

Michel's

Harvest Pro-Tech

Combine Cover Manual



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Please read entire Instructions before beginning. Pictures are for reference only and may not be of actual combine!

**For Model's:
New Holland CR8090, CR9090, CR8.90, CR9.90, & CR 10.90
With 410 Bushel Grain Tank**

Please forward onto Customer

Installation Instructions

Step 1: Hood Latch Support Bracket Installation (See Figure 1)

On the front and rear flip up extensions four latch support brackets get mounted. Towards the middle of the hopper, position the bracket so it is 3-1/16" from the hopper support brace and tight against the top lip of the extension. (See Figure 1) This will make the latches install easier and secure the hoods properly.



Figure 1

Step 2: Hood Assembly & Installation (See Figure 2-5)

Attach the hood latches to the hoods with 1/4" x 1" truss head bolts (9) 1/4" flat washers (11), 1/4" Nylok nuts (10). There are two different latches; one latch has two bends in it while the other is shorter with only one bend in it. The 2-bend latch (4) has to be bolted on the front or back of the hoods in the track. The other latches (5) get bolted onto the side of the hoods.

With each latch a cable from a knob (7) will get bolted onto one of the mounting bolts. Slide the cable over the bolt and secure with a nylon lock nut. Make sure the outside of the bolts are smooth with no burrs, so they will not wear /cut the tarp. If there are burrs use a file or grinder to remove them.

Install the strap handles (6) onto the inside of the hoods with 1/4" x 3/4" truss head bolts (8), 1/4" flat washer (11), and 1/4" nylon lock nuts (10). Fold the ends of the straps over and slide the bolt through both holes.

On the hood without a decal/writing on it, install a knob on the inside lip of the hood. Drill around the same area as shown in Figure 4 and secure it with a 1/4" x 3/4" bolt, two washers and a nylon lock nut.

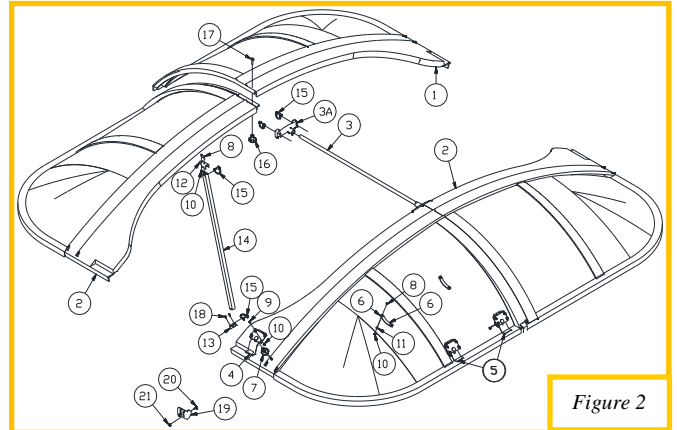


Figure 2

Once the hoods are prepped, start with hood that has the water trough and place in the front right (passenger) corner. With the hood in place swing the latch plate down so the latch catches underneath the lip on the extension and thread the knob on to secure the hood to combine. It is easier to attach the middle latches first and then the end latches after both hoods are together. Bring up one of the lip hoods, it will have Harvest Protect writing on it. Place the hood so it locks into the water trough of the first hood. Secure the hood to the combine with the latches. Repeat for the other side of combine. You may have to lift the hoods up together so they snap/lock together.

