# 808A Emergency Transfer Panel
# Installation Instructions

**January 2008**

# INSTALLATION INSTRUCTIONS FOR THE 808A

# EMERGENCY TRANSFER PANEL

The 808A Emergency Transfer Panel (ETP) provides emergency trunk bypass or power-fail transfer for up to five incoming Central Office (CO) analog trunk loops to five selected PBX analog station sets. When a power failure or other system problem interrupts service, the sets are automatically and directly connected to the CO trunk and are available for emergency use outside the PBX service environment.

During normal switch operation, -48V DC power from the PBX/Media Gateway keeps the 808A's power failure detection relays open. During a power failure or major system failure the 808A operates as follows:

- Upon failure, the power failure detection relays close which enables the bypass circuits.
- Each bypass circuit directly connects a designated 7102 or 2500-type voice terminal to a central office (CO) trunk. The switch is completely bypassed.
- When a voice terminal connected to the 808A goes off-hook during bypass, circuitry inside the panel places signaling on the CO trunk causing the CO to return dial tone. Each 808A bypass circuit can be optioned for either loop-start or ground-start signaling.

The following enhanced features are found in the 808A ETP:

- **Restore after busy** — should power be restored to the relays while a call connected through the 808A is in progress, the 808A maintains the connection until the user goes on-hook. This enhancement requires that the phone *must* be returned on-hook to release the CO trunks for use by the now restored PBX, avoiding dropping of emergency calls. This is an improvement over the model 574-5 ETP (manufactured by Porta Systems Corporation) which simply drops all calls in progress when power is restored. Unlike the older 609A transfer panel, the 808A panel doesn't require the voice terminal user to operate a signaling key. Each 808A can handle up to five CO trunks.
- **Forced transfer switch** — this added switch allows for testing of the ETP without requiring the PBX to send an emergency transfer signal to the ETP.
- **Green LED** — the power LED on the 808A is green (versus red on the 574-5), indicating POWER ON; it goes out when service to the PBX is interrupted. The red LED on the 574-5 was inconsistent with the color code strategy used on Avaya circuit packs to indicate normal, busy, or trouble conditions.

The 808A unit is shown in Figure 1 on the following page. Figure 2 is a circuit block diagram.

