PHT-7K Kit for Lexion 7000 Series with 385 bu Grain Tank

Installation Instructions

Tools Needed: Ratchet, 9/16” or 15mm, ½ or 13mm, 10mm, 8mm sockets and wrenches (gear wrench preferred), tape measure, electrical wire cutter/stripper/crimper, sharpie marker, hammer & center punch, cordless drill, 13/32”, 11/32”, ¼”, 1/8” drill bits, Phillips’s screwdriver.

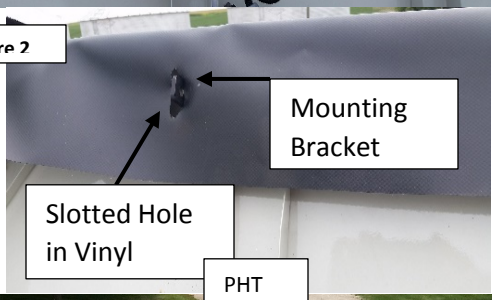
Also helpful, 6/7ft stepladder (to set in bottom of grain tank), magnetic parts tray, light duty cordless impact wrench, flashlight. Buckets to carry tools and hardware

1. Locate combine in a well lite location. Open combine grain tank and open grain tank access door (4 bolt) at right side of cab and release right side cab window latch. Open access to engine compartment and set all kit components and tools on engine compartment behind grain tank.

Figure 1

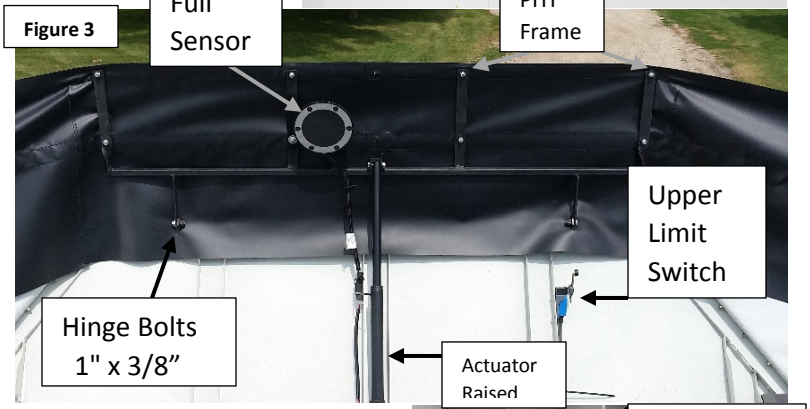
2. Figure #1, Drill out existing factory holes (4 holes front and back) with 11/32” drill. (The factory mounting bracket on front left side will have to be removed or relocated from current location). Install 4 hinge brackets using 1" x 5/16” bolts, washers both side and nuts, tighten bolts. Front and rear grain tank full sensors will need to be dismounted and retain hardware for installation on PHT extension frame.

Figure 2



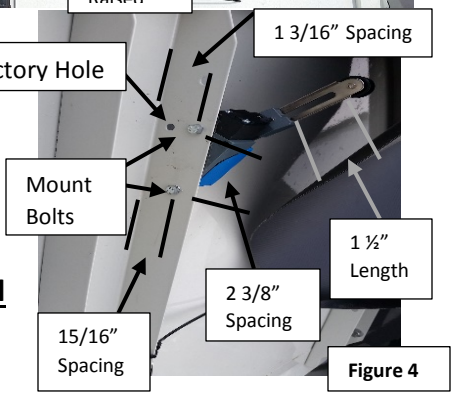
3. Figure #2, Locate the slotted holes in middle section of PHT vinyl and place vinyl over hinge brackets. Install vinyl with horizontal reinforcement strapping on outside of vinyl. Figure #3, it is possible that the PHT frame end brackets may have bent during shipping so straighten as needed. Install PHT frames on the outside of hinge bracket using 1" x 3/8” bolts and locknuts. (Frames are positioned so that the actuator mounting holes are on the inside of square tubing and 2 inner vertical brackets on frame are on the outside edge of square tubing). Tighten hinge bolts then back off a 1/8 of a turn to allow frame to move freely.

