



Argus Technologies

Pathfinder10kW to Cordex3.6kW Shelf Replacement Procedure

Summary

This is a general procedure on how to replace Pathfinder 48-10kW shelf with a Cordex 3.6kW shelf.

Part Numbers

- 010-567-20 Cordex 3.6kW Rectifiers
- 591-246-P1 Blank Plates
- 877-176-XX CAN Bus Communication Cables (XX changes depending on length)
- 030-716-20-043 Cordex Shelf 23" flush mount, 3.6kW Dual 3 phase Delta input, O/P Bus Bar Adapter 20" Deep
List Options: 0,2,25,81,83
or
- 030-716-20-047 Cordex Shelf 23" flush mount, 3.6kW Dual 3 phase Wye input, O/P Bus Bar Adapter 20" Deep
List Options: 0,2,25,81,84

Tools/Reference documents Required

- Various hand tools, including insulated tools
- Stubby screwdrivers
- Mounting screws
- Insulating matting and non-conductive clamps
- Tie wraps, wire tags
- Digital multimeter
- Laptop and cross-over Ethernet cable or null modem cable
- Personal safety equipment
- Reference schematic diagrams, Cordex Controller Manuals

Procedure

Note: Before proceeding, all metal jewelries including rings and watches must be removed.

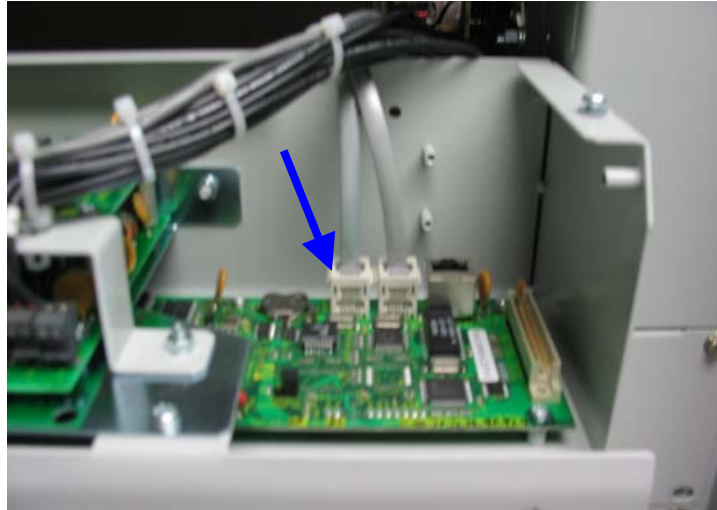
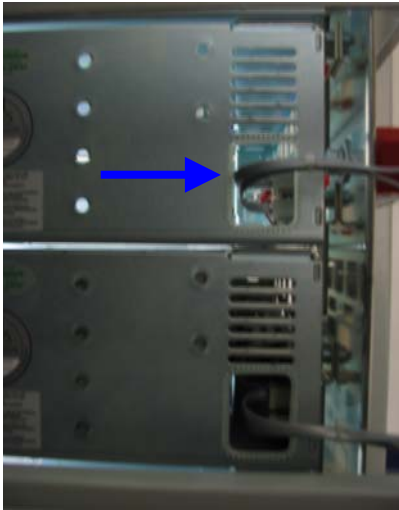
1. Review the power system schematic in the power system manual.

Note: Cordex Controller must be installed and functioning before attempting the Pathfinder 10kW to 3.6kW upgrade (see SM02 to Cordex Controller Replacement Procedure for details).

2. Insulate the metal work with insulating matting where applicable.
3. Determine how many rectifiers are necessary to maintain load. Do not remove rectifiers below this amount. On a live site, only few rectifiers shelves should be swapped at a time. If the site will be shut down during the upgrades or put on battery backup, all the shelves can be swapped at once.

4. Remove communications cable from RS485 out port on the side of the last Pathfinder shelf in the string. Removing the RS485 cable from the Cordex controller can also terminate rectifier communications.

Note: Pathfinder rectifiers will work independently of the controller, maintaining the last settings downloaded from the controller.