**Figure 1: 808A Emergency Transfer Panel**
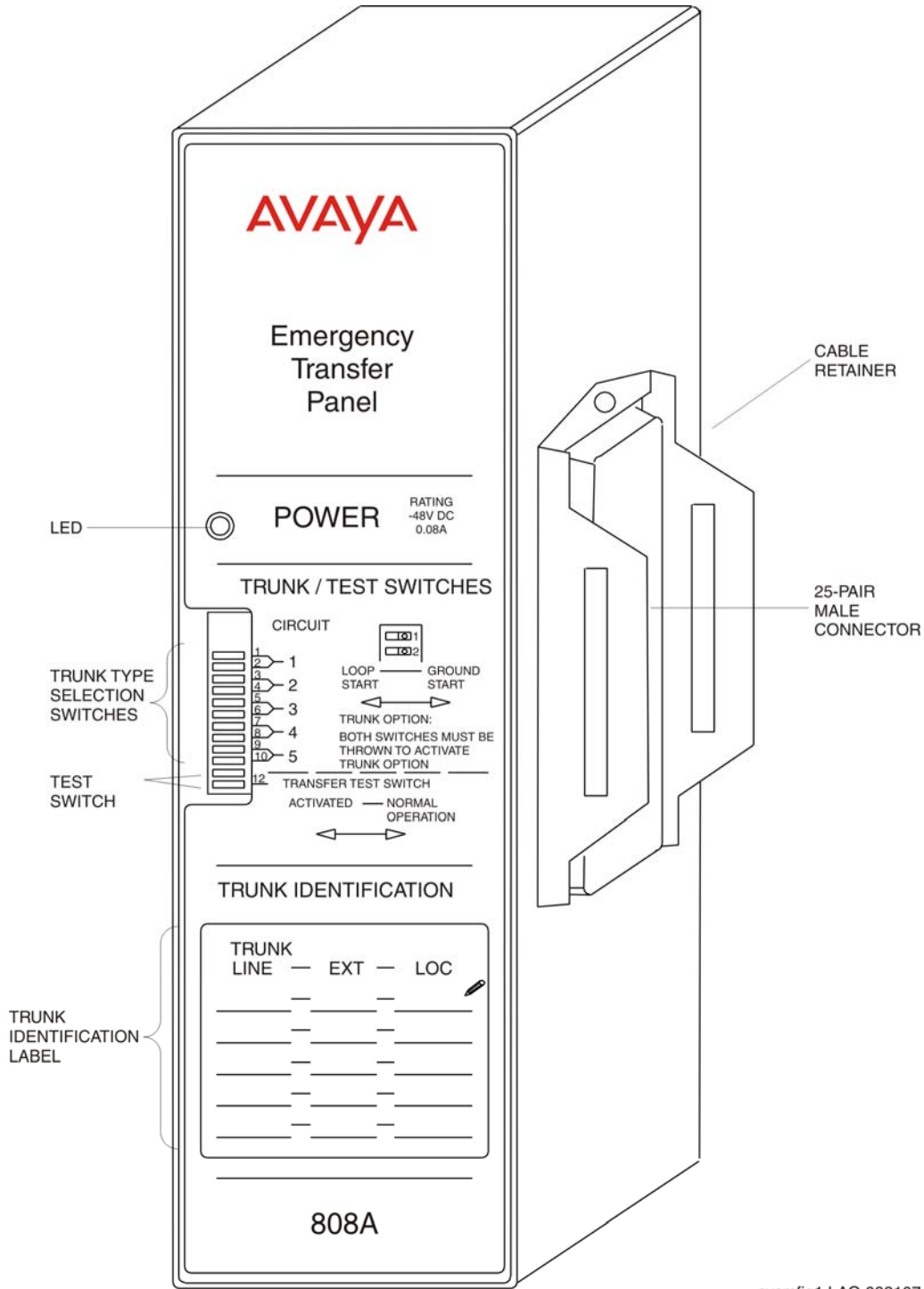
