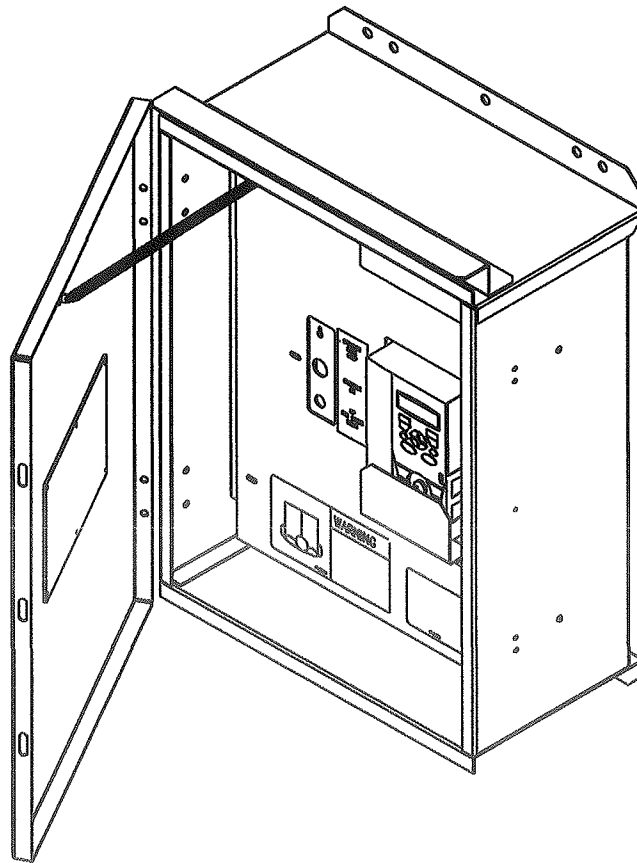




INSTRUCTIONS
for
653K-001A
V/F Drive Conversion Kit
for
Controlled Flow Grain Spreader



Converts MVX9000 Drive to ABB ACS150 Drive

INTRODUCTION

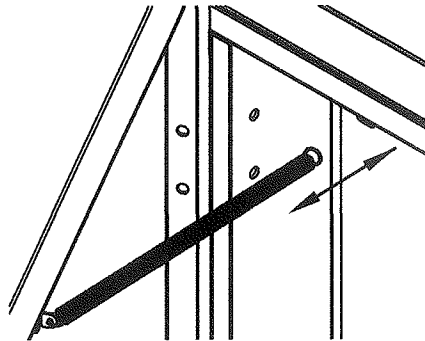
This kit is used to replace an Eaton Cutler-Hammer MVX9000 frequency drive, which became obsolete in 2013, with an ABB ACS150 frequency drive. If you have an Eaton Cutler-Hammer AF91 frequency drive, it is easiest to just replace the entire 653F-001A control box.

INSTRUCTIONS FOR REPLACING DRIVE

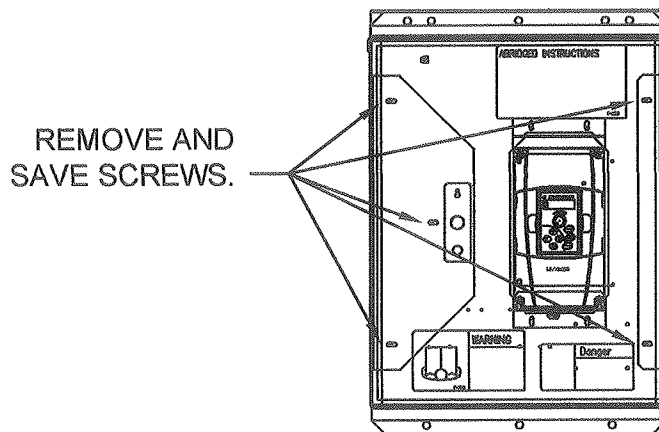


Disconnect and lock out all power before changing wiring. Wait at least 5 minutes after locking out incoming power before opening access to terminals. Otherwise there is the danger of electric shock.

