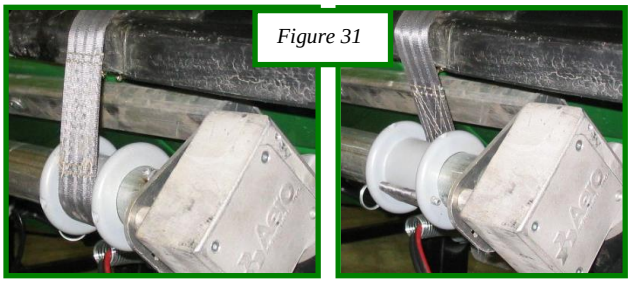


Figure 31

RIGHT **WRONG**

The tarp MUST be open to adjust the position of the pulleys because there is extreme pressure on the straps.

Double check to make sure the straps are wrapping up on the pulleys correctly (See Figure 31). If the straps are wrapping up wrong, the outside wires on the switch need to switched around to change the direction of the motor. When the straps wrap up wrong the tarp might not be able to close fully.

With the tarp open, center the pull pipe in the pocket of the tarp. Secure the straps to the pipe with plastic clips and the #10x3/4" wafer tek screws by placing the clip over the strap on the rear pipe and drilling through the strap and pipe. When done this will not allow the straps not to slide off the rear pipe. (See Figure 28)

Step 9: Dismantling of Hopper Top for Transportation

(See Figure 32-34)

Open the tarp fully and then remove the quick pins from the strap pulleys on the rear rolltube assembly so the straps are free. Once the straps are removed, place the quick pins back in the strap pulleys so they don't get missed placed. Throw the straps to the front of the combine. Remove the middle support pipe by taking out the 1/4"x1-3/8" quick pins and pushing the hoods out. Remove the quick pins from the upright support braces and remove the braces. Next loosen the latches on the front left (driver) corner hood. Remove hood and place it in hopper of the combine. Then loosen the latches off the rear left (driver) corner hood and place on top of the other hood as shown in Figure 30. Repeat for the other side. Take the bubble up down and set on top of the hoods to keep them secure. The corner extension plates get removed and set in the hopper. Then fold in the front and rear extensions and tuck the straps into the tarp and rolltube assembly so they don't blow around. Finally fold the side extensions in and then all the tarp components are in the hopper.

Figure 32

Figure 33

Figure 42

Transporting with a Combine Cover

For transporting any combine with a Michel's Harvest Protect System on a trailer, it is recommended that the system be disassembled and the hopper extensions be folded in. Otherwise the load may be over height. If it is decided to leave the system assembled, it is done **at your OWN risk**. Michel's recommends double-checking to make sure all the latches are tight, securing the hoods properly to the combine and to have the tarp all the way in the **OPEN position**. Reduced speeds are recommended. Michel's Industries assumes **NO** responsibility or liability for any damage or injuries that may occur should the hoods blow off during transport.

Operating Instructions

To open and close the tarp system, simply hold the rocker switch mounted just outside of the cab. PLEASE NOTE: ensure you are hitting "open" on the switch to open the tarp and "close" on the switch to close the tarp. When opening the tarp you must let go of the switch when the tarp is all the way open. If you continue to hold the switch in the open position the tension of the tarp will unwrap all of the strap on the rear strap pulleys and begin to close up again. When closing the tarp simply hold "close" on the switch until the circuit breaker cuts the motor out.

Warranty

Michel's Industries warrants their products for a period of one year from date of purchase. **ONLY** the Super Tork electrical motor has 18 month warranty from date of purchase and is **VOID** if opened or tampered with. Any parts returned to Michel's Industries LTD. will be shipped prepaid by the customer and will be returned F.O.B. St.Gregor, Sk. Canada. We will not assume responsibility for shipping, labor or travel expenses. Please Note: We reserve the right to make improvements; therefore, specifications are subject to change without notice.

Trouble Shooting

Problem	Solution
1. There is no tension of the front Roll Tube and the tarp is loose when all the way open	1. Open the tarp all the way open. Remove the straps from the strap pulleys by pulling the quick pins out and wrap the tarp on the front Roll Tube one turn Clockwise, when looking from the left. (driver side) This will add tension to the spring in the Front Roll Tube. Hook the straps back up th the strap pulleys. **Refer to "Tarp Installation" in your installation manual.**
2. The Tarp Material is not closing all the way covering the hopper completely.	2. First check to make sure your switch is set up so "close" closes the tarp and "open" is opening your tarp with the straps winding on the rear pulleys the correct way. **Refer to "Tarp installation" in your Installation Manual. See pictures of the wrong and right way for the pulleys to wind the straps.**
3. Motor, switch, and Solenoid (reverse DC contactor) Troubleshooting	3. If the straps are winding correctly you may have a faulty circuit breaker. Contact Michel's Industries or your local dealer for further instructions.
4. All Electrical	4. Refer to the following Electrical Troubleshooting sheet.