**Figure 2:  Emergency Transfer Panel Circuitry**
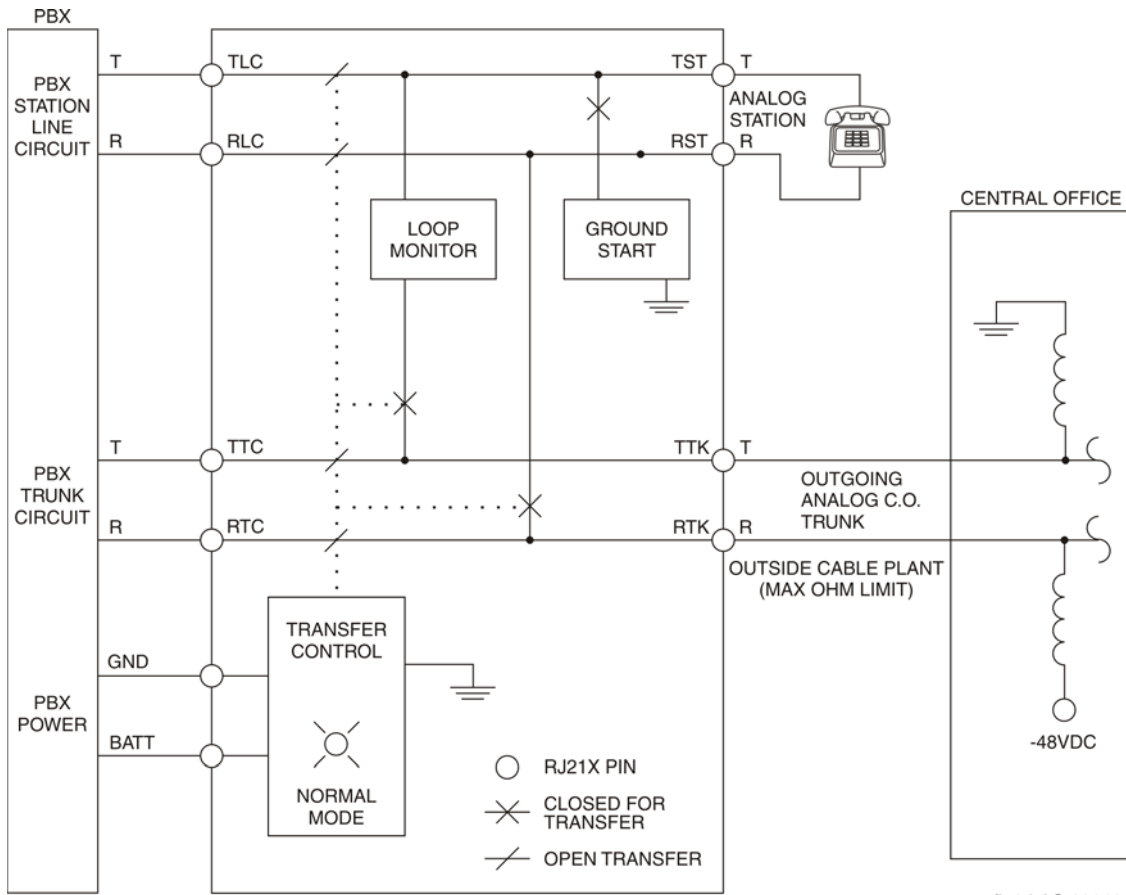