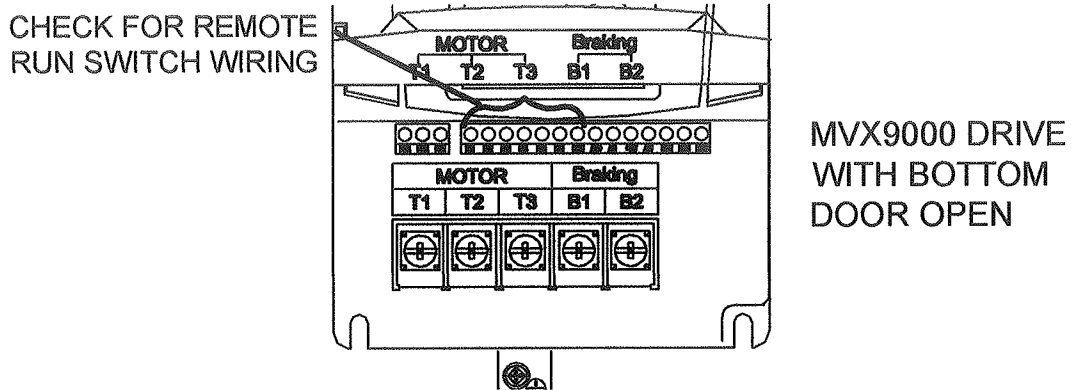
Step 1. Open Spreader Control Box and unhook spring from Front Panel Plate.



Step 2. Take out 5 screws to remove the Front Panel Plate. This panel will not be reused, but the screws will be.



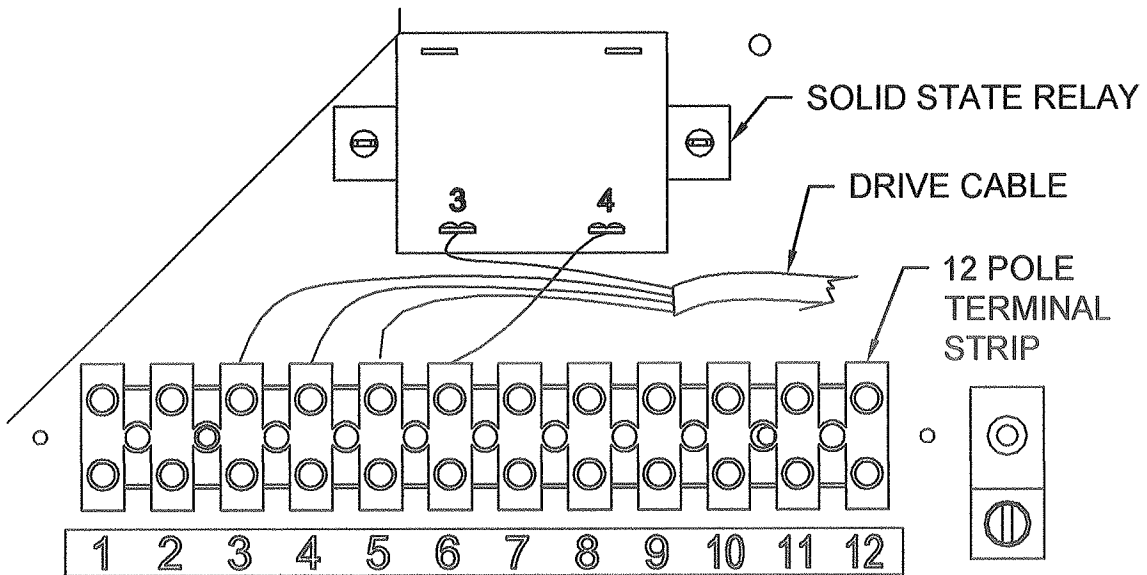
Step 3. Open the bottom door of the MVX9000 drive and see if there is a remote run switch wired between drive terminals D11 and COM. If there is, label and remove the wires.