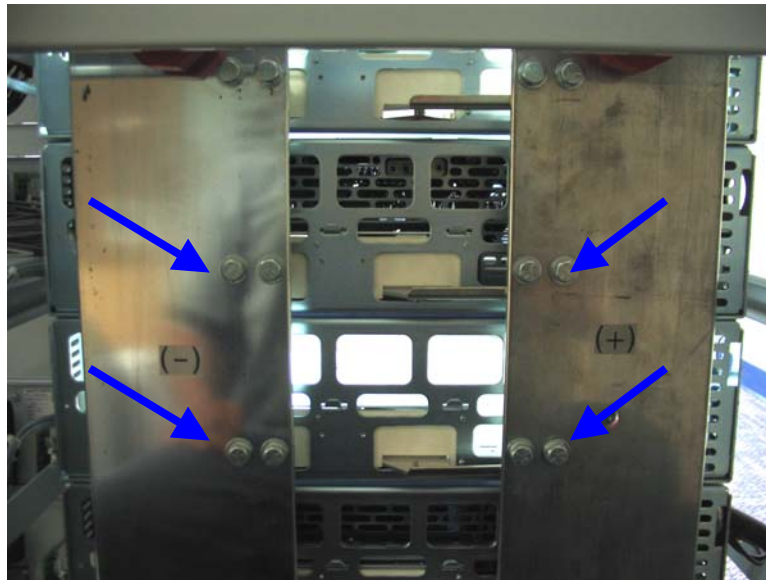
Communication cables disconnect points.

5. Determine which rectifiers are to be removed. Shut off the AC breakers to those rectifiers. Confirm there is no AC to the Pathfinder shelves to be removed.
6. Release the locking screw and pull the Pathfinder 10kW rectifiers from their shelves.



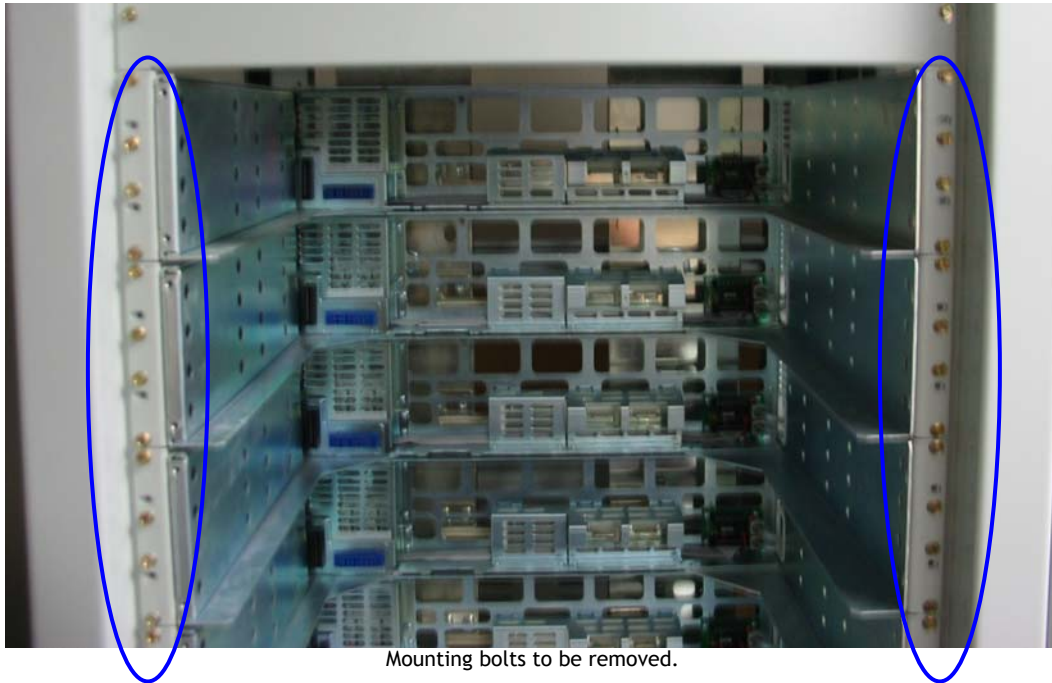
Lock screw locations.

7. Unbolt DC power connections on the back, take off the AC power feeds, and remove communication cables from the Pathfinder shelf.



DC output bar bolts.