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The ETP can be installed in the equipment room on the wall field or within the auxiliary cabinet. The housing has ears for screw-mounting the unit directly to the wall (or appropriate mounting bracket) and cutouts for snap-mounting the unit in a standard 89-type mounting bracket (see Figure 3).

**Figure 3: 808A ETP Mounting**
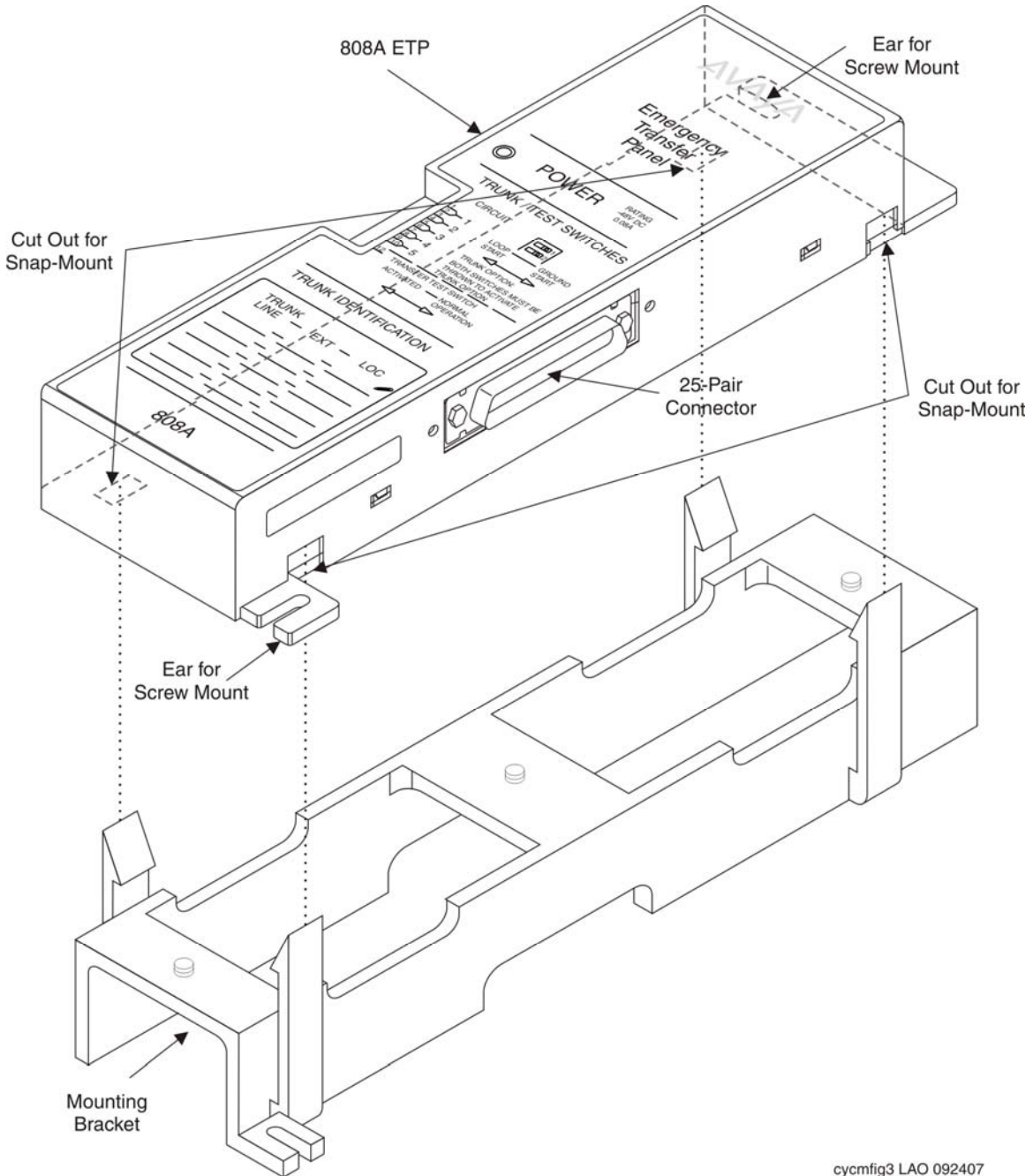
In addition to meeting standard environmental considerations such as temperature, humidity, etc., the 808A must be installed in a location that can be accessed only by authorized personnel.