Figure 3

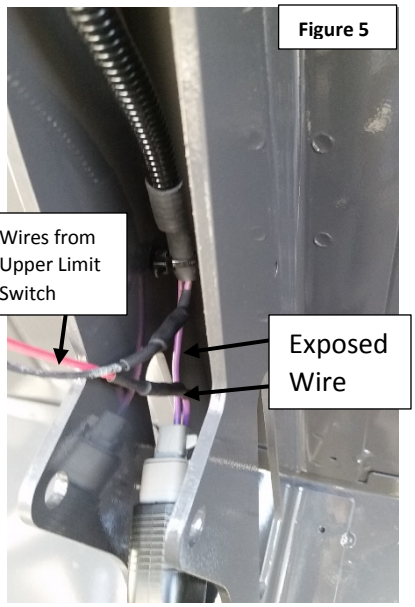


4. Unplug tank full sensor from wiring harness and mount on PHT frame using original hardware, mount sensor so the larger part of sensor is on the left side of mounting bracket so there is plenty of clearance from actuator and grain tank bracing when folded down. There are 3 holes on sensor bracket allowing for 2 height settings for sensor. (**Make sure both front and rear grain tank full sensors are installed on PHT frames before attempting operating actuators.)**

Figure 4



5. Mount upper limit switch (long wire attached) to the location shown in figures #3 & 4, **on Front factory panel**. The top hole is located directly above the existing factory hole at a spacing of 1 3/16" (30mm) from bottom of channel. The lower hole is 2 3/8" (60mm) below upper hole and 15/16" (24mm) from bottom of channel. These measurements will need to be marked on the outside of channel so they can be center punched and drilled using 1/4" drill. Mount the limit switch using bolts supplied and tighten using 8mm socket/wrench. The angle and length, (Start with 1 ½"(38mm) for arm length, set screw to inside of arm wheel), of limit switch arm may need adjusted so that when PHT frame is lowered, the frame tubing contacts the wheel on the limit switch arm and trips the switch. This limit switch will need tripped when extensions are lowered so that power is restored the factory fold.



6. Limit switch wire needs to be ran down the front factory panel to the grain tank ledge where the factory wiring harness is mounted under ledge. Follow wiring harness to the right side of grain tank until you reach the harness that supplies power to Factory Grain Tank Folding Actuator, looping wire around harness as you go. Locate exposed wires in actuator harness as shown in figure #5. It will be best to release harness holders from hole by prying holder from the inside and pushing holder tip from the outside at the same time. When harness is released, cut one of the exposed wire, strip both ends of cut wire and both ends of wires from limit switch and connect each of the limit switch wires to each of the cut wires using blue butt connector. **(Butt connectors in kit are heat shrink, so apply heat to connectors to seal connections)** When wiring connections are complete, put harness holder back in their holes and use zip ties to secure any loose wiring.

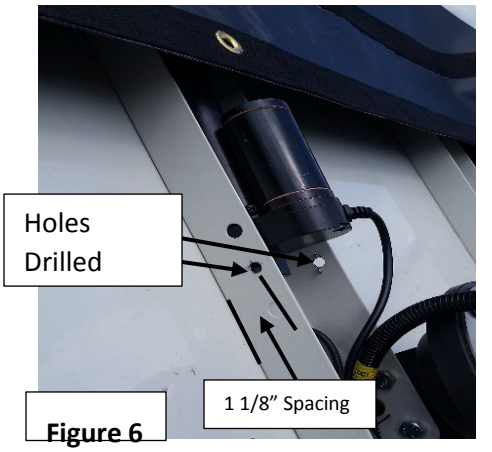
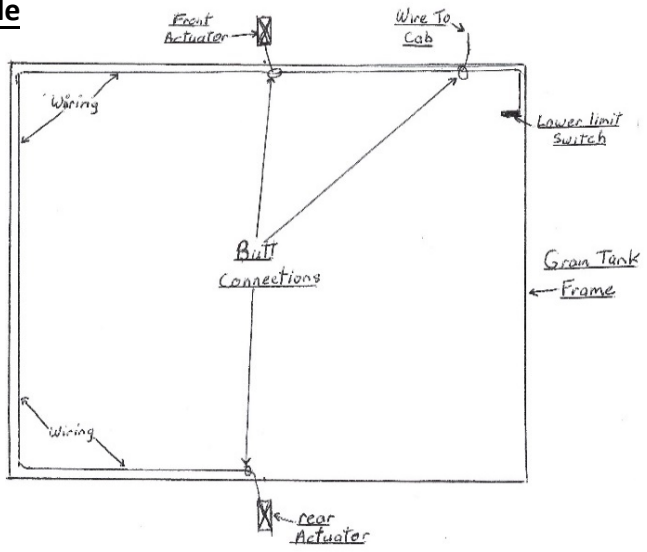