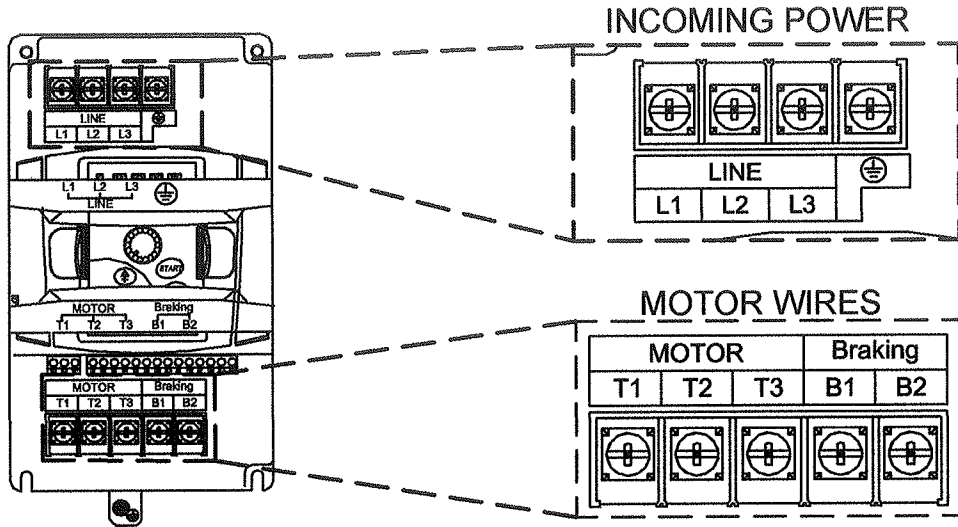
Step 4. Remove the drive cable 4 wires from the 12 pole terminal strip and the solid state relay.

- Orange/White from Terminal 5
- White/Blue from Terminal 4
- Blue/White from Terminal 3
- White/Orange from Solid State Relay Pin #3.

Keep the other small wires in the 12 pole terminal strip.



Step 5. Open the top door of the MVX9000 drive to locate the incoming power wires. Label and remove incoming power (top), and motor (bottom), wires attached to MVX9000 drive. Incoming power labels should be L1, L2 (if used), L3, and Ground. (There may be more than one wire under some terminals, just keep them together). Motor wires should be labeled T1, T2, T3 and possibly Ground.

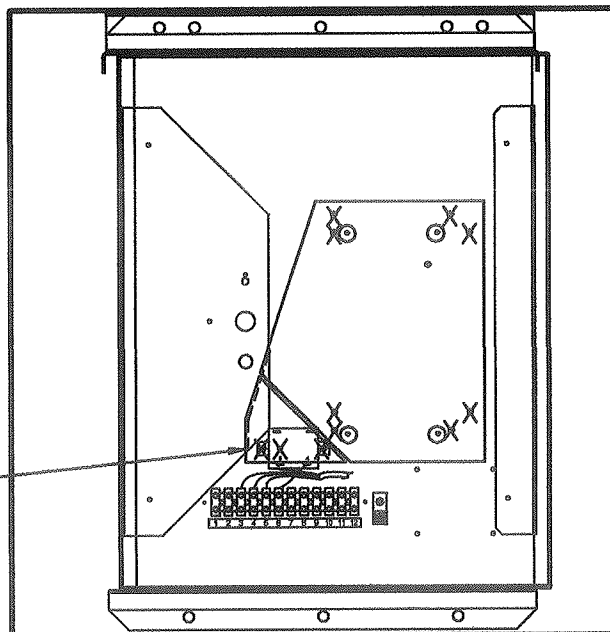


Step 6. Remove the (4) screws that hold the MVX9000 Drive in the panel. These screws will be used to hold the drilling template in place. The MVX9000 drive and the drive cable can now be removed from the panel.

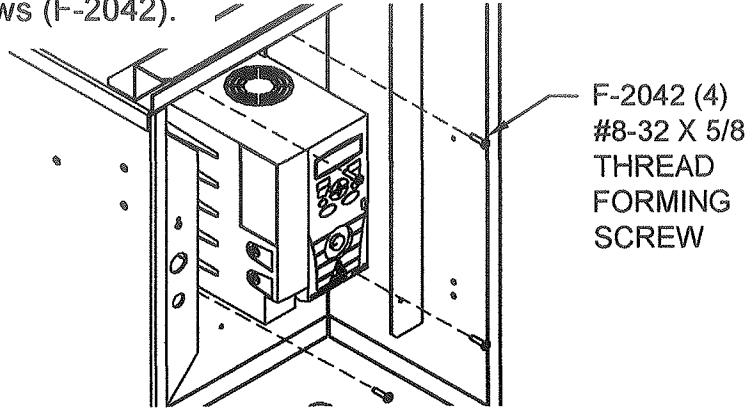
Step 7. Bend up the lower left hand corner of the template to clear the solid state relay. Put a couple screws removed from the MVX9000 mounting into the drill template to locate and drill new mounting holes. Drill 4 holes at 7/64", then enlarge the holes to 9/64".