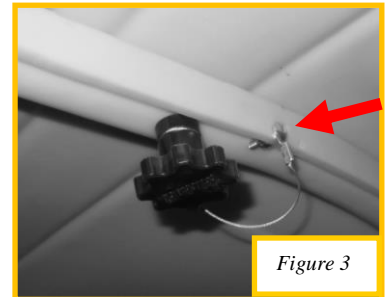


Figure 3

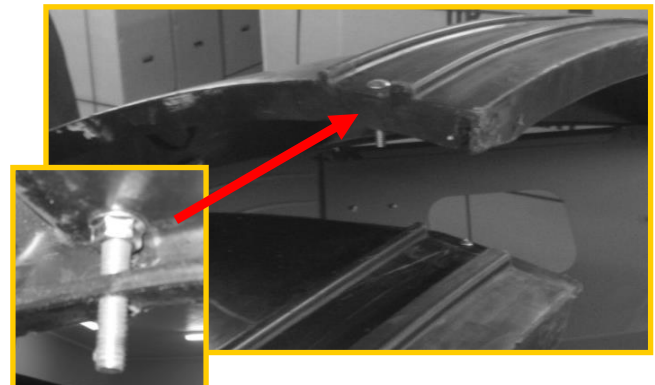
Press the 2 hoods together so they are flush on top and the ribs line up with each other. It may be necessary to smooth the ribs where the two hoods come together so they do not cut/wear the tarp. Drill a 3/8" hole through the pre-drilled hole in the hood with the decal/writing on it. Drill all the way through the bottom lip and also the other hood making sure that the drill is standing straight up and down. (See Figure 4) Repeat for other side. Pull the hoods apart and on the top hood install a 3/8" x 2-1/4" carriage head bolt. Slide the bolt through the top and thread a 3/8" serrated flange nut on. (See the inset picture of Figure 5) It may be necessary to hammer the head of the bolt into the hood so it pulls into the plastic. Double check to see if there is any sharp edges or burrs that could cause premature wear or cutting of the tarp. Repeat for other side.



Figure 4

Put the hoods back together so the bolt goes through the bottom hood and screw the knob on to clamp the hoods tight together.

Position the middle support bracket so the pipe is at the splice of the hoods. Make sure the bracket is below the top of the hood. Drill a 9/32" holes through the hood and the back tab of the bracket using the front holes in the bracket as a template. Insert the 1/4" x 1-3/8" quick lock pins to secure the bracket in place. (See Figure 6) Repeat for other side.



Step 3: Hood Support Installation (Refer to Figure 7-9)

Measure 2" up from the bottom of the flip up extension to the center of the pin location on the Bottom Hood Support Bracket. (See Figure 7) The brace will be 10" from the left-hand extension brace to the inside of the bracket (See Figure 8) lag the bracket to the extension support with the self-drilling lag screws. Hold the Top Hood Support Bracket so that the inside hole is 1-1/2" from the inside edge of the "Trough Hood" so that it is centered with the Bottom Hood Support Bracket. (See Figure 9) Drill 9/32" holes through the hood and bolt together with 1/4" x 3/4" truss head bolts and lock nuts. Attach the Hood Support Tubing to the bracket using 1/4" x 2 1/2" quick connect.

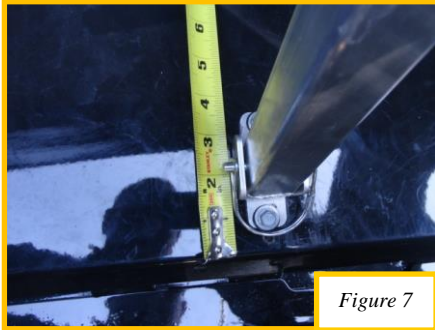


Figure 7

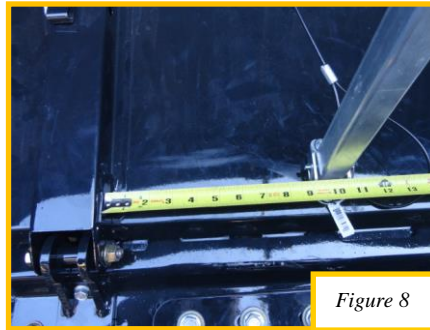


Figure 8



Figure 9

Step 2: Front Rolltube Assembly Installation (See Figure 10-11)

With the front extension flipped up and drill 13/32" holes through the outside support braces 3-3/4" down from the inside lip of the extension and centered on the brace. (See Figure 11) Fold the extension down and place the front rolltube (tarp) on the extension so the holes line up. Make sure you have the side marked Passenger (PS) on the rolltube assembly on the passenger (right) side of the combine. Then slide 3/8" x 5" carriage head bolts through the 2 x 2 aluminum tubing and the extension. Drill another set of holes through the bottom cross brace that is centered with the braces of the extension. See Figure 12. Slide two more 3/8" x 5" carriage head bolts through the 2 x 2 aluminum tubing and the extension. Secure with two plastic 3/8" female knobs on the inside of the hopper. Place the extension back up into place.