Figure 6

7. 3 Linear Actuators come with kit, two will be used in the kit and one is a spare. Actuators come boxed in the retracted position and should remain retracted until installed. Bolt rod end of Actuators to PHT frame as seen in figure #3 using 1 ½" x 5/16" bolt and locknut, tightening nut so that nut is completely on threads but not completely tight to the mounting tabs so bolt can move. Figure #6, Lower PHT frame with actuator mounted and measure distance from center of actuator base mounting hole to bottom of mounting U channel, use this measurement to mark mounting hole location, (1 1/8 from sheet metal) on both sides of U channel. **Double check measurements on both sides to make sure hole locations are in line with each other and actuator base hole**. Center punch and drill hole locations using 1/8" drill for pilot hole and 11/32" drill bit for final hole and mount actuator using 3" x 5/16 bolt and locknut, install locknut on threads but not tight to U channel. If alignment is still an issue, use larger drill bit to drill out one hole or both holes.



8. Route wiring from front to rear actuator as shown in diagram. Follow factory-wiring harness under grain tank ledge from front actuator around left side of grain tank to rear actuator, occasionally looping wire around the factory harness to keep it secure. When enough wire is pulled through to reach rear actuator, strip insulation from cable

cover and wires and use blue butt connectors to connect to rear actuator wiring (red wire to red and black wire to black) check wire connections for tightness. **(Wait to heat shrink connectors until circuit has been tested.)** Once wire connections to rear actuator is secure, pull back any slack in wire towards front actuator, cut and strip wire at front actuator connection location. Combine front actuator wire and stripped wire (black with black, red with red) from rear actuator in one end of yellow butt connector (yellow connectors are needed when combining two wires) and crimp one side of butt connector. Route wire from grain tank right front corner (near 4 bolt access door) to front actuator following factory wiring harness and strip back wires and connect wires to yellow butt connectors at front actuator. Do not cut wire yet.

