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**DEFINITY® Communications System  
Generic 1 and Generic 3**

Upgrades and Additions

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### **Acknowledgment**

This document was prepared by the AT&T Product Documentation Development Department, Denver, CO 80234-2703.

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## CHAPTER 1. INTRODUCTION

This manual provides procedures and information for upgrading an operational AT&T System 75 R1V3 to a DEFINITY® Generic 1 or an operational DEFINITY Generic 1 to DEFINITY Generic 3i after the initial switch installation. This manual also contains instructions for making additions to an existing DEFINITY Generic 1 or Generic 3i system.

The following conventions are used to describe the systems referred to in this document.

- DEFINITY Communications System Generic 1 and DEFINITY Communications System Generic 3i will be referred to as G1 and G3i.
- DEFINITY Communications System Generic 1 and DEFINITY Communications System Generic 3i multi-carrier cabinets will be referred to as G1 and G3i multi-carrier cabinets.
- DEFINITY Communications System Generic 1 and DEFINITY Communications System Generic 3i single-carrier cabinets will be referred to as G1 and G3i single-carrier cabinets.
- System 75 Release 1 Versions 1, 2, or 3 will be referred to as V1, V2, or V3.
- System 75 XE Release 1 Versions 2 or 3 will be referred to as the XEV2 or XEV3.

### Purpose

This manual is intended for use by a trained installation technician.

Procedures are provided in Chapter 2, 3, and 4 of this manual to upgrade a System 75 Release 1, Version 3 to a G1 multi-carrier cabinet system and to upgrade a System 75 XE R1V3 system to G1 single-carrier cabinet system. If the existing system being upgraded is not an R1V3, refer to *System 75 Upgrades and Additions, 555-200-106*, for instructions on upgrading to an R1V3. This manual assumes the existing system is an R1V3.

Procedures are provided in Chapters 5 and 6 of this manual to upgrade a DEFINITY G1 to G3i multi-carrier cabinet and single-carrier cabinet. This manual assumes that the switch being upgraded is a DEFINITY G1. If the switch being upgraded is a System 75, perform the procedures in Chapter 2, 3, and 4 to upgrade it to a DEFINITY G1. Then perform the procedures to upgrade the G1 to G3i.

Procedures are also provided in this manual to make additions to an existing G1.

This issue replaces all previous issues of this document. The reasons for reissue are:

- To include the information on upgrading an existing R1V3 small to a G1 Processor Port Network (PPN).
- To include the information on upgrading an existing DEFINITY G1 to a DEFINITY G3i system.
- To include the information on adding new G3i features.
- To include the information on the new earthquake protection equipment for Single Carrier Cabinets.

The documents required to perform the upgrade and additions are listed below.

- *DEFINITY® Communications System Generic 1 and Generic 3i—Wiring, 555-204-111*
- *DEFINITY® Communications System Generic 1 and Generic 3i—Installation and Test, 555-230-104*
- *DEFINITY® Communications System Generic 1 and System 75—Administration and Measurement Reports, 555-200-500*
- *DEFINITY® Communications System Generic 1 and Generic 3—System Management, 555-230-500*
- *DEFINITY® Communications System Generic 1 and Generic 3i—System Reports, 555-204-510*
- *DEFINITY® Communications System Generic 1—Implementation, 555-204-655*
- *DEFINITY® Communications System Generic 3i—Implementation, 555-230-650*
- *DEFINITY® Communications System and System 75 and System 85—Terminals and Adjuncts, 555-015-201*
- *DEFINITY® Communications System and System 75 and System 85—Terminals and Adjuncts—Installation and Test, 555-015-104*
- *LINEAGE® 2000 Standby Power Systems, Product Manual, 555-790-110* (required for DC-powered switches).

A description of these and other pertinent documents is found in Chapter 9, “References,” later in this manual.

