Step by step in ZA

rev 3

1. Nomenclature
   a. DVM: Digital Volt Meter
   b. Test Assembly: Plywood mounted combination of shorting plug and break out board
   c. Test Assembly shorting plug: Standard shorting plug mounted on test board, a male connector with all pins, including ground bar, connected to a short cable with a banana plug
   d. Test Assembly male break-out board: PC board with a male connector with test points for all pins except the ground bar and a short cable with a banana plug connected to the ground bar
   e. Blue test cable: A Samtec blue cable, male one end and a female on the other end. A spare 75" long cable can be used or one of the RTD cables that are in place from the Utility board to the Wall board.
   f. Female break-out board: PC board with a female connector with test points for all pins .
   g. HE power cord: The black cable from the computer room to the HE. Ends in a circular plastic connector on the HE. (Carries split 240 Volts to the HE).

2. Continuity check
   a. HE Power off
   b. Get grounded, wrist straps for everyone in the lift
   c. Get grounded, ground lift with extension cord to plug for on-lift power outlet
   d. Disconnect power cord at HE
   e. Wait > 3 minutes
   f. Verify that N shorting plug is in place on J78
   g. If there is a male connector plugged into the female break-out board, remove it at this time
   h. Install the female break-out board on J29
   i. Connect negative lead of DVM to N shorting plug ground with red banana plug jumper
   j. Measure and record resistance of all 52 test points. Measuring to the nearest Ohm is sufficient.
   k. Remove the female break-out board
   l. Before proceeding confer with Ohio to determine if N is to be reconnected or not.

3. Output source safety check
   a. The purpose of the safety check is to insure that none of the output sources are shorted to ground. This check should be done, before power is applied, any time there is a cabling change to one of the CCDs. This does include unplugging and re-connecting a Blue Cable between the HE and the Wall Board.
   b. Get grounded, wrist straps for everyone in the lift
   c. Get grounded, ground lift with extension cord to plug for on-lift power outlet
   d. Verify
      i. HE power off > 3 minutes
      ii. HE Power cord disconnected,
      iii. Shorting plug on J78
   e. Connect the female end of the original blue cable from HE, labeled N, to J29.
   f. Connect black banana plugs from test -assemble-shorting -plug and test-assembly-break-out-board to negative of DVM.
   g. Connect the red banana jumper from negative of DVM to N shorting plug
   h. Connect a test probe to the positive terminal of the DVM
   i. Set the DVM for Auto-Ranging Ohms.
   j. Connect the female end of the blue test cable to the test assembly shorting plug.
   k. Remove the shorting plug from J78 and immediately connect the male end of the blue test cable to J78. Note that this is equivalent to removing one shorting plug and installing another and is safe because the CCD is connected to the CBB while the change is made.
   l. Move the female end of the blue test cable from the test assembly shorting plug to the test assembly breakout board
   m. Measure and record the resistance to ground of the eight output source connections. The correct test points on the test-assembly-breakout-board are marked with red. All output sources should measure between 1,200 Ohms and 1,400 Ohms (1.2kÙ and 1.4kÙ).
   n. Assuming the results are the same as found in the previous attempt, remove the stack of banana plugs from the negative of the DVM, insert a test probe in the negative input to the DVM, measure the resistance between the two output surces that have the low resistance to ground, remove the second probe , restore the stack of banana plugs to the negative terminal of the DVM , proceed with the following steps.
   o. Move the female end of the blue test cable from the test-assembly-breakout-board to the test-assembly-shorting-plug.
   p. Remove the blue test cable from J78 and immediately install the shorting plug.
   q. Do NOT restore power to the HE (Power should NEVER be on with a CCD connected to the CBB and the shorting plug in place.)
   r. Confer with Ohio about the next step