To install the unit, follow the steps below:

**Step 1:**
Locate the circuit start selection switches (see Figure 1). These are the first 10 two-position switches on the left side of the ETP. They are used to set each of the five incoming trunk lines to either loop start or ground start. Two switches are used for each circuit; switches 1 and 2 are used for circuit 1, switches 3 and 4 are used for circuit 2, etc. (see Table 1). Using Figure 1 as a reference, for loop start, set the switches to the **left**. For ground start, set the switches to the **right**.

**Table 1: Trunk/Test Switches**

| Switch Number | Circuit Number |
|---|---|
| 1 | 1 |
| 2 | 1 |
| 3 | 2 |
| 4 | 2 |
| 5 | 3 |
| 6 | 3 |
| 7 | 4 |
| 8 | 4 |
| 9 | 5 |
| 10 | 5 |
| 11 | Not used |
| 12 | Test switch |

**Step 2:**
Connect a 25-pair cable between the male 25-pair connector on the ETP and the switch via the wall field. Location of the connector is shown in Figure 1. Table 2 on the following page shows the pin assignments.

**WARNING:** Pin 50 must connect to Earth Ground for Ground Start Trunks to work.

**Table 2: Pin Assignments for 25-pair Connector**

| Pin | Color | Lead | Description | Pin | Color | Lead | Description |
|---|---|---|---|---|---|---|---|
| 1 | BL-W | RTC1 | Ring-PBX Trunk Ckt 1 | 26 | W-BL | TTC1 | Tip-PBX Trunk Ckt 1 |
| 2 | O-W | RTK1 | Ring-CO Trunk Ckt 1 | 27 | W-O | TTK1 | Tip-CO Trunk Ckt 1 |
| 3 | G-W | RLC1 | Ring-PBX Line Port 1 | 28 | W-G | TLC1 | Tip-PBX Line Port 1 |
| 4 | BR-W | RST1 | Ring-Emergency Terminal 1 | 29 | W-BR | TST1 | Tip-Emergency Terminal 1 |
| 5 | S-W | RTC2 | Ring-PBX Trunk Ckt 2 | 30 | W-S | TTC2 | Tip-PBX Trunk Ckt 2 |
| 6 | BL-R | RTK2 | Ring-CO Trunk Ckt 2 | 31 | R-BL | TTK2 | Tip-CO Trunk Ckt 2 |
| 7 | O-R | RLC2 | Ring-PBX Line Port 2 | 32 | R-O | TLC2 | Tip-PBX Line Port 2 |
| 8 | G-R | RST2 | Ring-Emergency Terminal 2 | 33 | R-G | TST2 | Tip-Emergency Terminal 2 |
| 9 | BR-R | RTC3 | Ring-PBX Trunk Ckt 3 | 34 | R-BR | TTC3 | Tip-PBX Trunk Ckt 3 |
| 10 | S-R | RTK3 | Ring-CO Trunk Ckt 3 | 35 | R-S | TTK3 | Tip-CO Trunk Ckt 3 |
| 11 | BL-BK | RLC3 | Ring-PBX Line Port 3 | 36 | BK-BL | TLC3 | Tip-PBX Line Port 3 |
| 12 | O-BK | RST3 | Ring-Emergency Terminal 3 | 37 | BK-O | TST3 | Tip-Emergency Terminal 3 |
| 13 | G-BK | RTC4 | Ring-PBX Trunk Ckt 4 | 38 | BK-G | TTC4 | Tip-PBX Trunk Ckt 4 |
| 14 | BR-BK | RTK4 | Ring-CO Trunk Ckt 4 | 39 | BK-BR | TTK4 | Tip-CO Trunk Ckt 4 |
| 15 | S-BK | RLC4 | Ring-PBX Line Port 4 | 40 | BK-S | TLC4 | Tip-PBX Line Port 4 |
| 16 | BL-Y | RST4 | Ring-Emergency Terminal 4 | 41 | Y-BL | TST4 | Tip-Emergency Terminal 4 |
| 17 | O-Y | RTC5 | Ring-PBX Trunk Ckt 5 | 42 | Y-O | TTC5 | Tip-PBX Trunk Ckt 5 |
| 18 | G-Y | RTK5 | Ring-CO Trunk Ckt 5 | 43 | Y-G | TTK5 | Tip-CO Trunk Ckt 5 |
| 19 | BR-Y | RLC5 | Ring-PBX Line Port 5 | 44 | Y-BR | TLC5 | Tip-PBX Line Port 5 |
| 20 | S-Y | RST5 | Ring-Emergency Terminal 5 | 45 | Y-S | TST5 | Tip-Emergency Terminal 5 |
| 21 | BL-V | NO1 | Normally Open 1 Contact | 46 | V-BL | COM1 | Common 1 Relay Contact |
| 22 | O-V | NC1 | Normally Closed 1 Contact | 47 | V-O | NC2 | Normally Closed 2 Contact |
| 23 | G-V | NO2 | Normally Open 2 Contact | 48 | V-G | COM2 | Common 2 Relay Contact |
| 24 | BR-V |  | NOT USED | 49 | V-BR |  | NOT USED |
| 25 | S-V | -48PX | -48 Volts From PBX | 50 | V-S | GRD | Earth Ground From PBX |

**Step 3**: On the trunk identification label at the bottom of the ETP, record the trunk line, extension, and location for each circuit.

**Step 4**: To each voice terminal designated as an emergency terminal, attach a label identifying it as such. The labels are provided with the unit.

**Step 5**: Check the system for normal operation as follows:
— Place the test switch (switch 12) in the NORMAL OPERATION position (see Figure 1).
— Ensure that the power supply is providing -48 VDC at a maximum of 80ma.
— Check wiring connections (see Table 2).
— Verify power by observing the LED (see Figure 1). It should be ON.
— Verify that there is dial tone on all Emergency Transfer sets.

If all of the above conditions are not met, remove the panel from service and replace it with a new panel.

**Step 6**: Check the system for transfer operation as follows:
— Place the test switch (switch 12) in the ACTIVATED position (see Figure 1).
— Verify that power is not being supplied to the panel by observing the LED. It should be OFF.
— Verify that there is dial tone on all Emergency Transfer sets.

If all of the above conditions are not met, remove the panel from service and replace it with a new panel.

This equipment complies with Part 68 of the FCC rules. On the side of this equipment is a label that contains, among other information, the FCC certification number and ringer equivalence number (REN) for this equipment. The REN is used to determine the quantity of devices that may be connected to the telephone line. Excessive RENs on the telephone line may result in the devices not ringing in response to an incoming call. Typically, the sum of RENs should not exceed five (5.0). To be certain of the number of devices that may be connected to a line (as determined by the total RENs) contact the local telephone company. In compliance with the rules, you are to be advised of the following:

• *Means of Connection:* Connection of this equipment to the telephone network must be through standard RJ21X jacks. You can order these from your local phone company. This equipment may not be used with party lines or coin telephone lines. It requires a dedicated CO trunk connection to fulfill its purpose of providing emergency communication in the event of loss of power to the customer premises
PBX.

