

DMS-100 24VAC to 48VDC Fan Tray Conversion Kit - Installation Guide

INSTALLATION GUIDE FOR DMS-100 NT3X90AA / NT3X90AB 24VAC to 48VDC FAN TRAY CONVERSION KITS PN # TFT-DMS48KIT4

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1. Kit Contents

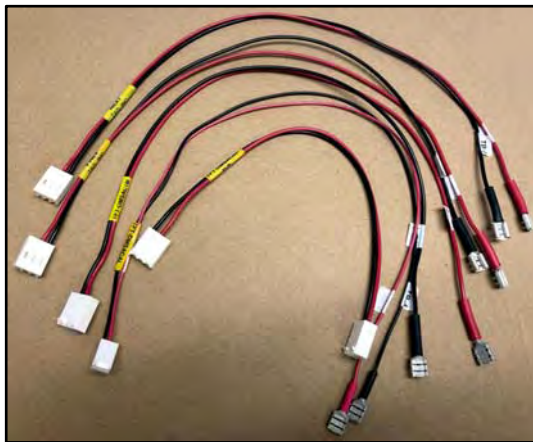
A. BUBBLE PACKAGES (QTY OF 5)

- (1) TF-DMS05P, DMS 48V Fan
- (1) Bag w/ Mounting Hardware



B. BUBBLE PACKAGE (QTY OF 1)

- (1) Fan Control Board w/ built in sensors
- (1) Bag w/ Mounting Hardware & Zip Ties



C. BAG w/ 48V POWER LEADS (QTY OF 1)

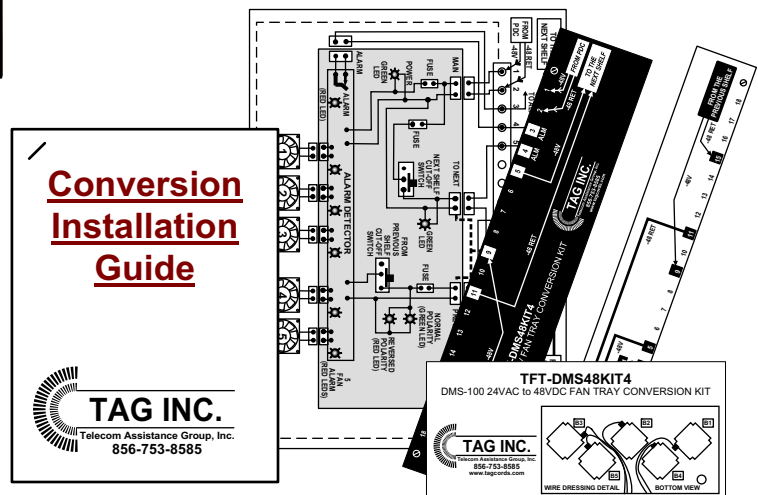
- (1) TFT-DMSAC1M; Main Power "From PDC"
- (1) TFT-DMSAC1N; Power "To Next"
- (1) TFT-DMSAC1P; Power "From Previous"
- (1) TFT-DMSACNP; Jumper Cable ("single unit" option)
- (1) TFT-DMSACAL; Alarm Jumper Cable

D. BAG w/ LABELS (QTY OF 1)

- (1) Fan Numbering Label
- (1) Internal Wiring Block Label
- (1) External Wiring Block Label
- (1) Fan Control Board Schematic Label

E. PRINTED GUIDE (QTY OF 1)

- (1) 590075, Installation Guide



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2. Tools Needed:

- (1) 5/16" Nut Driver
- (1) 1/4" Nut Driver
- (1) Phillips Screwdriver
- (1) Flat Head Screwdriver
- (1) Digital Volt Meter

*The following procedure details removing **OLD 24VAC Fans** & Sensors on a Nortel DMS-100 NT3X90AA / NT3X90AB Fan Unit & replacing them with **NEW 48VDC Fans**.*

3. Identify the first failed 24VAC Fan Tray:

(Note: For typical daisy chain layout, see the following page)

- a. Starting at the NT3X90AB of the daisy chain; use a digital volt meter with AC selection to identify that 24VAC is present on the back of the tray. *(the lugs on 9 & 15, 5 & 11)*
(if no voltage present, you have identified the first failure point of 24VAC power inverter)
- b. Following the 24VAC feed to the next tray; validate that you have 24VAC presence on lugs 9 & 15.
- c. On the same tray use your volt meter to check for 24VAC on lugs 5 & 11.

Continued on next page

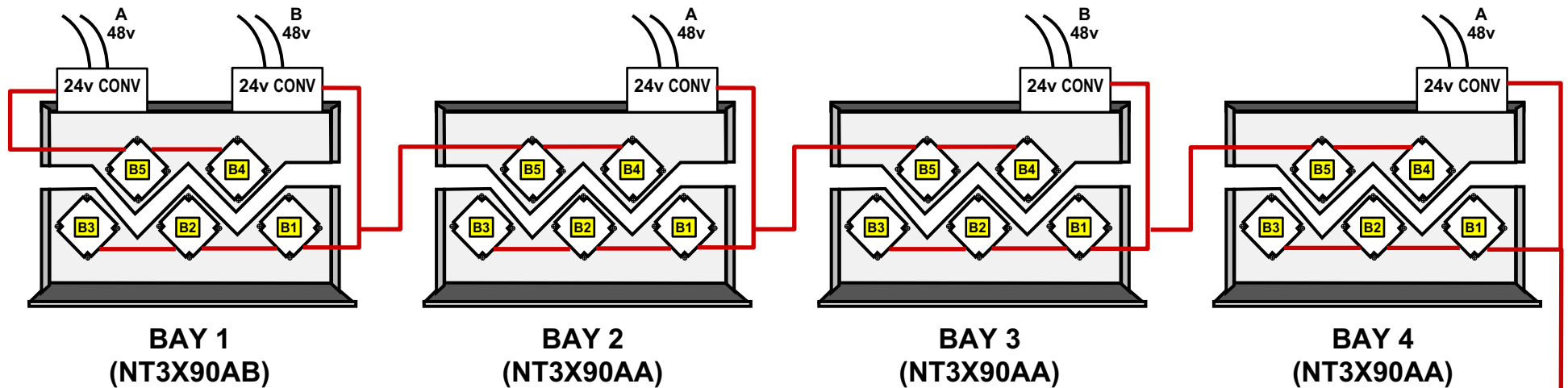
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3. ... Continued from previous page