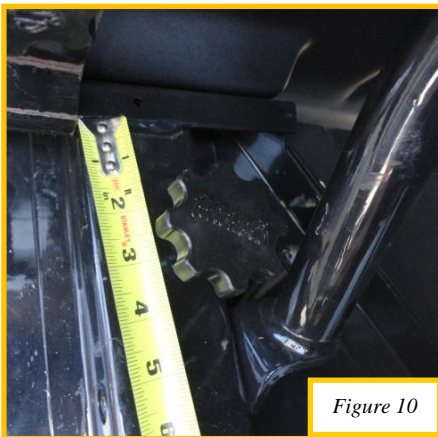


Figure 10



Figure 11

Step 3: Rear Rolltube Assembly Installation

With the rear extension up drill two 13/32" holes through the outside support braces 2-3/4" down from the inside lip of the extension and centered on the brace. (See Figure 10) This is the same as the front mounting hole locations. Fold the extension down and place the rear rolltube on the extension so the holes line up. Make sure you have the motor on the passenger side (opposite of unloading auger). Slide the 3/8" x 5" carriage head bolts through the 2 x 2 tubing and the extension. Secure together with plastic 3/8" female knobs on the inside of the hopper.

Step 6: Electrical Installation (See Figure 12-13)

Mounting Electrical Hardware

Mount the switch bracket on the inside of the sample door with 1/4" x 1" bolts and nylon lock nuts. (Figure 12) Mount the solenoid block on the back side of the hopper, in front of the engine, and under the platform. Use 1/4" x 1" self-drilling screws to secure it. (See Figure 13)

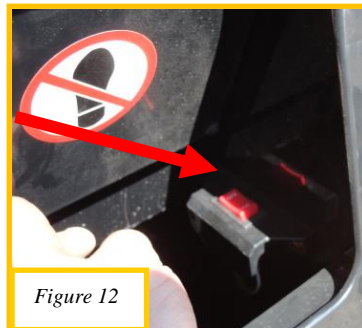


Figure 12

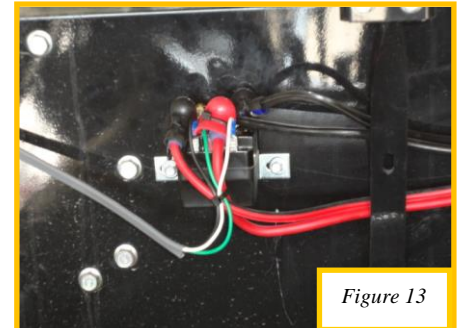


Figure 13

Electrical Wire

Wire from Switch to Solenoid Block (14-3 Wire)

Run 14-3 wire from the solenoid block to the toggle switch located inside of the sample door. From the rocker switch run the wire up and out the top of the hopper, but under the extension. (See Figure 14) Use 1/4" x 1" lag screws and 3/8" cable clamps to secure the wire down the side of the hopper to the rear and under the engine cover to the solenoid block.

The 14-3 wires at the switch all get a 14ga female end crimped on. The black wire goes to the middle post. The GREEN wire goes on the post that is on the same side of the switch marked OPEN. The WHITE wire goes on the post that is on the same side of the switch marked CLOSED.

The WHITE and GREEN wire at the solenoid block both get 14Ga female ends crimped on. The BLACK wire gets a 14Ga -1/4" ring terminal crimped on. The BLACK wire gets bolted onto the positive post of solenoid block marked (+). The GREEN wire connects to the left post on the solenoid block. The WHITE wire connects to the right post.



Figure 14

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

Run the #6 double strand wire from the battery to the solenoid block which is located underneath the engine cover. The wire follows the existing power wires running up to the engine. Follow the wires across the backside of the engine and go forward to the rear of the hopper on the right side of the engine compartment and then to the solenoid block. Use plastic ties to secure the wire to the plastic conduit. Take caution to keep all wires away from moving objects. Cut the wire leaving a little slack by the solenoid and battery so wire ends can be crimped on. (See Figures 16)

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 red wire will be the positive wire and will get bolted on the positive post marked (+) of the solenoid block along with the black 14ga wire running from the switch. The black wire or negative wire will be bolted onto the negative post (-).

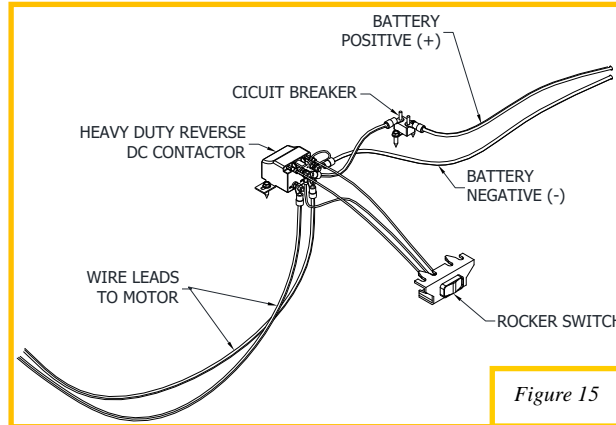


Figure 15



Figure 16

The wires at the battery get two #6-1/4" studs crimped on. The positive wire (red) gets a circuit breaker spliced inline right by the battery. Cut the positive wire 3"- 4" back from the end and crimp two #6-#10 studs on and bolt circuit breaker inline. Wrapping the circuit breaker with electrical tape prevent shorts from happening. (See Figure 16) Connect wire ends to battery later.