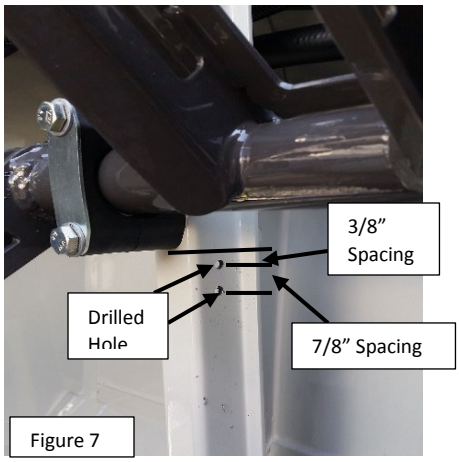


Figure 7

9. Figure #7 & 8, Locate holes for lower limit switch (The third limit switch is a spare) on right front grain tank brace. (Lower limit switch cuts off power to extension kit actuators when factory grain tank is closed) Top hole is located 3/8" (10mm) below bottom edge of pillow blocks and lower hole is 7/8" (22mm) below top hole. Mark and center punch hole locations on rear side of grain tank brace, then drill holes using ¼" drill bit, if holes do not match limit switch holes, drill out holes with larger drill bit. Mount lower limit switch (shorter electrical wire attached) using bolts that came with switch. Screw bolts in and out of switch base are few times to ensure clean threads and easier starting in holes. 8mm gear wrench is very useful for tightening these bolts. The limit switch arm should be extended about 1 ½" (38mm) from set screw to inside of arm wheel. Route wire from limit switch up grain tank brace to grain tank ledge and factory wiring harness, follow harness to right front corner to meet the wire that runs to front actuator. Cut wire that runs to front actuator so it can be connected to wire from lower limit switch. Strip ends of both wires and connect red actuator wire to either wire from lower limit switch using blue butt connector. **It doesn't matter which color wire from the lower limit switch is connected to red wire going to actuator, the other wire from lower limit switch must connect to red wire coming from cab.**

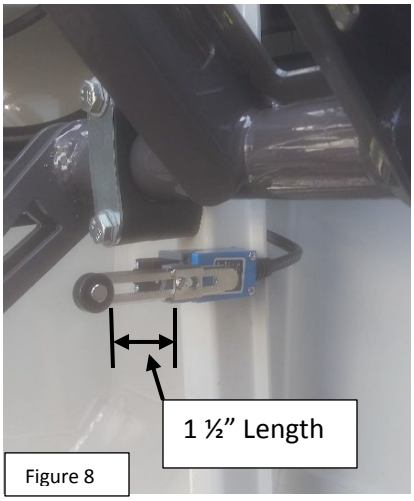
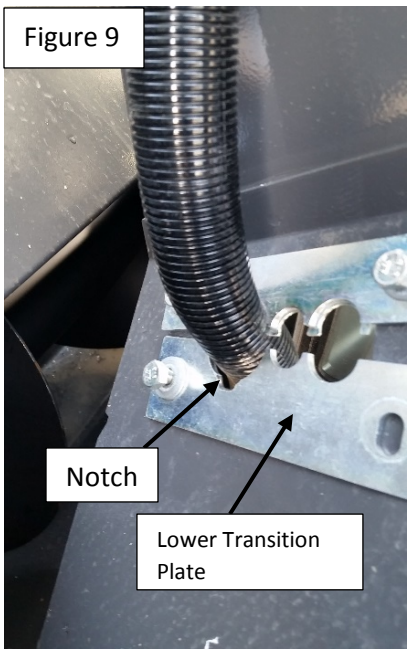


Figure 8

10. Figure #9 & 10, prepare grain tank transition to route wire from cab into grain tank. Unbolt lower transition plate (keep track of blanks in transition) and use a bench/hand grinder to grind a notch in the plate in the shape of the wiring. Reinstall transition plate with one bolt, and run wire from outside grain tank through transition plate notch and follow factory-wiring harness up to wire junction of actuator and limit switch wire. Strip wire from cab and connect black wire from cab to black wire going to actuator. Red wire from cab connects to the other wire going to lower limit switch. Adjust wire from cab at transition so



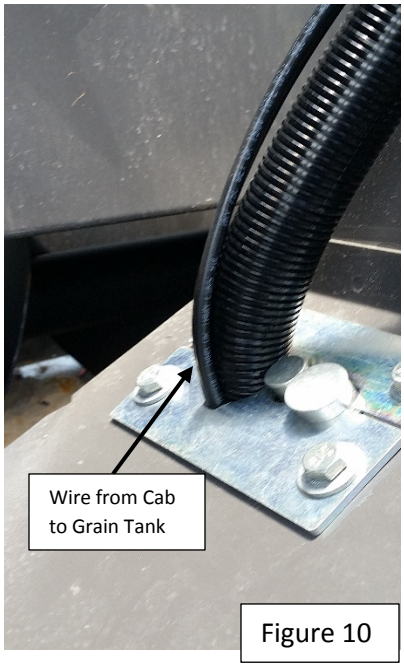


Figure 10

that wire in grain tank is comfortable. Finish reinstalling lower transition plate with blanks and bolts.