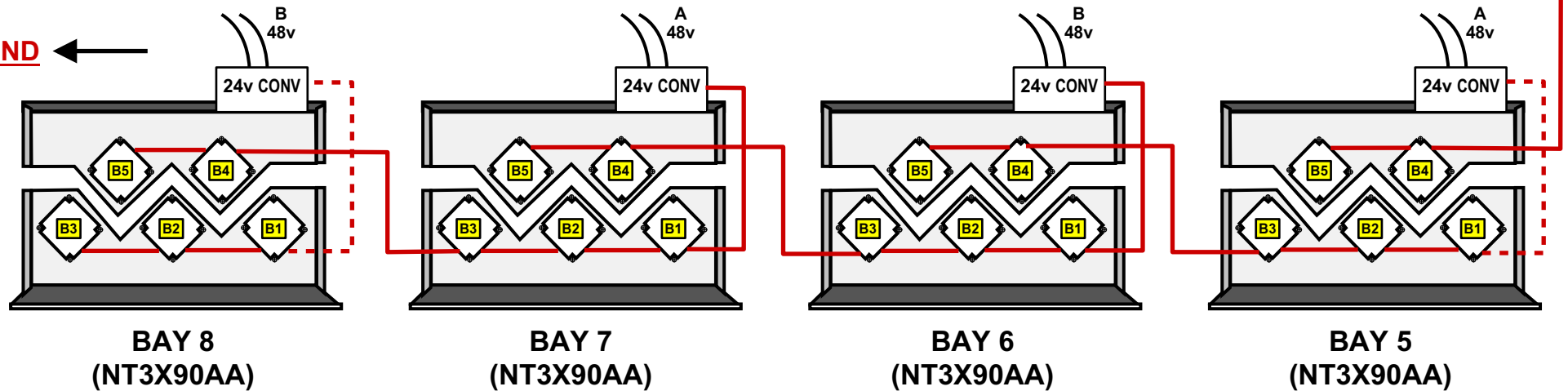
d. Identify which bays need to be replaced. *(if replacing all trays with 48V conversion kits, disregard process for keeping 24VAC string)*

Daisy Chain Configuration - (Trays may not be in consecutive bays)

BEGINNING →



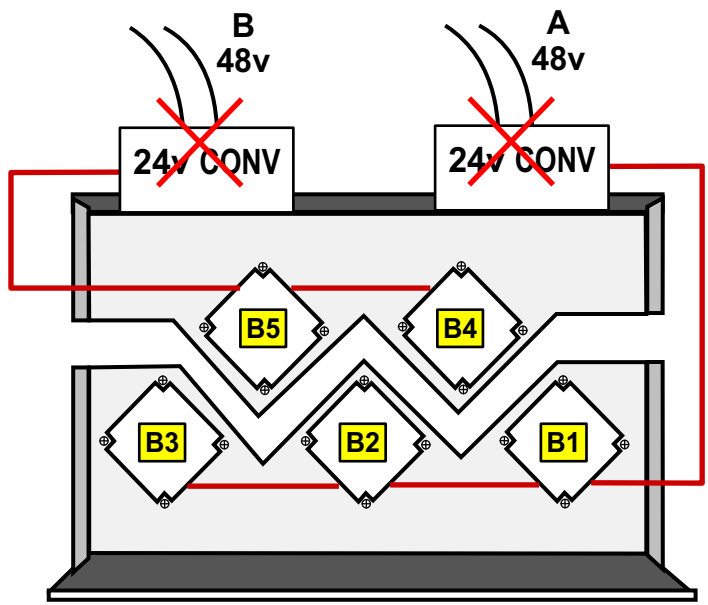
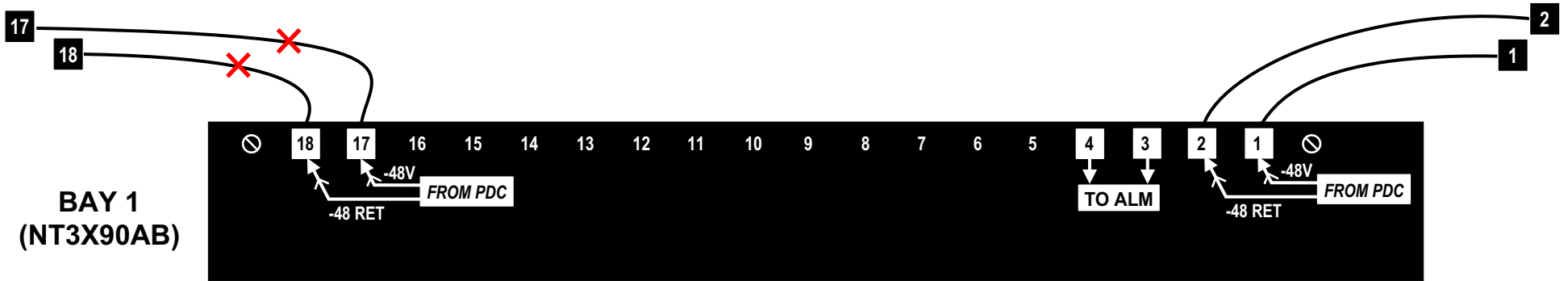
END ←



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4. NT3X90AB Conversion w/ (2) 24VAC Inverters:

Dual feed 48VDC wiring from PDC
- (1,2) remove fuse from PDC.
- (17, 18) remove & leave out fuse from PDC.



REMOVE ALL 24VAC INVERTERS
& REPLACE ALL FANS w/ NEW 48V FANS

BAY 1
(NT3X90AB)

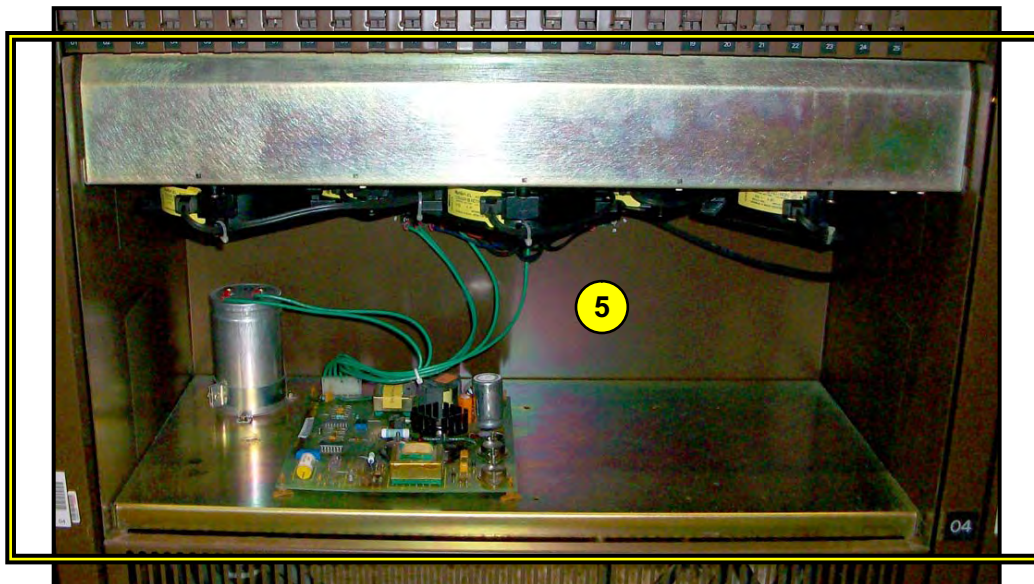
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WARNING HIGH VOLTAGE: Remove any fuses from the PDC before removing any NT3X90AA / NT3X90AB Fan Units that are being converted or bypassed.