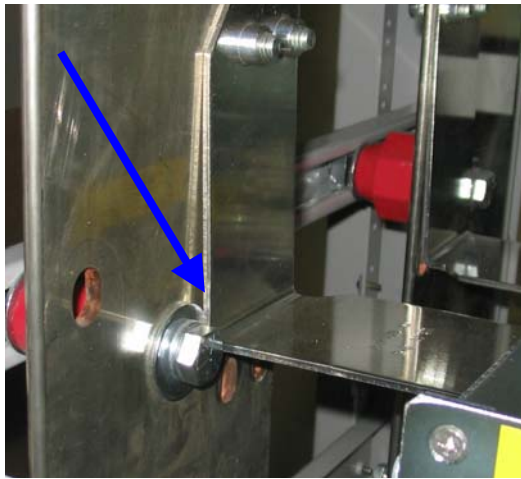
8. Remove the mounting bolts on the front of the shelves and slide out through front of the racks.



Mounting bolts to be removed.

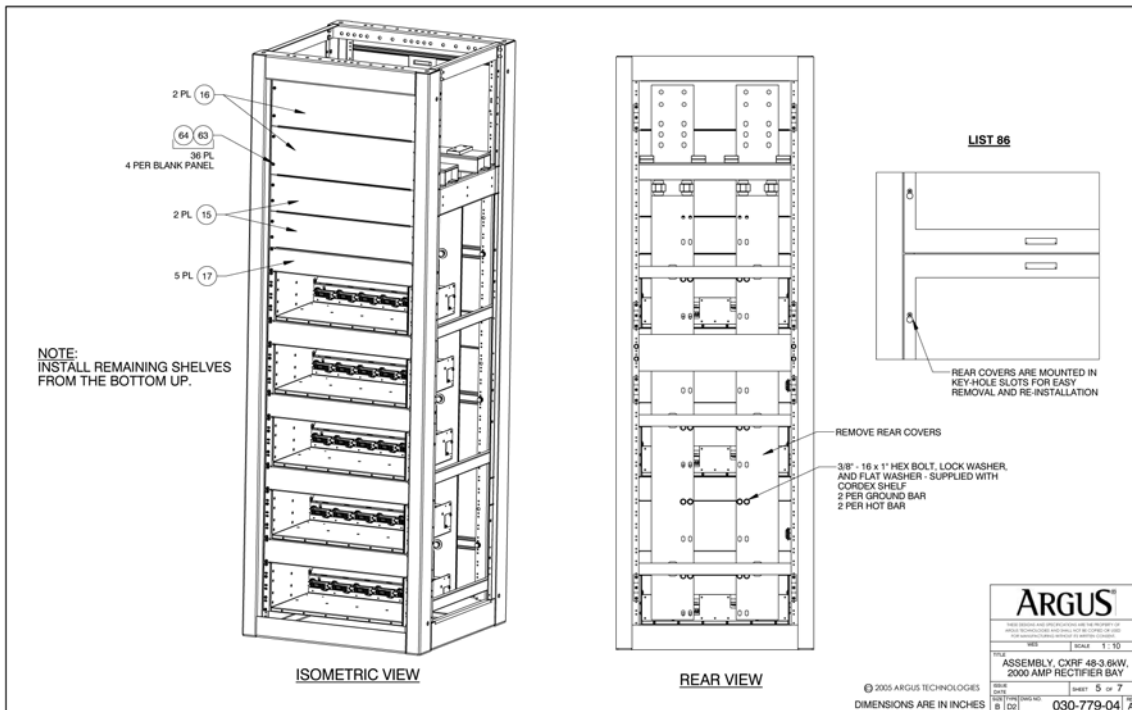
9. Plan spacing for shelf installation. One Cordex 3.6kW shelf and a blank plate will fit into the space of two Pathfinder 10kW shelves. See 030-779-05 for suggested placement.

Note: If the new shelves are positioned incorrectly washers for the DC output bar support bolts will interfere with the mating of the Cordex DC output bars. If this occurs shift the placement of the shelf one position down.



Interference caused by incorrect shelf positioning.

10. Remove the access covers on the pathfinder 3.6kW shelves.
11. Place the Cordex 3.6kW shelves into the rack and install mounting bolts. Keep the mounting bolts loose until the DC output bars are bolted in place. Ensure the DC output brackets and DC bus bars are clean to prevent corrosion.



Recommended configuration for rectifier bay with Cordex shelves.

12. Install bolts on DC output bars then tighten front mounting bolts.

Note: Only 10 of the 11 AC feeds on rectifier the bays will be used on a full Pathfinder to Cordex conversion. If there is enough slack in the existing cables, the Cordex shelves can be wired without installing new AC cable runs. If there is not enough slack in the existing AC cables to wire the Cordex 3.6kW shelf, new cables must be run.