11. Figure #11, Install raise and lower switch on right rear cab pillar, next to operator console and just below latch for right side cab window. Lower operator seat/console and hold switch next to pillar, position switch so that window latch handle will clear wiring harness on switch, mark screw hole locations and drill marked locations with 1/8" drill. Mount switch using self-tapping screws supplied. Route wire from grain tank into cab through right side cab window opening, figure #12, with enough wire to connect to front switch wire. Strip wires and connect using switch couplers. Cut off a piece of wire that will reach from rear switch wire to inverter output wire. Figure #13.

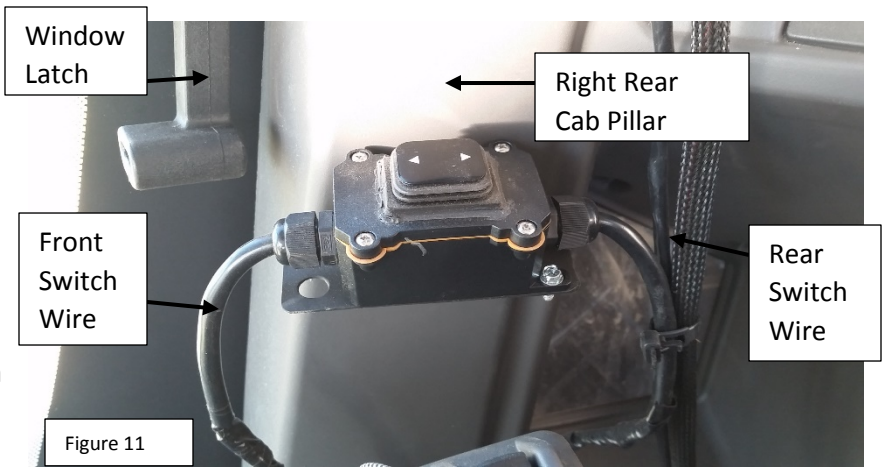


Figure 11

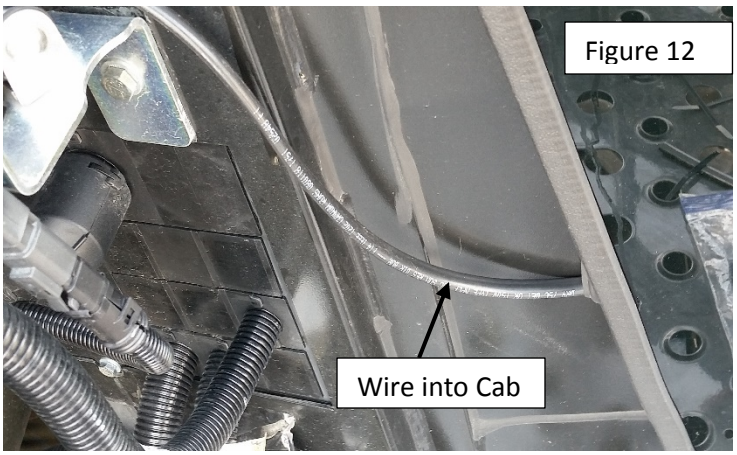
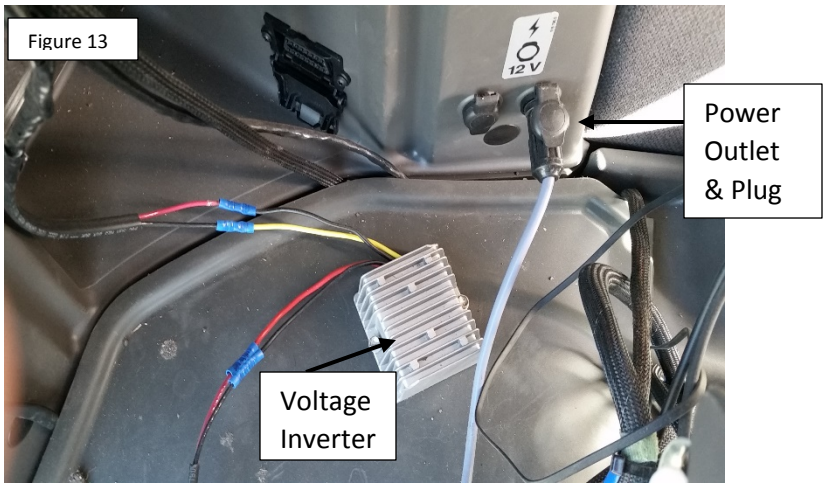