- If working on NT3X90AB (first bay), remove & leave out fuse for wires 17 & 18. *(power for these wires will no longer be needed)*
- Remove alarm fuse (fuse # 5) in bay that is being worked on.

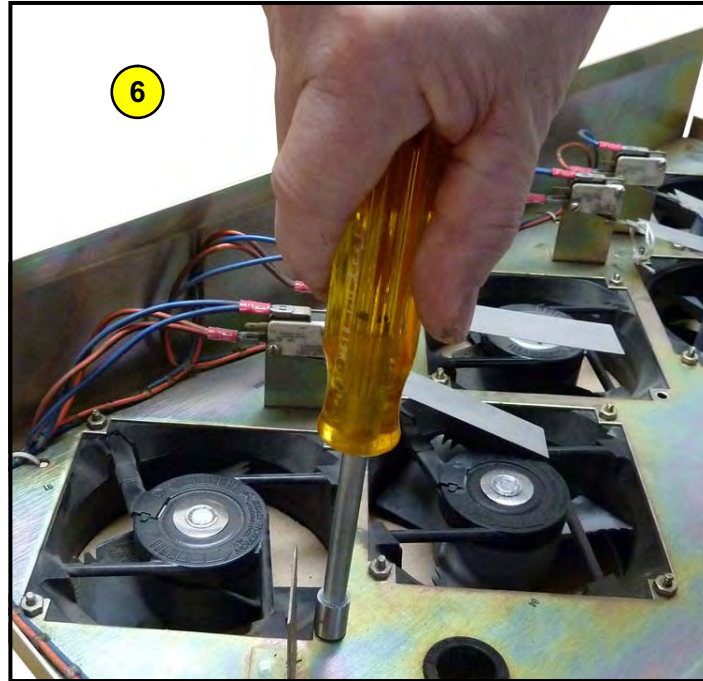
5. Remove the NT3X90AA Fan Unit from the Bay using standard DMS-100 removal procedures.



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6. Remove the (5) OLD 24VAC fans from the Fan Tray:

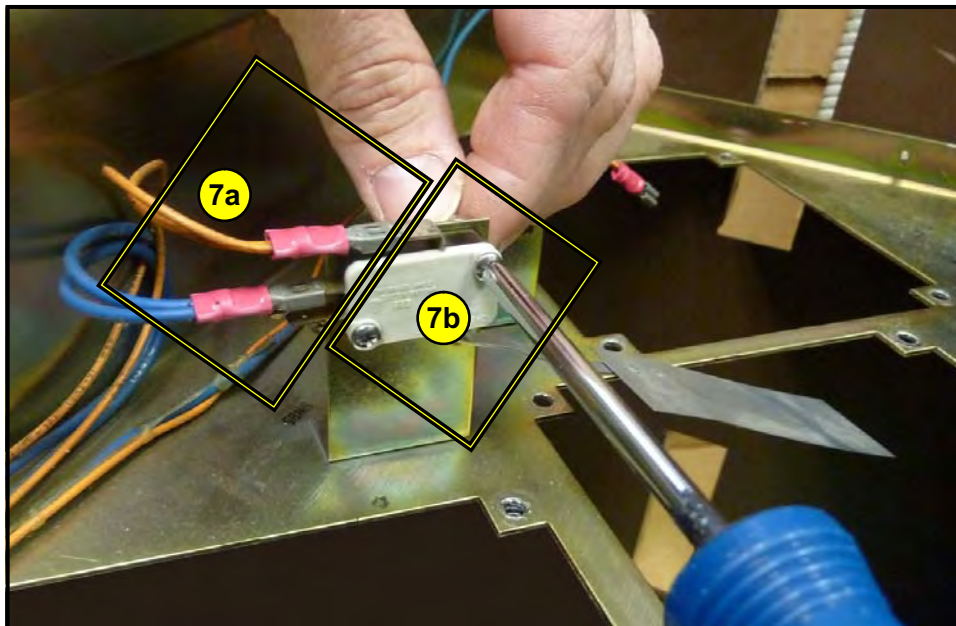
Note: Support the fan from the bottom when removing the hardware to keep it from falling inside the fan unit.



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7. Remove the OLD Sensors from the top of the Fan Tray:

- a. Remove the (2) fastons from the OLD sensor.
- b. Remove the (2) screws & nuts from the OLD sensor as shown.

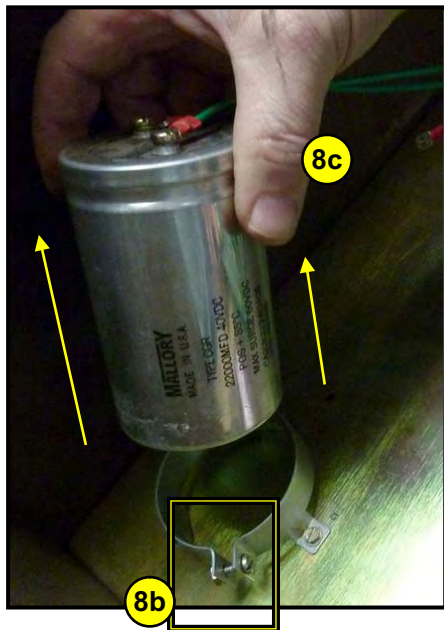
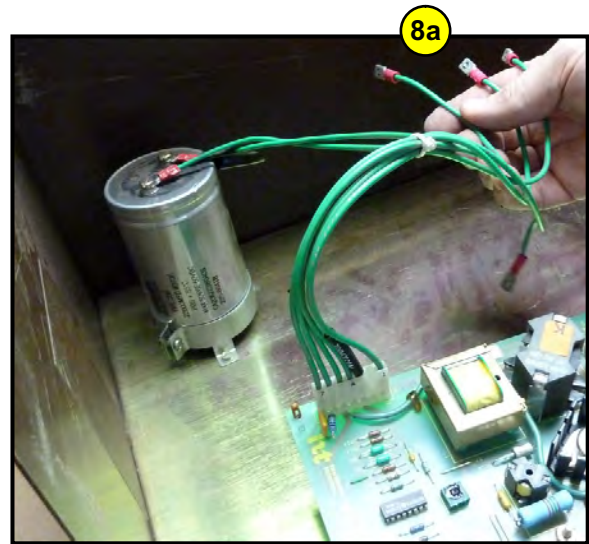


- c. Remove the (2) Alarm fastons connected to Contacts 3 & 4 on terminal block.
- d. Remove entire Paddle sensor wiring harness & discard.