• *Notification of the Local Telephone Company:* Before connecting this equipment, you or your equipment supplier must notify your local telephone company's business office of the following:
— The telephone numbers you will be using with this equipment
— The equipment's registration number
— The equipment's Ringer Equivalency Number (REN) 1.0A
— You must notify your local telephone company if and when this equipment is permanently disconnected from the line(s).

• *Installation and Operation Procedures*: The *DEFINITY®Communications System Generic 2 and System 85 Installation manual* Issue 2 and the *DEFINITY®Communications System Generic 1Installation and Test manual,* Issue 4 contain information about installation and operational procedures.

• *Repair Instructions:* If trouble is experienced with the 808A Emergency Transfer Panel, for repair or warranty information, please contact the Avaya Technical Service Center, 1-800-242-2121. Repairs to the equipment can be made only by the manufacturer or the manufacturer's authorized agents.

• *Rights of the Local Telephone Company:* If this equipment causes harm to the telephone network, the local telephone company may discontinue your service temporarily. If possible, they will notify you in advance. But if advance notice is not practical, you will be notified as soon as possible. You will also be informed of your right to file a complaint with the FCC.

Your local telephone company may make changes in its facilities, equipment, operations, or procedures that affect the proper functioning of this equipment. If they do, you will be notified in advance to give you an opportunity to maintain uninterrupted telephone service.

## Appendix A: 808A Emergency Transfer Panel

## Additional Instructions for Installations Using External Power Supplies

For installations where the –48Vdc power to the 808A ETP is provided by a source other than a DEFINITY system, an additional ground wire is required to ensure operation of Ground-Start (GS) trunks connected to the 808A. An 808A used in conjunction with an Avaya G700 Media Gateway is an example of an installation requiring a separate –48Vdc
power source (e.g., an 1151B1 power supply).

> **Note:** Traditional 808A installations where the –48Vdc to the 808A is provided by the DEFINITY system AUX connector do not require this separate grounding wire.

Pin 50 of the 808A Amphenol connector is ground for the telecommunication circuits associated with the 808A. If pin 50 is not connected to building ground, any emergency transfer telephone connected to a GS trunk through the 808A will not work during emergency transfer operation.

> **Note:** This failure would be apparent only during emergency transfer operation; the trunks and phones would operate properly during normal system operation.

## To connect the 808A ground circuit to building ground:

- *Access to the 808A ground circuit:*

The 808A ground circuit (associated with pin 50) is generally accessible at the system cross-connect field. For ease of identification, note that this pin, and its associated conductor, also serve as the positive side of the –48Vdc source to the 808A. An additional wire punched-down on the cross-connect field directly on top of this conductor can be used for the connection to building ground. Given the variation between equipment rooms and installations, it should be noted that this might not be the only access point to the ground circuit. This cross-connect field approach is probably the most common and the simplest solution.

- *Connection to building ground:*

Acceptable building grounds include the ground screw or terminal block of the host telecom system (G700, etc.), a metal cable rack (verify the rack is grounded), a common equipment room grounding point, etc. This building ground should not be confused with a safety ground: this is a functional connection rather than a safety connection. A building ground approved for safety purposes could be used for this application, but is not required.

The wire providing this ground connection should be no smaller than 26 AWG, and not exceed 20 feet if possible.

- *Test:*

After installation of the ground wire, verify that the emergency transfer phones have dial tone during normal system operation (-48Vdc applied to the 808A).

Then disconnect the AC power cord to the external power supply (e.g., 1151B1), thereby forcing the 808A into emergency transfer mode, and verify the phones have dial tone in this state.

> **Note**: Do not power the 808A using an 1151B2 or any other power source that provides holdover for the –48Vdc. In the event that AC power to the Avaya system (e.g., G700) is interrupted, it is necessary that the –48Vdc to the 808A is interrupted at the same time to ensure proper operation of the 808A emergency transfer function.