## **Organization**

This manual is divided into twelve chapters. The remaining chapters are as follows:

- Chapter 2. Upgrade Process R1V3 to G1 Multi-Carrier Cabinet
- Chapter 3. Upgrade Process R1V3 to G1 Single-Carrier Cabinet
- Chapter 4. Upgrade Process R1V3 to G1 Multi-Carrier Small Cabinet
- Chapter 5. Upgrade Process G1 to G3i Multi-Carrier Cabinet
- Chapter 6. Upgrade Process G1 to G3i Single-Carrier Cabinet
- Chapter 7. Additions
- Chapter 8. Tests
- Chapter 9. References
- Chapter 10. Abbreviations and Acronyms
- Glossary
- Index

## Conventions Used in This Document

This manual uses the following conventions:

- The names of commands are shown in the following typeface:  
**change system-parameters feature**
- Information you type is shown in the following typeface: `EIA`
- Information displayed on the screen is shown in the following typeface: `login:`
- Keyboard keys are shown as follows: `RETURN`
- Function keys are shown as follows: `CANCEL`

## CHAPTER 2. UPGRADE PROCESS R1V3 TO G1 MULTI-CARRIER CABINET

This chapter provides the information necessary to upgrade the System 75 from a Release 1 Version 3 (R1V3) system to a G1 system. The hardware and software involved in the upgrades and the upgrade procedures are also provided.

G1 systems will ship from the factory in new multi-carrier or single-carrier cabinets. The upgraded systems will be in the old-style cabinets. Therefore, the new G1 systems and the upgraded G1 systems will look different, but they will be functionally the same.

The following processes are required for a Version 3 to G1 upgrade:

- Hardware upgrades that involve changing cabinets, adding cabinets, changing carriers, and replacing and adding circuit packs
- Replacing the software tape
- Software upgrades that involve saving, loading, and reentering system translations
- Testing the upgraded system to verify proper operation

G1 features and functions are listed in the *DEFINITY® Communications System Generic 1 and Generic 3i—Feature Description, 555-230-201*. *DEFINITY® Communications System Generic 1—Implementation, 555-204-655*, provides the procedures and forms required to implement the G1 features. *DEFINITY® Communications System Generic 1 and System 75—Administration and Measurement Reports, 555-200-500*, provides the commands and procedures required to initialize and administer the G1.

## Considerations

### Service Interruption

The upgrade process requires a service interruption of approximately 5 to 15 hours. This service interruption must be closely coordinated with the customer and the local account team.

### Communication Between Equipment Rooms

If the upgrade consists of equipment that is in a remote location, the upgrade activity will be much easier if temporary communications are established between the equipment rooms.

### Contact Network Craft

The network craft must be contacted before the upgrade is started. It is possible that if the network craft is not involved in the upgrade that the links will be busied out.

### Relocation of Port Circuit Packs

An upgrade to G1 can result in port circuit packs having to be moved and retranslated. This is a result of three of the port slots in the control carrier that may be used for the TN776 Expansion Interface and/or TN736/TN755B Power Unit. In an upgrade to a system with the duplication option, the port carrier is replaced with the duplicated common control carrier resulting in the loss of up to 14 port slots.

Losing up to 17 port slots in positions "A" and "B" will result in a minimum of moving circuit packs and retranslating them. It could require adding a port carrier or even a second cabinet (EPN) to the system.

It is recommended that the relocation of the port circuits and the retranslation be completed before the upgrade. If this can be done before the tape is copied and sent off, the translations will be on the G1 tape at the time of the upgrade. This will also lessen any service interruption that may occur at the time of the upgrade. If a second network is required, it cannot be added until the time of the upgrade. The R1V3 software will not support the second cabinet.

## **Power**

If a new cabinet [either a PPN or Expansion Port Network (EPN)] is added, it may be either AC- or DC-powered. If the cabinet being added is powered differently from the existing cabinet, the existing cabinet does not have to be converted, as mixed power configurations are allowed.

If a new cabinet powered by AC is to be added, a separate AC receptacle is provided to support the new cabinet. This AC receptacle must not be shared with any other equipment or be under the control of a wall switch. It should not be located under the cross-connect field.

If a new DC-powered cabinet is to be added, refer to *DEFINITY® Communications System Generic 1 and Generic 3i—Installation and Tests, 555-230-104*, for DC power requirements.

## **Isolator**

All peripherals connected to a DC-powered system via the asynchronous Electronic Industries Association (EIA) EIA-232 interface on the PPN A or B carrier or the EPN Maintenance Circuit Pack require a 116A isolator. The isolator is inserted at the EIA-232 interface between the peripheral and the interface connector.