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8. Remove the 24VAC Power Supply Unit:

- a. Detach the fastons (green wires) connecting the power supply & capacitor from the internal wiring block on the DMS-100 fan unit as shown.

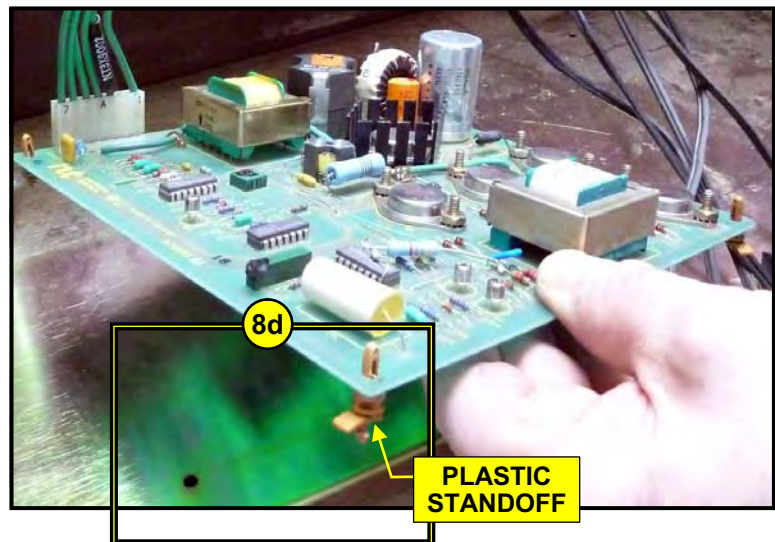


- b. Loosen the screw on the capacitor bracket.

- c. Remove the capacitor from the fan unit. *

* **Caution:** Capacitor may still have voltage present.

- d. Remove the power supply unit (including the (4) plastic standoffs) from the fan tray.



**24VAC POWER SUPPLY UNIT
DETACHED FROM THE
DMS-100 NT3X90AA FAN UNIT**



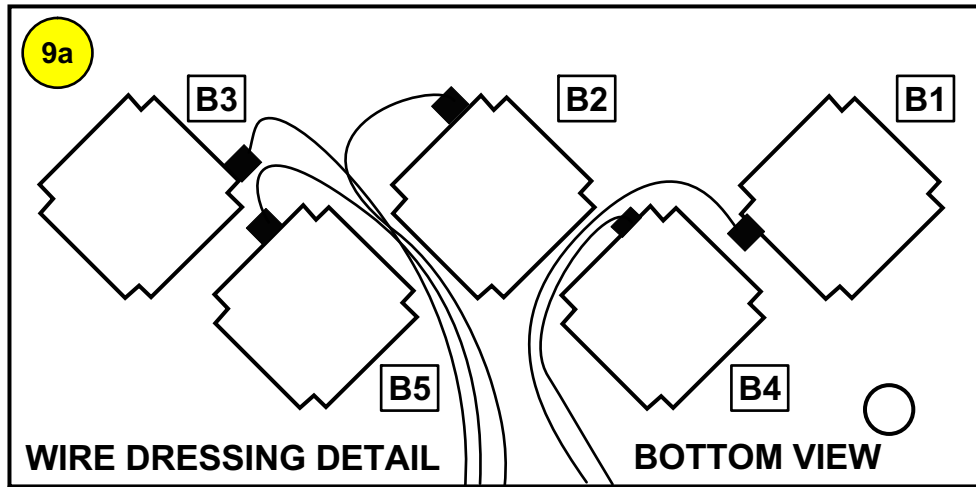
Note: After the power supply unit is fully detached from the fan unit, it is no longer needed.

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9. Install the (5) NEW 48VDC fans (# TF-DMS05P) to the Fan Tray:

- a. Before installing the 48V fans, attach the included Wire Dressing label on the inside back wall (in a visible location) of the fan unit (see page 16(d)).

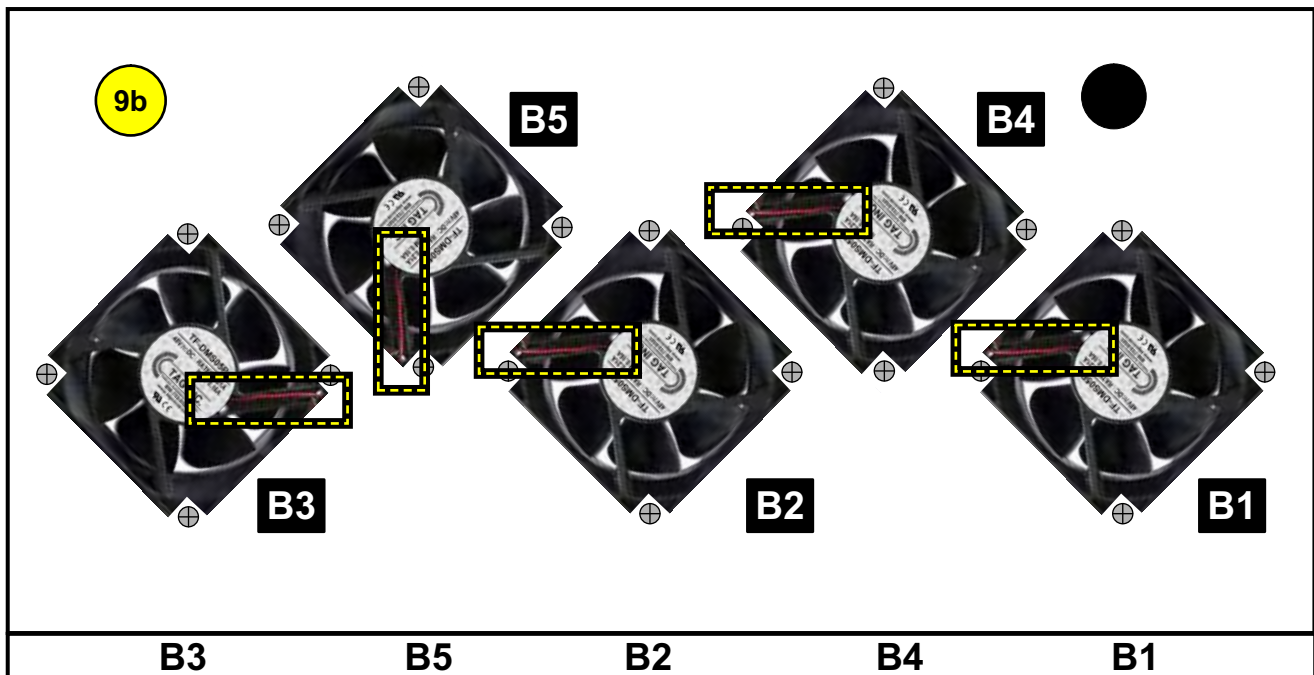
BOTTOM VIEW (INSIDE OF FAN UNIT)
(NOTE ORIENTATION OF THE FAN WIRES)



- b. Attach the fans using the supplied self tapping screws. (Does not require additional hardware) See the diagram below for fan orientation.