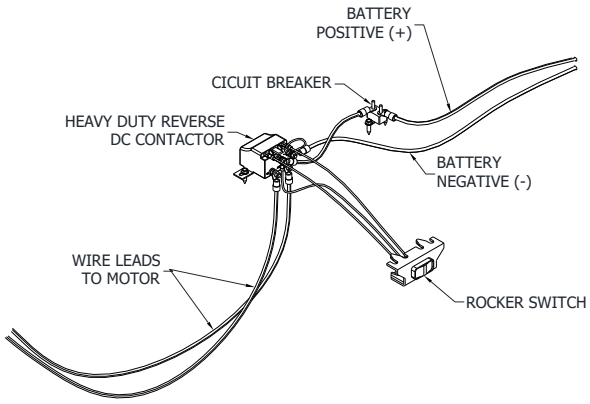
Michel's Industries, Ltd.
P.O. Box 119
St. Gregor, Saskatchewan
S0K 3X0 Canada
Ph#(306)366-2184 or Fax#(306)366-2145

Trouble Shooting Electric System

1) The motor does not work. How to check and see if the problem is the motor?
Unhook the wires at the motor. Use a set of jumper (booster) cables and hook up one end directly to a 12v battery using red for positive and black for negative. On the other end hook one clamp on to one of the motor posts and the other on the remaining motor post. The motor should start turning. Then witch the clamps on the motor and the motor should turn the opposite direction. If motor does not run both directions, it will need to replaced. **DO NOT TAMPER WITH MOTOR OR GEAR BOX AS THIS WILL VOID THE WARRANTY. ** For a replacement motor or warranty, call 1-306-366-2184.

2) If the motor tests ok, but when the switch is used it still does not work. Check the following.

- Trace the wire from the motor to the solenoid block and check for damage and cuts.
- At the solenoid block double-check all connections to make sure they are all tight and clean.
- If the connections are all tight press the switch open and close and have somebody listen if the solenoid clicks in both directions.
- If the solenoid clicks when the switch is pressed both ways then there is a problem with the wire running from the solenoid to the motor.
- If the solenoid only clicks one way then there is a problem with either the switch or the solenoid or there could be a loose connection.
- If the solenoid does not click, then there are 4 things that may be causing the problem.
  1. Switch
  2. Solenoid
  3. No power at the solenoids
  4. Loose connections on the switch or solenoid



- **Test Switch** – First see if there is power coming to the switch by using a 12v tester with the ground attached to the combine frame and the positive to the positive (+) post of the switch.
  i. If there is no power at the switch then there will be no power at the solenoid, or the wire has a loose connection, or the wire has been damaged between the switch and the solenoid.
  ii. If there is power then see if there is power leaving the switch. Press the switch to one side and check for power on the opposite side of the switch. Check both directions.
    a. If there is no power at one or both sides then the switch needs to be replaced.
    b. If there is power on the switch on both sides then check the solenoid to see if there is power coming from the switch.
- **Test for power at the Solenoid -** Use a 12v tester and connect the ground/negative to the negative post of the solenoid and the positive to the positive (+) post to see if there is power. If there is no power at the solenoids, then there are 3 things that could be wrong.
  i. Loose connection on your battery
  ii. Wire is damaged
  iii. Circuit breaker

  Trace the wire back to the battery checking for damage and loose connections. If there is no damage or loose connections test for power on both sides of the circuit breaker. If there is no power, bypass the inline circuit breaker and test to see if there is power at the solenoid. If there is power then the circuit breaker needs to be replaced.
- **Test for power at the Solenoids coming from the Switch.** Connect the ground to the negative post of the solenoid and the positive to one of the small posts that a 14G wire is connected to. Press the switch either way to see if there is power coming to the post. Check both posts.
  i. If there is no power coming to one or both of the posts then check the wire for damage or loose connections.
  ii. If there is power at both posts then test to see if there is power leaving the solenoid.
- **Test for power leaving the Solenoids**. With the ground attached to the negative post, connect the positive to the one of the outside posts. Press the switch either way to see if there is power there. Check both posts
  i. If there is power at both posts then check the wire running to the motor for damage and loose connections.
  ii. If there is no power at one or both posts then the solenoid needs to be replaced.

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