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

Run #6 double strand wire underneath the top platform to the right side of the combine. Secure both the cable from the battery and the cable to the motor with 3/8" wire clips and 1/4" x 1" lag screws to the back of the hopper. Finish running the wire to the motor in Step 3 after the rear rolltube is installed.

The ends at the solenoid both get a black rubber boots and a #6-1/4" studs crimped on. Connect the wires to the outside posts on the solenoid. It doesn't matter which motor wire goes on which post of the solenoid. If the motor runs the wrong direction reverse the wires at the motor.

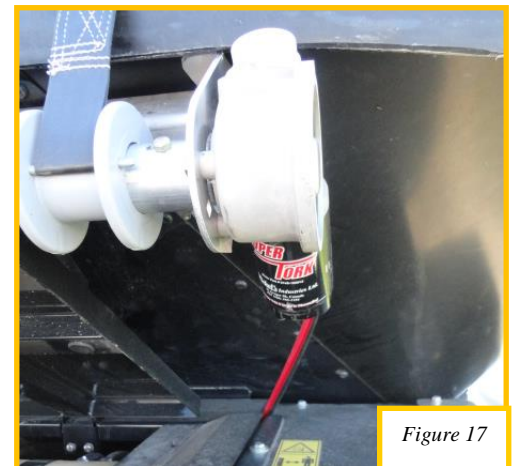


Figure 17

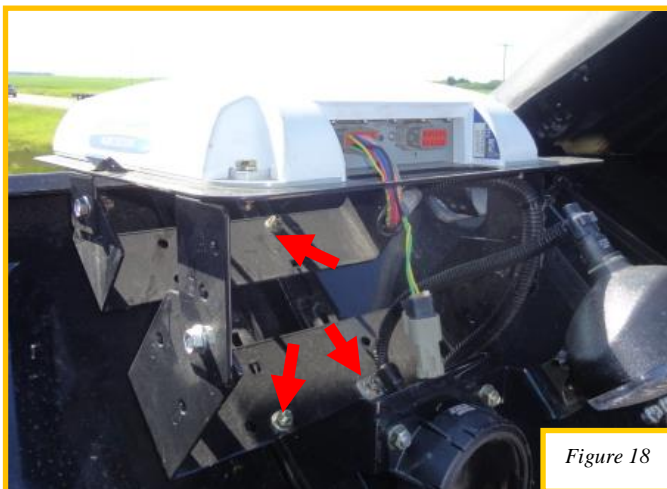


Figure 18

Note: The front handle will have to be removed from the extension. It interferes with the mounting hardware of the passenger front hood. If equipped with a GPS system the mounting bolts will have to be loosened up and the GPS sensor moved down so it will not interfere with the tarp system. (See Figure 18)

Step 5: Tarp Installation

(See Figure 19-22)

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.

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 4 set screws in the pulley. Once close, tighten the 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 pulleys from slipping on the roll tube.

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 20 & 21). If the straps are wrapping up wrong, the outside wires on the switch need to be 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 22)