- X EXISTING HOLES
- ⊙ NEW HOLES
- HOLE NOT REQUIRED

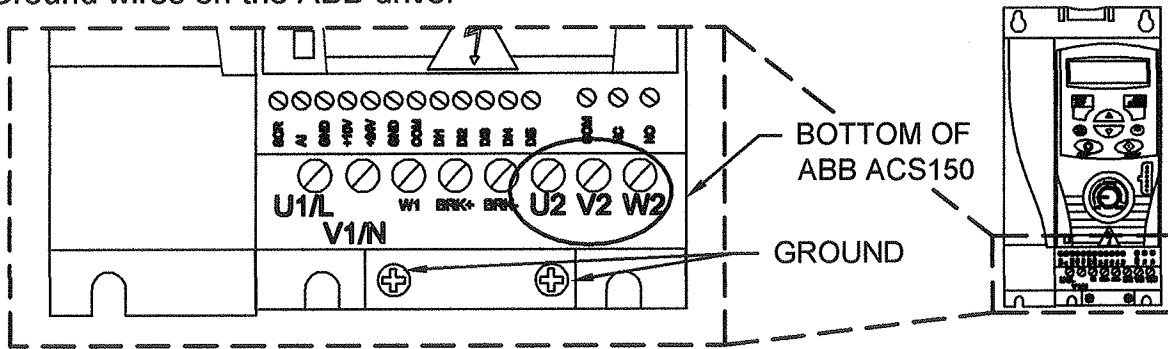
BEND CORNER UP



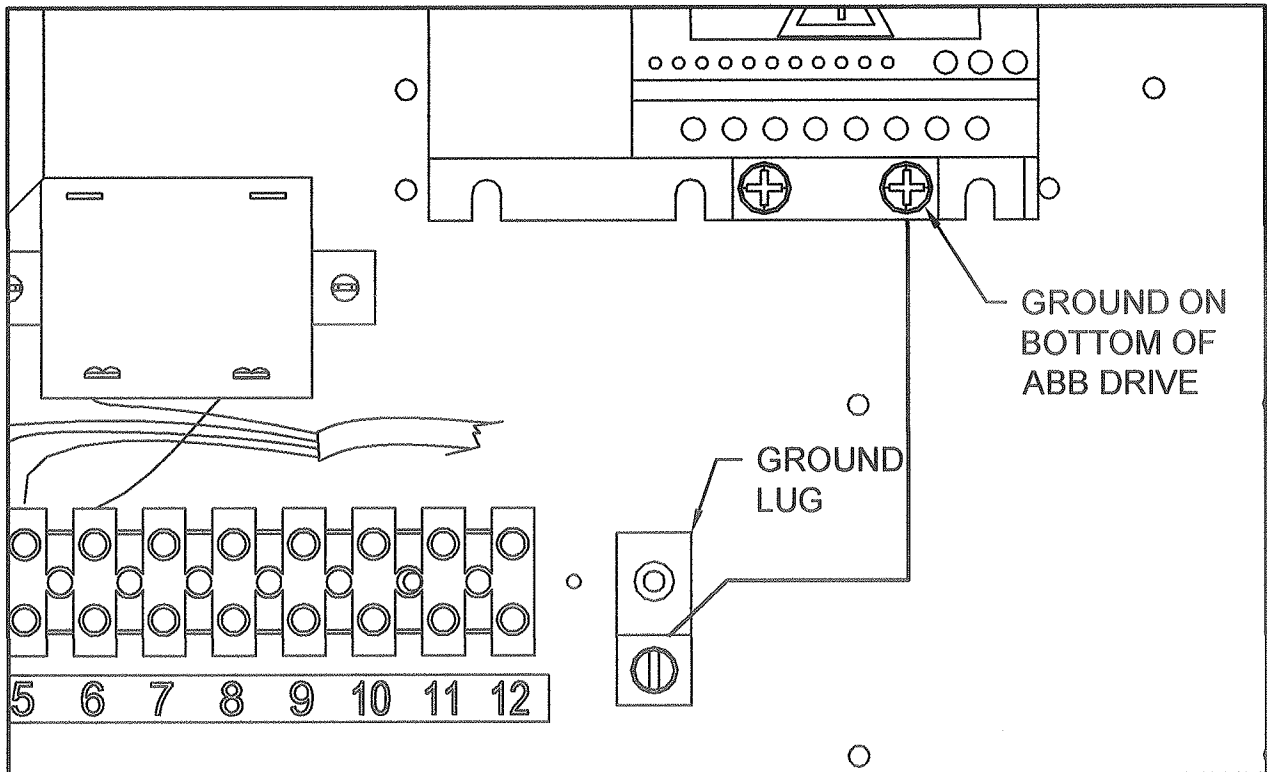
Step 8. Mount the pre-programmed ABB ACS150 V/F Drive (653-255A) using (4) #8-32 X 5/8" thread forming screws (F-2042).