Figure 12

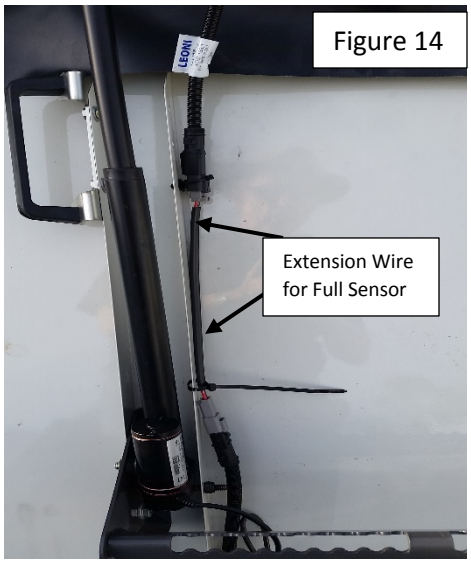


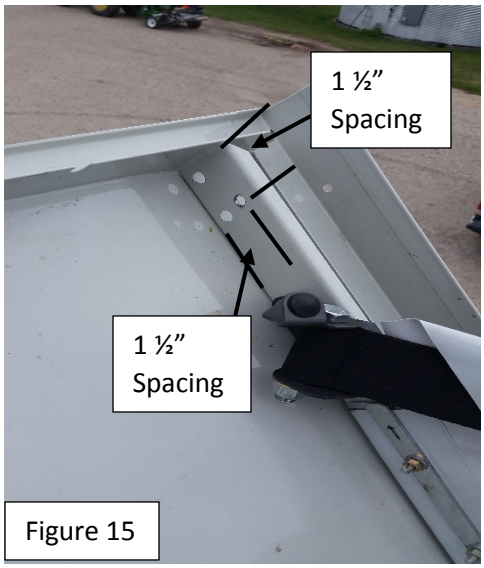
(Inverter is added to speed up Actuator operation by increasing voltage from 12v to 24v. Actuators will work fine without Inverter, just slower) Strip wire and connect to switch and Inverter using switch couplers and blue butt connecter. Note that Inverter output wires are black (+) to red and yellow (-) to black. Cut wire to run from power outlet plug to inverter input wires. If wire has not been connected to plug, unscrew plug cover, strip wire so that red is the longer wire and connects to center terminal and black wire is shorter and connects to outer terminal. Connect the other end of wire to inverter input wires, (black to black, red to red) using blue butt connectors.

12. Insert plug into power outlet and turn combine ignition key to run but do not start, this should give power to plug that powers extension kit. Operate cab PHT switch up and down, if both actuators respond as expected, continue to step 13. If actuators do not respond, check to see if there is power to the circuit starting at plug. If there is no power at plug, check the fuse for the power outlet circuit. If power is found at plug, try switch again, if still no actuator response, check each butt connector on the red wire for power using a probe voltage tester until lack of power is found.
If fuse blows when switch is in operation, try a 20-amp fuse. If 20-amp fuse blows then there could be a faulty inverter, bypass inverter by wiring directly from plug to switch. If actuators respond without blowing the fuse, then we know the inverter is faulty.

13. When actuators are responding as expected, raise PHT frames to ¾-raised position but not fully raised. Heat shrink-wiring connections in grain and secure any lose wiring with zip ties, pay particular attention to

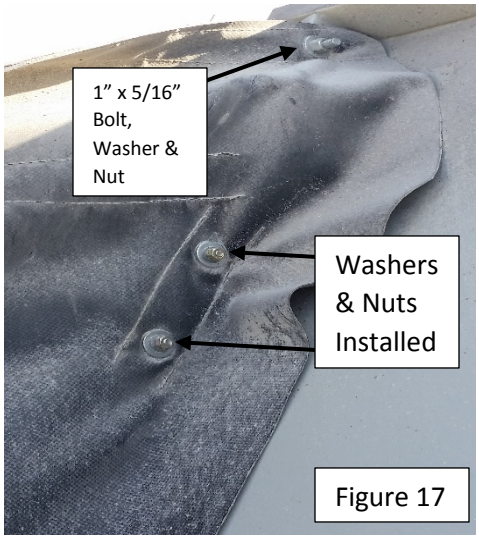
small actuator wire, that extra wire is secure. Connect wiring extensions to tank full sensors, figure #14 and secure wire with zip ties.