13. Insert two AC feeds into each Cordex 3.6kW shelf. The new Cordex shelves must be 3PH Wye or Delta configuration to match the Pathfinder shelves being replaced.

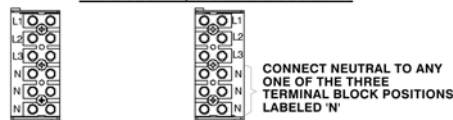
Note: 30A feeder breakers and 10AWG AC cables used for Wye (380/480V) connections on Pathfinder shelves are suitable for Cordex 3.6kW shelves with the Wye input connections. 40A breakers and 8AWG AC cables used for Delta (208V) connections on the Pathfinder shelves must be upgraded to 50A feeder breakers and 6AWG AC cables for use with Cordex 3.6 shelves with Delta input connections.

DETAIL 'A' - AC INPUT OPTIONS:

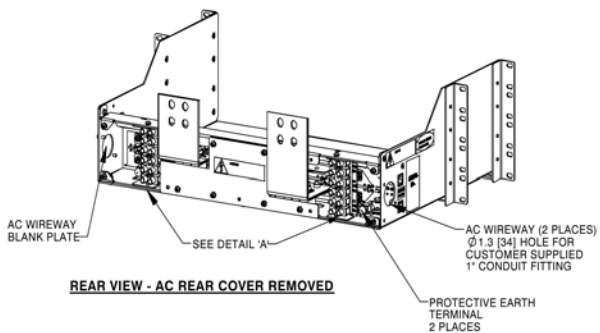
**LIST 83: DUAL 3-PHASE INPUTS, 208 - 240VAC
NO NEUTRAL**



**LIST 84 - DUAL 3-PHASE INPUTS, 360 - 480 VAC,
WYE SOURCE, NEUTRAL REQUIRED**

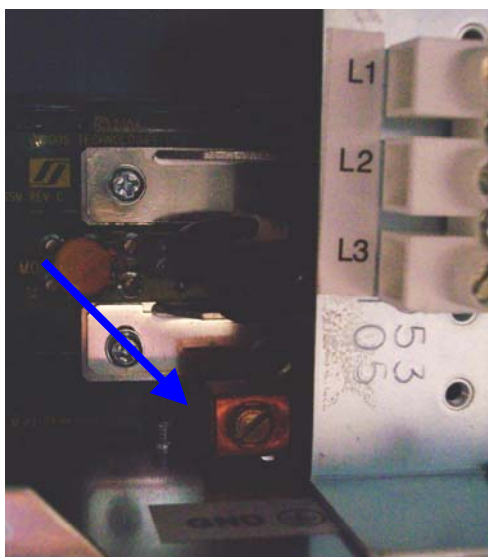


LIST 85 - SINGLE PHASE INPUTS, 208V - 277VAC (NOT USED)



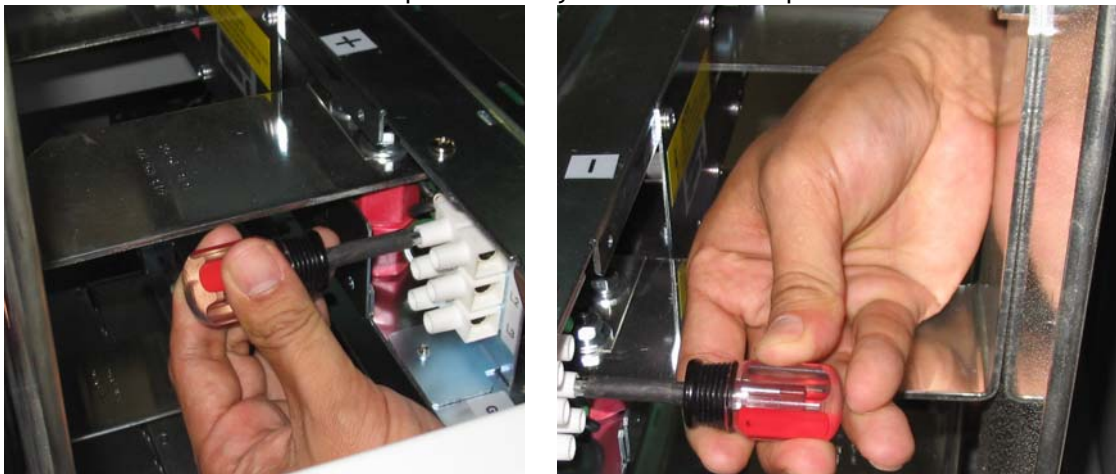
Various list options for the AC inputs on the Cordex 3.6kW shelf.