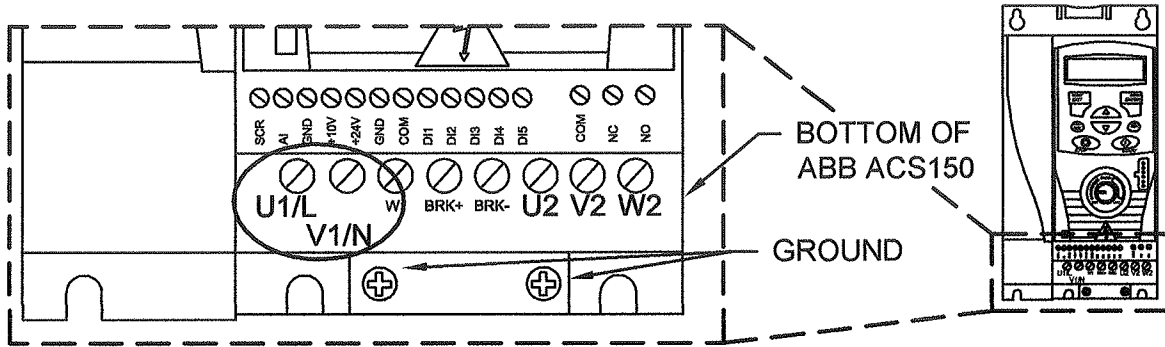
Step 9. Re-connect the motor wires T1 to U2, T2 to V2, and T3 to W2, and any Ground wires on the ABB drive.



Step 10. Make sure the drive is grounded.