Note: The airflow labels on the fans should point up.
(The model # should be visible from the top of the fan unit.)

TOP VIEW (OUTSIDE OF FAN UNIT)
(NOTE ORIENTATION OF THE FANS)

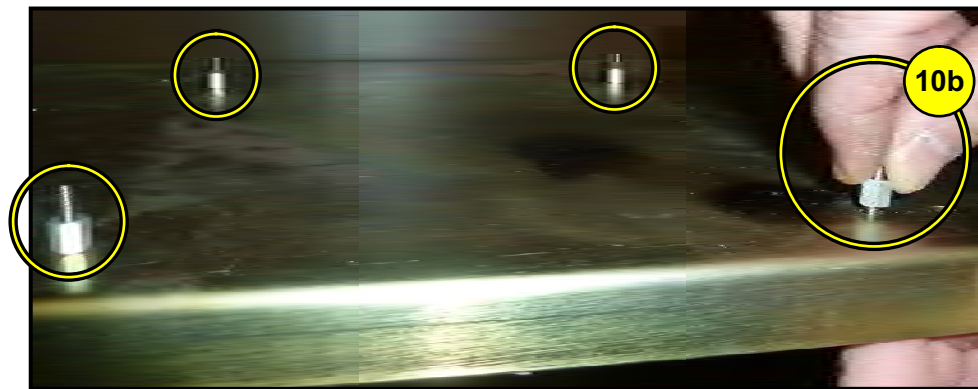
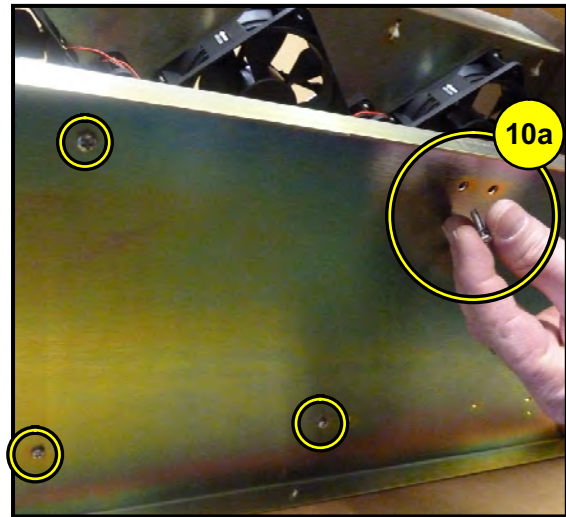


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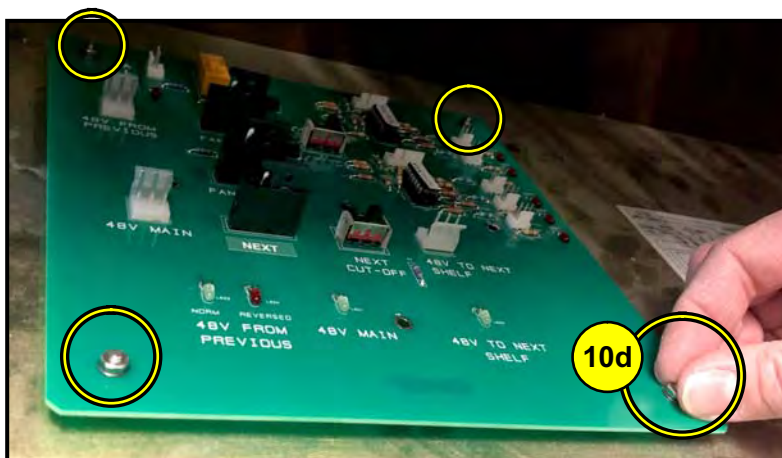
10. Install the NEW Fan Control Board to the Fan Unit:

(Lean the entire fan unit back to gain access to the bottom)

- a. Install the (4) supplied standoff screws & lock washers through the existing holes located on the bottom of the fan unit.
- b. While pressing the screw & lock washer up from the bottom, thread the standoff onto it. (Install in (4) places)



- c. Place the NEW fan control board on top of the (4) standoffs.



- d. Install the (4) supplied washers & hex nuts to secure the NEW fan control board to the bottom of the fan unit.
- e. Attach the supplied schematic label to the empty space located to the right of the fan control board (see page 16(h)).

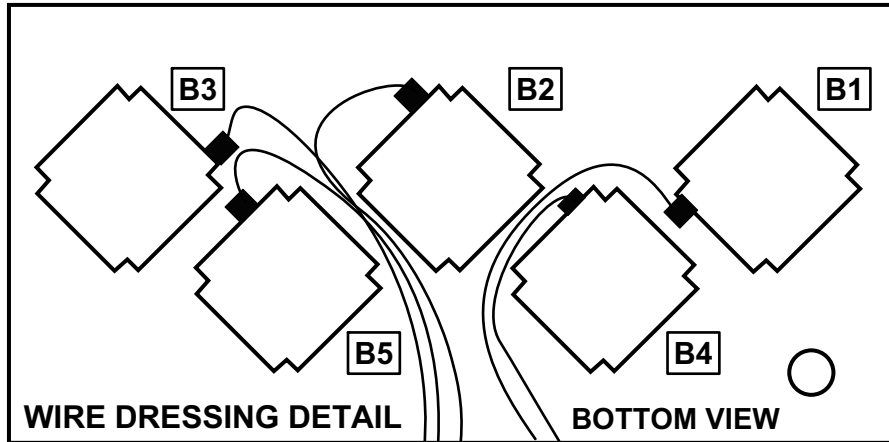
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11. Install the Plugs from the NEW Fans to the Connectors on the NEW Fan Control Board:

Note: Secure ALL loose wires with supplied zip ties to prevent interference with fans.