14. Connect the ground wire first since access to the ground terminal will be restricted once the hot leads are connected.



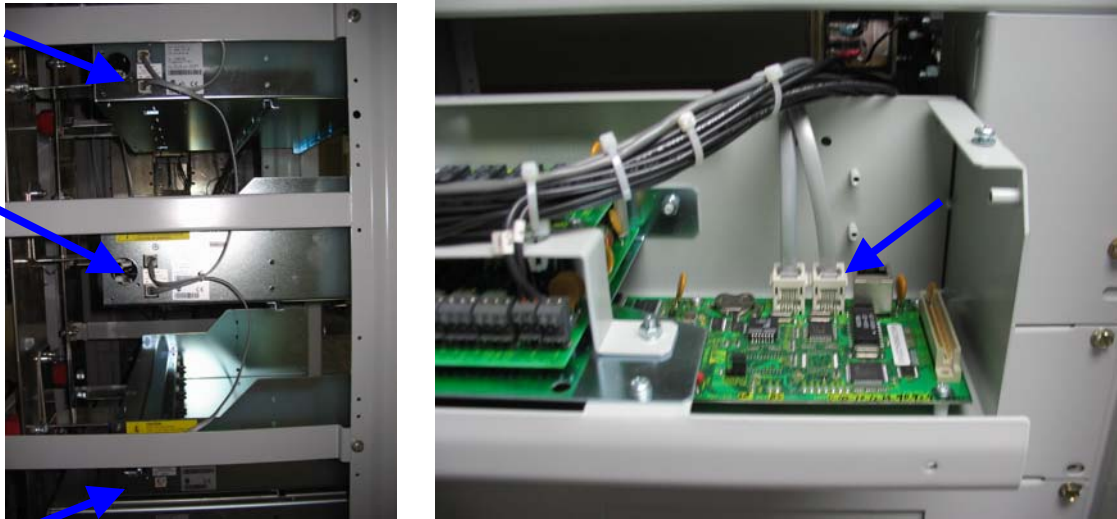
Location of the AC Ground Terminal.

15. Tighten the AC wire terminals. Do to limited space a stubby screwdriver is required.



Sample of the restricted workspace when making AC connections.

16. Insert communication cables into the communication input and output ports accordingly. And connect the output of the last shelf to the CAN bus port on the Cordex Controller.



Communication cable connection points for CAN bus communications.

17. Set the CAN bus termination to enable on the final Cordex shelf of the communication string. All other Cordex shelves should have their CAN bus termination set to disable.



Location of CAN Bus Termination switches.

18. Review shelves for proper connections and installation.

19. Slide one rectifier into a shelf. Verify the Cordex Controller acquires the newly installed rectifier. Once the first rectifier is running properly, install more rectifiers into the shelf. Verify all the rectifiers are working correctly.



Initial single rectifier test.

20. View the rectifier report on the Cordex Controller. Ensure all the rectifiers have been acquired and are load sharing properly.
21. If partial shelf upgrades are being performed on a live site, repeats steps 5 to 19 until all the required shelves are exchanged.
22. Verify the operation of the Cordex 3.6kW rectifiers, and installation of the Cordex shelves. Skip to step 29, if no Pathfinder rectifiers are to be used in the final upgraded power system.
23. Reconnect the RS485 communication cable to the last Pathfinder shelf if this is to be a mixed rectifier system. Perform an inventory update on the controller.
24. View the rectifier report on the Cordex Controller. Ensure all the rectifiers have been acquired and are load sharing properly. If the controller recognizes the Pathfinder rectifiers skip to step 29.
25. Power down one Pathfinder rectifier, which is not recognized by the controller.
26. Release the locking screw and pull the rectifier 4 inches forward.
27. Wait 15 seconds and reinstall the Pathfinder rectifier.
28. Perform an inventory update on the controller. Repeat steps 24 to 28 until all the rectifiers are acquired.
29. Test the system parameters and alarms to confirm system functionality.
30. Install additional blank plates where necessary. Secure any loose cables or wires and install shelf access covers.
31. Remove insulating matting if installed.
32. After all parameters and operation on the system have been verified remove insulating canvasses and reinstall distribution bay rear cover panels.

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