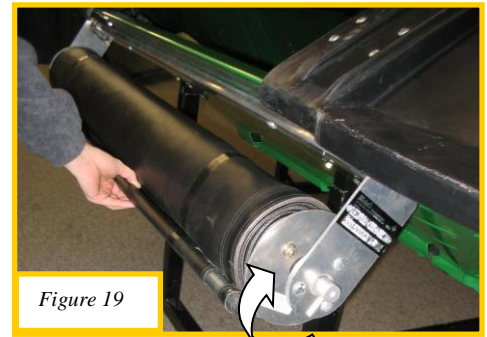


Figure 19

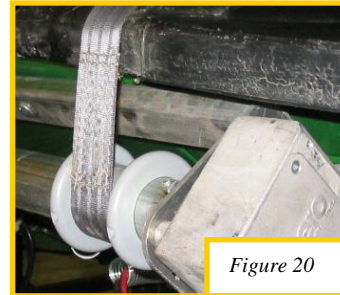


Figure 20

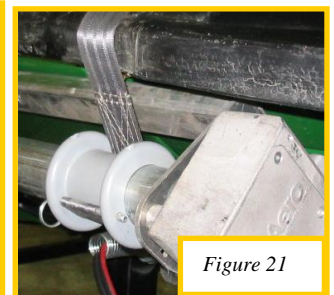


Figure 21

RIGHT

WRONG

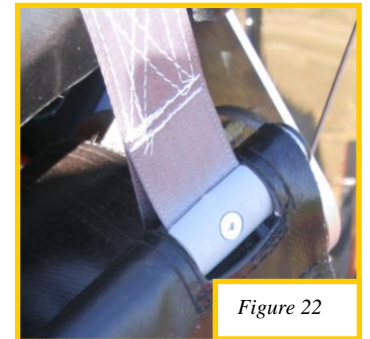


Figure 22

Step 6: Dismantling of Hopper Top for Transportation

(See Figure 23-25)

Open the tarp fully and then remove the quick pins from the plastic pulleys on the rear rolltube assembly. Once the straps are removed, place the quick pin back in the plastic pulley so they don't get missed placed. Throw the straps to the front of the combine inside the hopper. Next remove the middle support pipe and the hood support braces by taking out the 1/4" x 1-3/8" quick pins. Loosen the latches on the front left (driver) corner hood. Remove the hood and place it in hopper of the combine. Then loosen the latches off the rear left (driver) corner hood and place it on top of the first hood. Repeat for the other side. The Hoods will be stacked in the hopper as seen in Figure 23. Fold in the front and rear extensions in. (See Figure 24&25)

Note: It may be necessary to remove the front and rear rolltubes for transport depending on the height of the trailer.

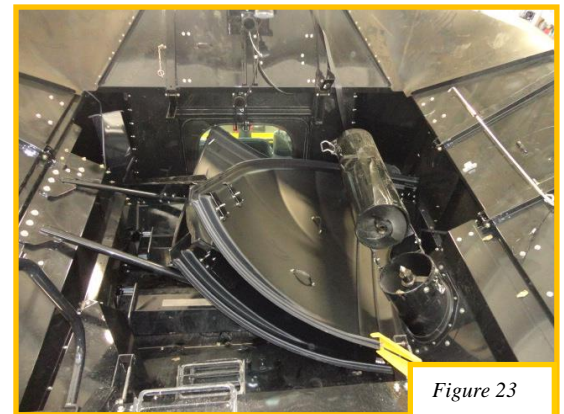


Figure 23



Figure 24

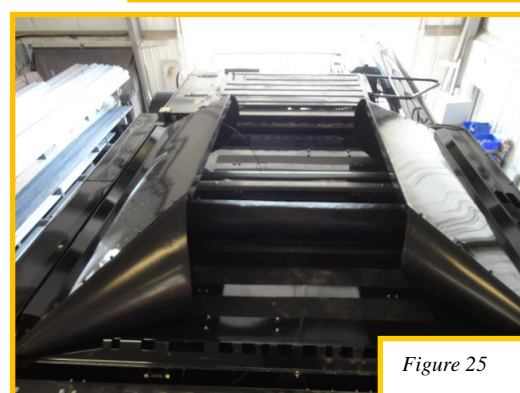


Figure 25

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 / Maintenance

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 to 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

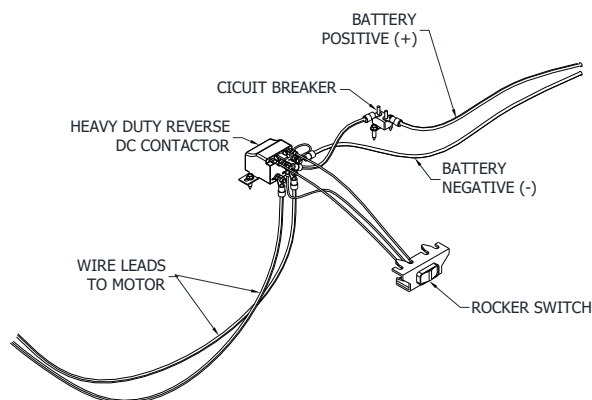
Trouble Shooting Electric System

- 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 the motor does not run both directions, it will need to be 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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