**Figure 4: External Power Supply Wiring for Systems (such as G700) without External Power Failure Transfer**
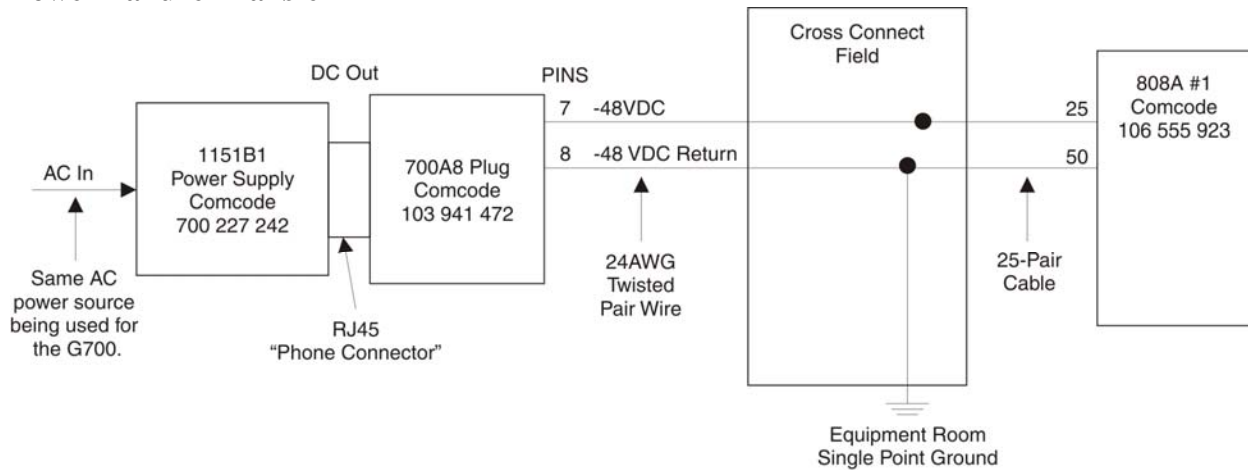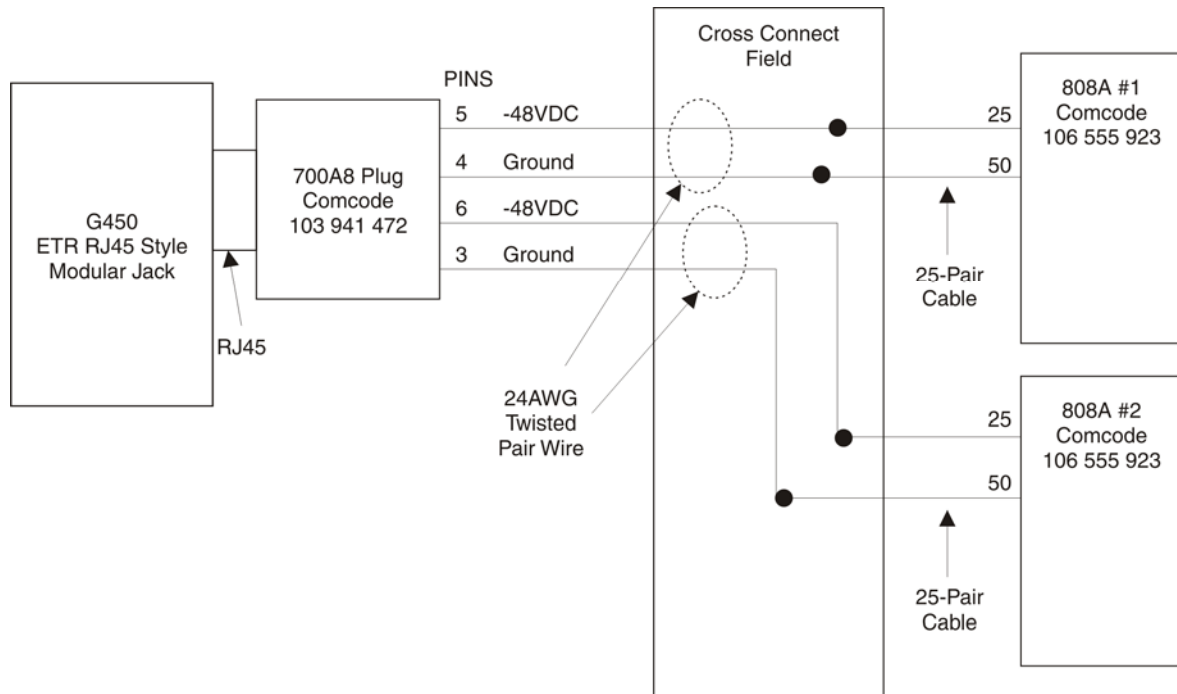
## Appendix B: G450 and 808A Emergency Transfer Panel Power Connections