BOTTOM (INSIDE) VIEW

(NOTE ORIENTATION OF THE FAN WIRES)



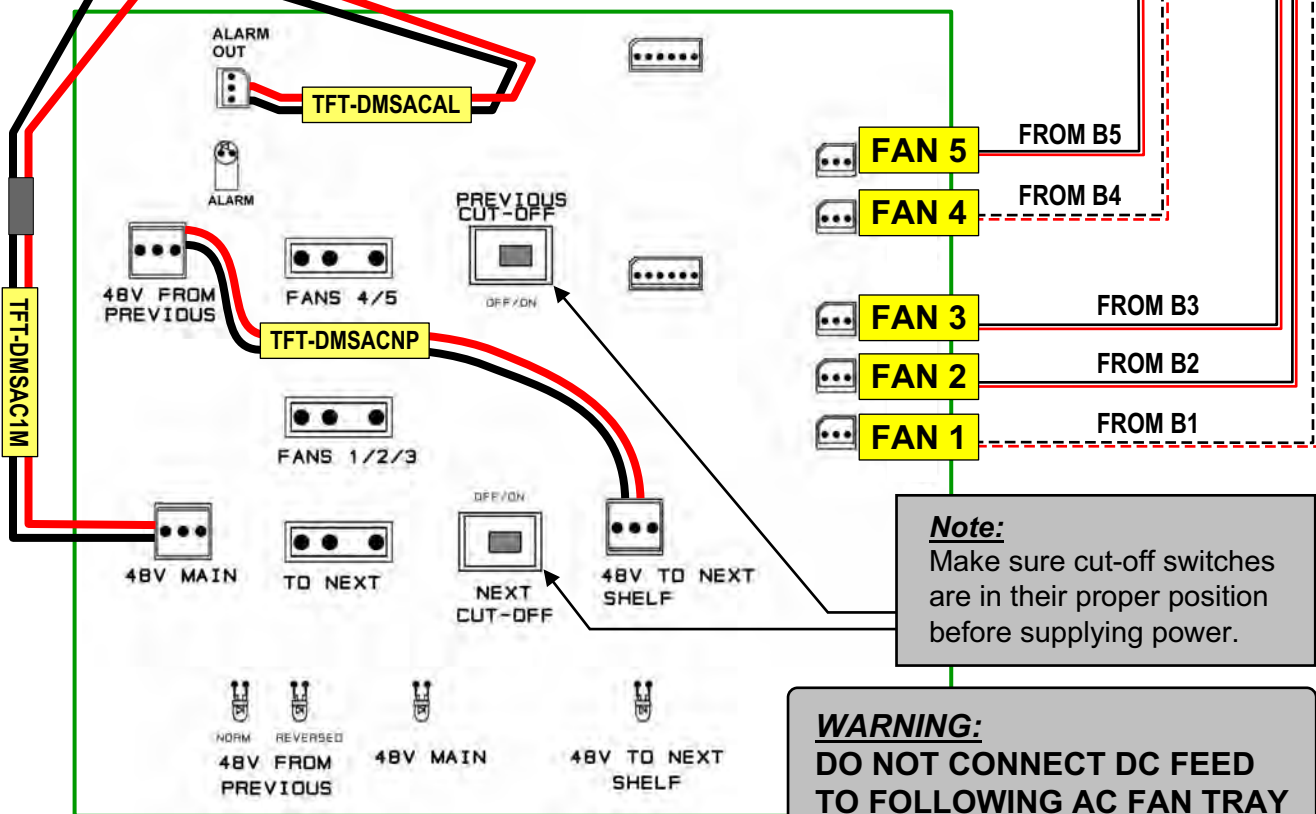
B3, B5 & B2

B4 & B1

TERMINAL BLOCK

1 2 3 4....

FAN CONTROL BOARD



Note:
Make sure cut-off switches are in their proper position before supplying power.

WARNING:
DO NOT CONNECT DC FEED TO FOLLOWING AC FAN TRAY

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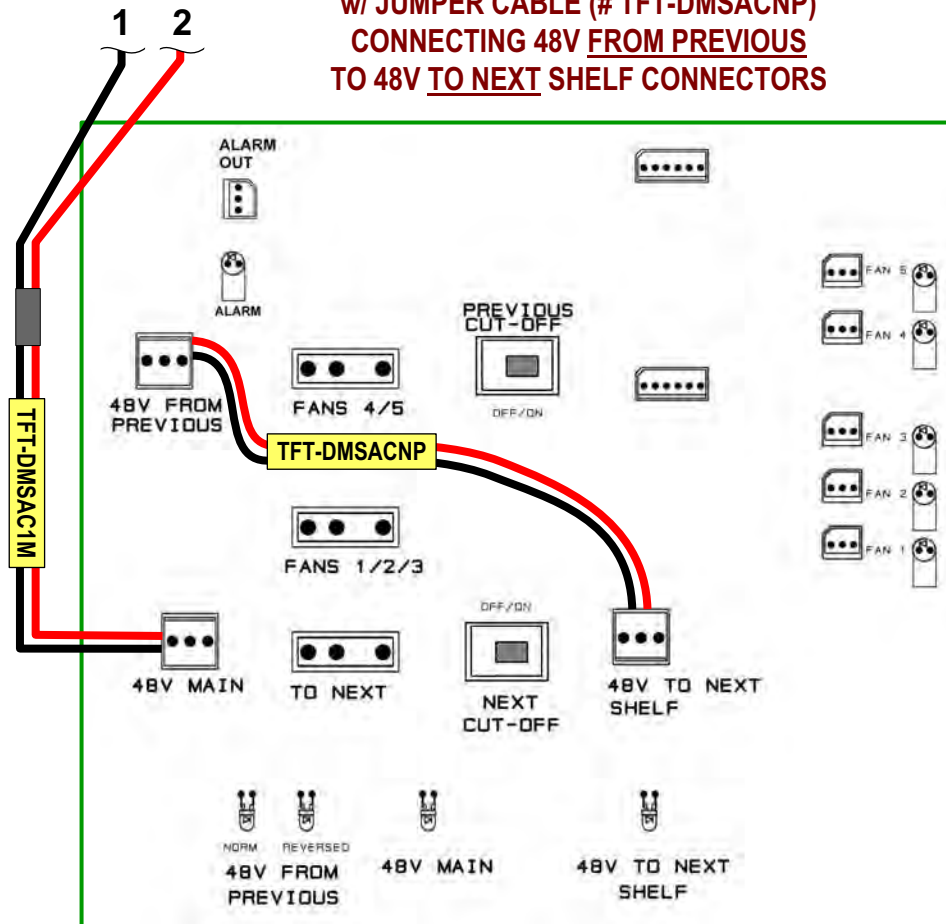
12. Single Unit 48VDC Conversion w/ (1) 24VAC Inverter: (Fan tray unit will be in simplex power condition w/ this option)

Existing 48VDC wiring from PDC needed for each tray (1,2)

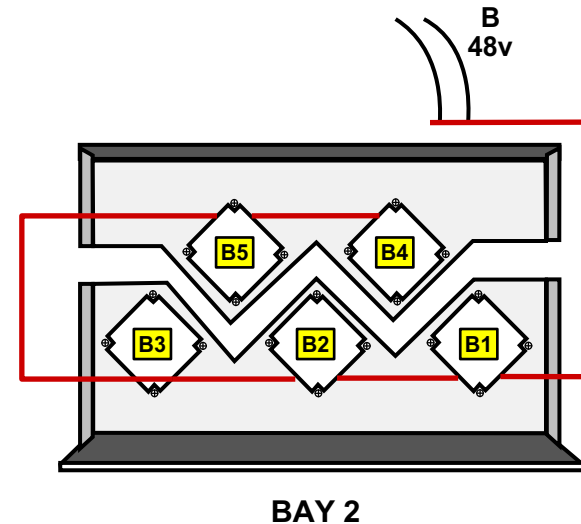
Connect single source jumper cable (# TFT-DMSACNP) from PREVIOUS connector to NEXT connector.