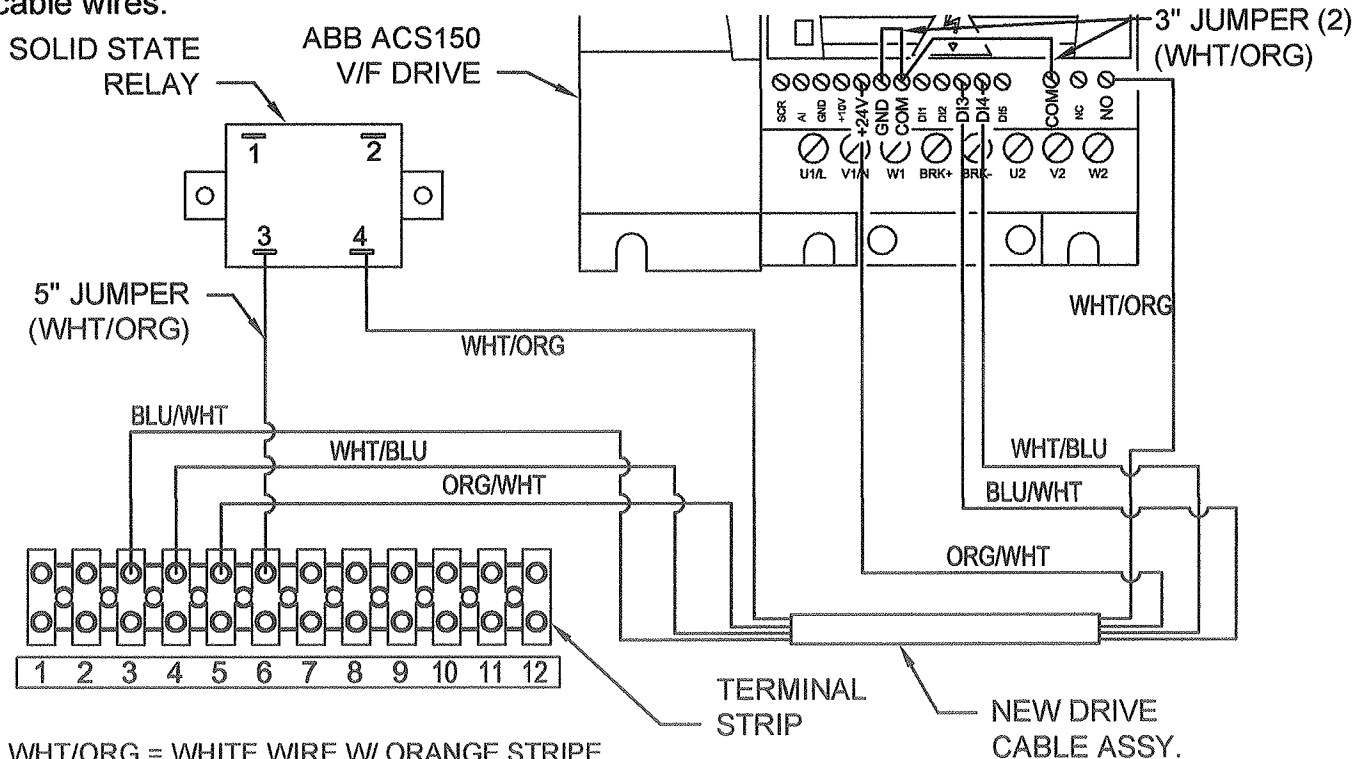


Step 11. Re-connect the incoming power wires. The ABB drive uses just 2 incoming power wires. Wires should be at least 12 AWG (10 AWG is recommended). If your drive had 3 incoming power wires, one will not be used. (Do not use the wild leg.) Cap off (insulate) unused wire (if any). Connect one incoming power wire to terminal U1/L on the ABB drive. Connect another incoming power wire to terminal V1/N on the ABB drive. There may be more than one wire under one or two of the screws. Just keep them together like they were on the MVX9000 drive.



Step 12. Remove the white/orange wire from pin #4 of the solid state relay and put it on pin #3 of the solid state relay.

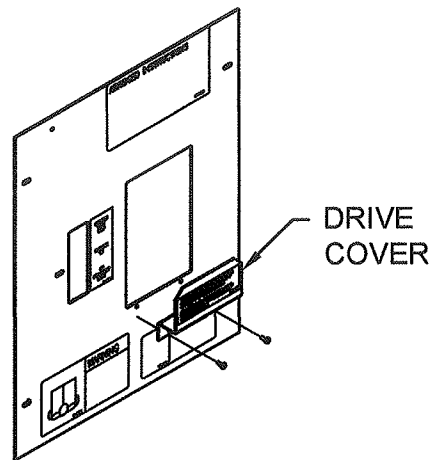
Step 13. The new drive cable assembly (653-135A) is prewired to the ABB drive. Verify the connections on the drive, then connect the other end to the 12 pole terminal strip as shown below. Note that there will be other wires in with the drive cable wires.



WHT/ORG = WHITE WIRE W/ ORANGE STRIPE
 ORG/WHT = ORANGE WIRE W/ WHITE STRIPE
 BLU/WHT = BLUE WIRE W/ WHITE STRIPE
 WHT/BLU = WHITE WIRE W/ BLUE STRIPE

Step 14. If a remote run switch was connected to the old drive, see appendix for connecting remote run switch wires.