G450 is capable of driving two 808A Panels. The following two Figures show methods for making those connections.
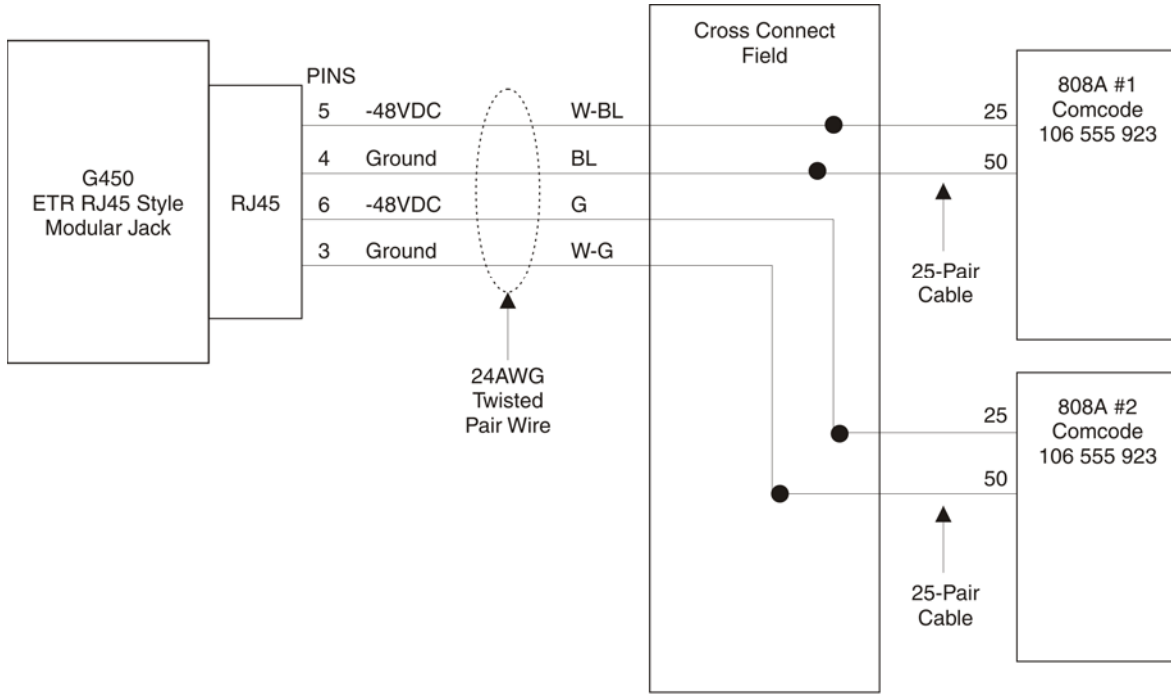
**Figure 5: G450 ETR Jack Connections to power two 808A Panels**



**Warning:** Polarity of the G450 ETR pin 4,5 pair is reversed from normal telephony conventions where

pin 4 = Ring = -48VDC

pin 5 = Tip = Ground

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**Figure 6: G450 ETR Jack Connections Using a RJ45 Patch Cord with One End Punched Down On a Cross-Connect Field**



**Warning:** Polarity of the G450 ETR pin 4,5 pair is reversed from normal telephony conventions where
pin 4 = Ring = -48VDC
pin 5 = Tip = Ground

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**Note:** For the 24AWG Twisted Pair Wire, you may order DW8A-SE Distribution Cord, Comcode 103895686.