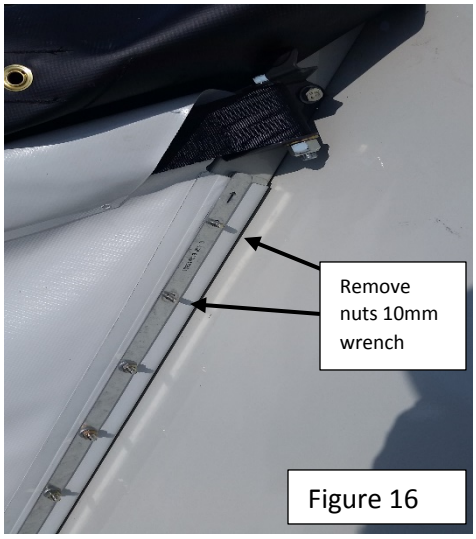




14. Match grommets in vinyl panel to PHT frame as seen in figure #3 and bolt to frame using 1" x 5/16" bolts, washers inside and outside and nut on the Inside then tighten.

15. Figure #15, Mark location for hole to mount top end of vinyl panel. Measure down from inside metal edge 1 1/2" (38mm) and 1 1/2" (38mm) up from sheet metal, mark location and center punch, drill location using 11/32" drill bit. Figure #16, Remove nuts from top 2 bolts locations (10mm nuts) below outer factory strap mount and match grommets in vinyl to these bolts and install washers and nuts. Figure #17 Install 1" x 5/16" bolt, washers inside and outside with nut inside in top end vinyl mounting location. **Double check tightness of all PHT hardware locations, except for actuator mounting hardware, make sure these have locknuts and that locknuts are all the way the threads but not all the way tight their mounting locations**





16. Operate actuators all the way up, there should be some tension on the vinyl corners when fully raised. Then operate up and down few more time to check for smooth operation then leave in lowered position. When PHT extensions are in the lowered position, the upper limit switch should be tripped, supplying power to the factory fold circuit. Start combine and start lowering factory grain tank covers. If factory grain tank covers do not close, then there is an issue with the upper limit switch. 1. The switch arm is not making enough contact with PHT frame. Solution, adjust switch angle and length for more contact. 2. Wire connections in switch have come loose. Solution, reconnect wires to upper set of wire terminals (closest to switch arms), tighten screws, 3. Faulty switch. Solution, replace with spare switch. If factory grain tank covers partially close then stop, it is likely the upper limit switch needs to be adjusted so it has more contact with PHT frame.

17. When factory grain tank covers are operational, continue to close covers while looking through cab rear window into grain tank to ensure smooth operation of covers. Clearance between front actuator and grain tank fountain auger will be close as covers are closing, so keep an eye on that. Be ready to stop grain tank closure, if the process does not look or sound right.

18. The prototype operator observed that the grain tank tended to fill heavier to the front and left side of grain tank. Though not proven, I think that cutting back the extended lip on the top part of the grain tank fountain auger tube would allow for more even filling of grain tank.

Tips: If PHT frames are raised and one of the side vinyl sections are found to be floppy, the end bracket on PHT frame can be bent out to take out the slack.

If for some reason the actuators fail to operate after having been operational and power is verified at cab switch and wiring is in place as installed, the next likely place for malfunction is the lower limit switch. Remove switch cover, disconnect wires and twist wires together/wire nut. This should restore power to actuators if everything else is ok.

After harvest is complete and combine will be stored for extended period, clean out grain tank and set mice bait around combine. The most common reason for extension vinyl replacement is holes caused by mice.

For further installation help call (Gilles) at (765) 348-9201