Note: Make sure that CUT-OFF switches are in the ON position

**FAN CONTROL BOARD
w/ JUMPER CABLE (# TFT-DMSACNP)
CONNECTING 48V FROM PREVIOUS
TO 48V TO NEXT SHELF CONNECTORS**



REMOVE ALL 24VAC INVERTERS
& REPLACE ALL FANS w/ NEW 48VDC FANS



WARNING:
DO NOT CONNECT DC FEED
TO FOLLOWING AC FAN TRAY.
DC FEED INTO AN AC FAN TRAY
WILL SHORT EXISTING 24VAC FANS.

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13. 24VAC Daisy Chain Bypass:

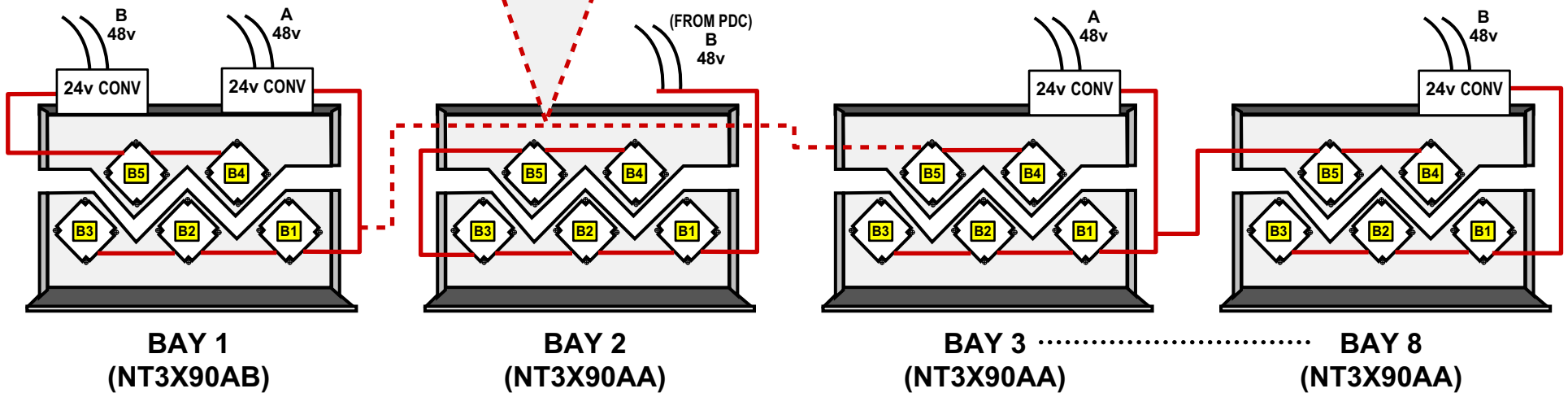
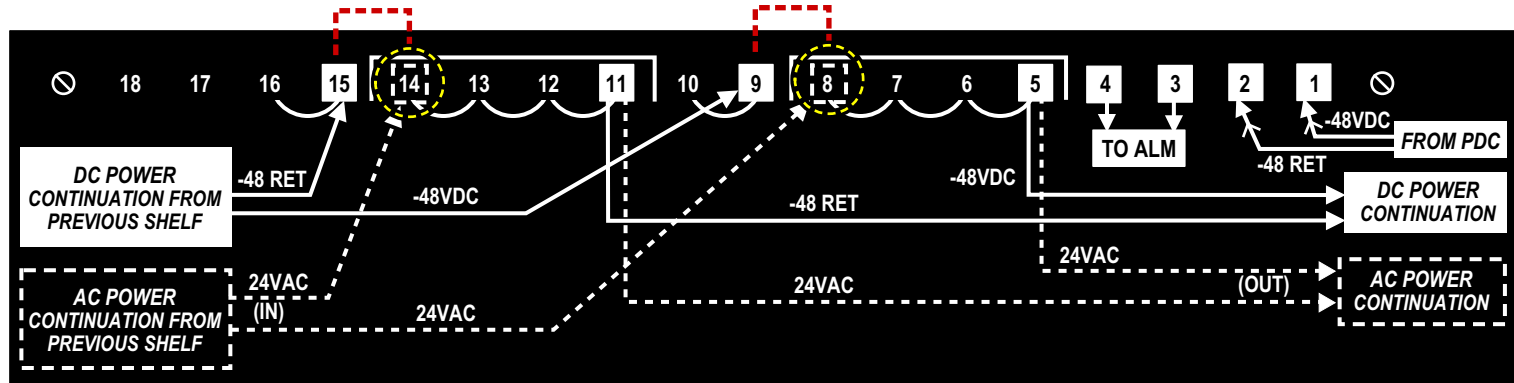
Bypass by moving (2) wires coming from previous shelf

WARNING:
DO NOT CONNECT DC FEED
TO FOLLOWING AC FAN TRAY

(Move wire on lug 15 to lug 14)

(Move wire on lug 9 to lug 8)