Step 15. Place the new Front Panel Plate in the box and secure it with (5) #8 X 3/8" sheet metal screws removed earlier. The screws holding the drive cover can be loosened to allow the drive cover to be adjusted. The drive cover should be adjusted so that access to the high voltage wiring is blocked.



Step 16. Re-connect spring from the outer door to the Front Panel Plate.

Step 17. Apply power to the spreader control box. The display should come on and show "0%". It will also show REM, OUTPUT, and FWD will be flashing. The display is programmed to show percentage of speed, from 0 to 100%.

CRITICAL STEP

Rotating spreader pan backwards has the potential to force the V-belts off the idler!! Start unit only momentarily while checking for proper spreader pan rotation. After proper rotation is ascertained, run spreader for 2-3 minutes and then visually check that all V-belts are still properly installed.

Step 18. Position someone at the top of the bin to observe the spreader pan rotation. When looking down on the spreader from above, rotation should be clockwise. IF ROTATION IS NOT CORRECT, BELTS MAY BECOME MISALIGNED AND COME OFF! Press the start switch on the drive and then press the stop switch to momentarily start and stop the spreader while checking for spreader rotation. The "FWD" indicator light should come on solid. (The display should ramp up to the last set speed. If it stays at 0%, toggle the pan speed up switch. Press the stop switch on the drive and the speed will ramp down to 0%.) Check for proper rotation. If pan rotation is not correct, power the drive down, lock out power, wait at least 5 minutes, then exchange any two wires going to the spreader pan motor.

Step 19. Once the rotation is OK, make sure the speed will increase and decrease with the toggle switch.

Step 20. Check for diverter operation. If the diverter motor switch is ON at the switch box, the diverter ON light should come on and the diverter will slowly rotate whenever the spreader pan is running at a speed above 0%. Make sure that shutting the diverter switch off at the switch box causes the light to go off, and that the diverter stops rotating.

Step 21. If there are any problems, recheck wiring against the schematic in P-12676 installation manual.

Step 22. A small screwdriver (H-2685) is shipped with each ABB drive. It is required should maintenance be needed on the ABB low voltage terminals. The screwdriver has a straight tip, 0.090"-0.100" wide. Store the screwdriver inside the control box.

Step 23. See P-12999 Operating Instructions Manual for more details.

ELECTRICAL APPENDIX

REMOTE RUN SWITCH OPTIONS FOR ABB ACS150 DRIVE

OPTION #1.

Single pole on/off remote run switch. (2 wires)

With this option, if drive loses incoming power, the drive will start back up when power is restarted. The START & STOP buttons on the drive are disabled. If they are pressed, display will show A5011.

Change drive parameter 1001 from 8 to 1.

Power up drive

PRESS

MENU/ENTER

Up Arrow until PAr

MENU/ENTER

Up Arrow until -10-

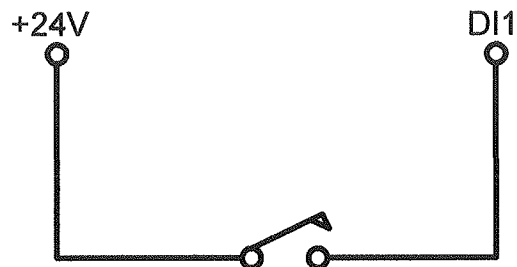
MENU/ENTER so display shows 1001

Hold MENU/ENTER until 8 SET

Down Arrow until 1

MENU/ENTER (display will show 1001)

RESET/EXIT until OUTPUT 0%



It may be necessary to use a wire nut and a short piece of wire if there is already a wire in the +24V terminal.

OPTION #2.

Momentary start and stop push button switch station for remote control (3 wires).

With this option, if the drive loses incoming power, the drive will not start back up when power is restored. The START & STOP buttons on the drive are disabled. If they are pressed, display will show A5011.

Change drive parameter 1001 from 8 to 3.

Power up drive

PRESS

MENU/ENTER

Up Arrow until PAr

MENU/ENTER

Up Arrow until -10-

MENU/ENTER so display shows 1001

Hold MENU/ENTER until 8 SET

Down Arrow until 3

MENU/ENTER (display will show 1001)

RESET/EXIT until OUTPUT 0%