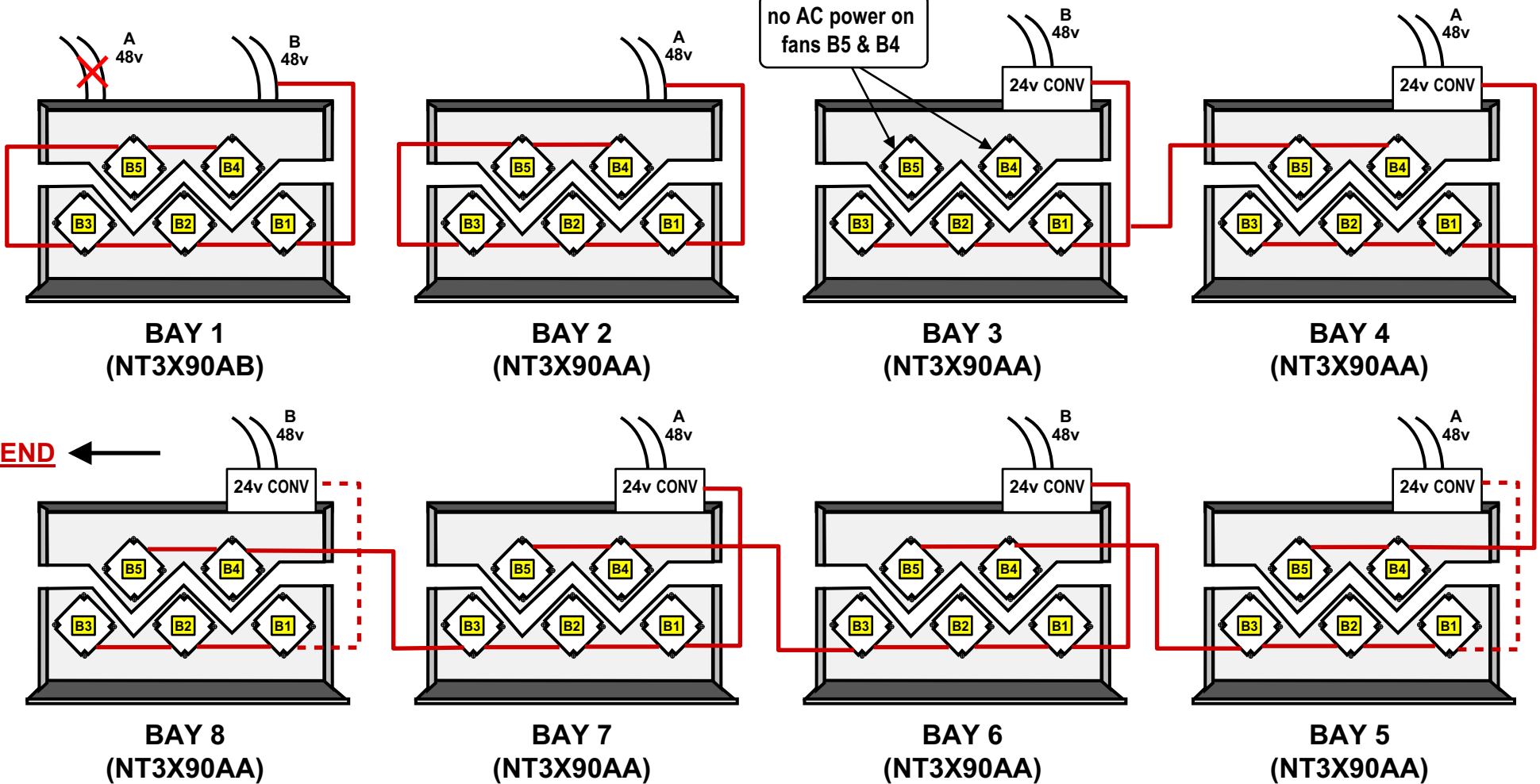
BAY 2
(rear label)



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15. Isolated First & Second Bay Conversion Configuration:

BEGINNING →



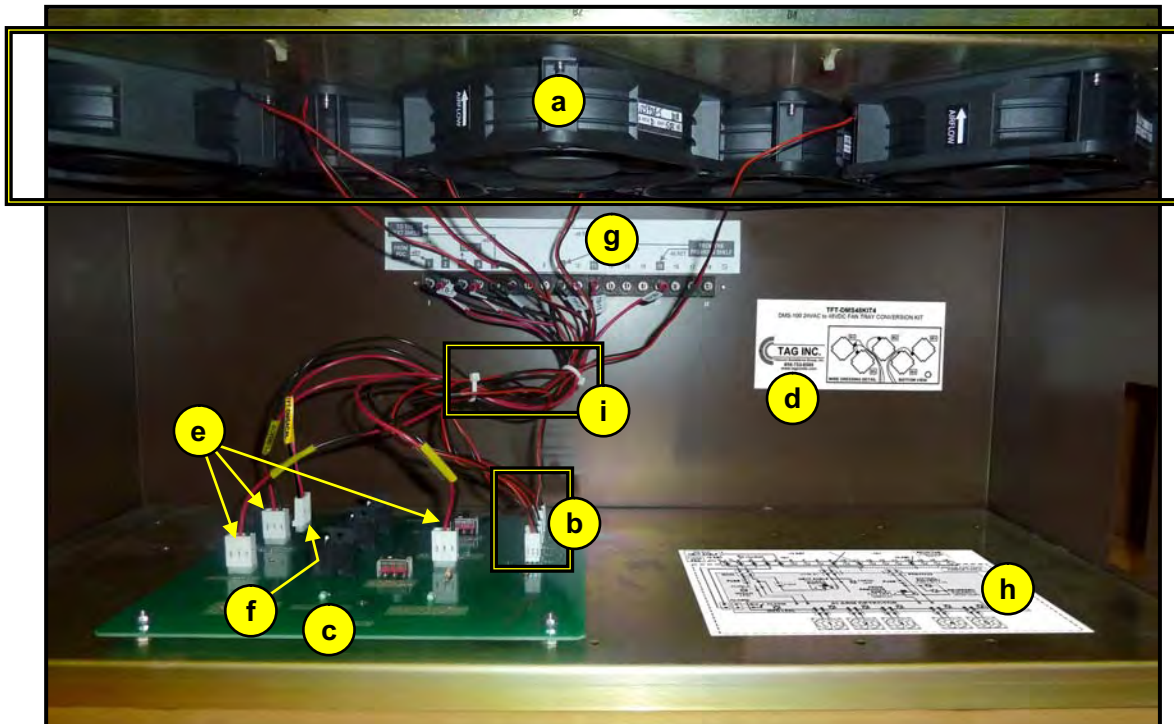
Note: The diagram shows the beginning of the Daisy Chain that has been converted to 48VDC. The (2) 24VAC Inverters in Bay 1 & (1) 24VAC Inverter in Bay 2 have been removed & converted to 48VDC. ((2) Fans in Bay 3 will be in alarm due to the removal of AC power in Bay 2)

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16. Fan Unit Conversion Reference Guide:

- | | |
|--------------------------|--|
| a. (5) NEW 48VDC Fans | f. (1) Alarm Cable |
| b. Fan Cables | g. Internal Wiring Block Label (white) |
| c. NEW Fan Control Board | h. Fan Control Board Schematic Label |
| d. Fan Numbering Label | i. Zip Ties |
| e. (3) Power Lead Cables | j. External Wiring Block Label (black) |

INSIDE VIEW OF FAN CONVERSION



OUTSIDE VIEW OF FAN CONVERSION



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17. End of Installation Procedure

- a.** After reinstalling fan tray, install fuses & verify that the fans are running without alarms.
 - If there are alarms, see below.

- b.** If all fans are not running:
 - Check fuse at PDC & fuses on fan control board.
 - Verify that cut-off switches are in the correct position.

- c.** If fan alarm is present:
 - Check all fans.
 - Check fan sensor wiring.
 - Check fan sensor fuse # 5.

- d.** If red & green LEDs on the fan controller are lit:
 - Check wiring TO & FROM NEXT SHELF to make sure they are not reversed.