## **Power Failure Stations**

The ground for the power failure stations is derived from the system Aux cable. During the upgrade it will be disconnected, thus causing the power failure stations to not work. A ground strap will have to be run to the power failure transfer panel. This strap should be added before the power is removed and removed before the system is powered up.

## **Software**

The G1 system software and translations will be saved on the TN774 Tape Drive circuit pack. This tape format is not compatible with either the high capacity minirecorder (HCMR) or removable mass storage subsystem (RMSS) formatted tapes.

The translations in the R1V3 system must be copied onto a new tape and sent to the Technical Service Center (TSC) or National Technical Service Organization (NTSO) to be copied onto a G1 tape. This process takes a minimum of two weeks. The G1 tape must be back before the upgrade can be started. Two tapes (one system tape and one backup tape) must always be retained on site with the R1V3 system.

## **Alarm Connection**

The AUXILIARY connector on System 75 systems had appearances for Alarm Monitors 1M, 1m, 2M, 2m, 3M, 3m, and 3W. The AUXILIARY connector on DEFINITY G1 systems has appearances only for 1M and 1m. If the system being upgraded had alarms connected to the other alarm monitor connections, they will have to be dropped.

## Hardware Description

### Circuit Packs

Only five circuit packs are required for the basic G1 system upgrades. The other six will be provided on an optional basis for G1 features, as required by the customer.

The five required circuit packs are:

- TN773  
The Processor circuit pack manages the control of the entire system. It also executes the stored programs to perform call processing activity and Maintenance Tape Processor (MTP) functions.
- TN770  
The TN770 Memory circuit pack provides the memory required by G1. It provides 6 megabytes of memory.
- TN777  
The TN777 Network Control circuit pack continuously monitors the port circuit packs for activity. It contains four data channels that transfer this information to the Processor circuit pack. It also connects equipment such as Data Services facilities, Station Message Detail Recording (SMDR) devices, on-premises pooled modem or administration terminal, or an off-premises administration terminal.
- TN774  
The TN774 Tape Unit stores the software information for the system. It contains a tape drive that provides 32 megabytes of storage space and a -48 volt to +12 volt DC converter used by the tape drive. It also provides light-emitting diodes (LEDs) that reflect the activity of the tape drive.
- TN768  
The TN768 Tone-Clock circuit pack allows the system to control which of the two tone clocks provides the system clocking, and which Trunk Data Module (TDM) bus is used for tones. The TN768 has a ring generator detection circuit and provides a clock with tighter tolerances.

The six optional new circuit packs are:

- TN765  
The TN765 Processor Interface (PI) provides four data links to the TDM bus and a link through the memory bus to the processor. This circuit pack has four ports that provide interfaces to the 3B2 Message Servicing Adjunct (MSA), Distributed Communications System (DCS), Call Management System (CMS), and Audio Information Exchange (AUDIX).

- **TN767**

The TN767 Data Services Level 1 (DS1) Interface allows the ISDN PRI 1.451 signaling to be carried transparently on any of the 24 ports of the trunk between the TDM bus and the DS1 facility. It also performs robbed-bit signaling using Central Office (CO), TIE, Direct Inward Dialed (DID), or Off-Premises Station (OPS) signaling protocol in any remaining ports on a per port basis.

- **TN772**

The TN772 Duplication Interface (DI) is required with the duplication option. It selects the active processing element in a duplicated system and coordinates the interchange of processing elements.

- **TN775**

The Maintenance circuit in the Expansion Port Carrier (EPC) is the TN775. It provides monitoring and control of the environment and power signals. It provides two serial links to communicate with the Expansion Interface (EI) circuit packs. The TN775 provides the connection for the Manager I terminal in the EPN.

- **TN776**

The TN776 EI is used to provide the interconnect between the PPN and EPN. It packages the TDM control channel for transmission over the fiber link between cabinets. The TN776 provides the time interchange between cabinets and communicates with the maintenance circuit pack in the expansion carrier.

- **TN736/TN752**

The TN736 Power Unit provides -5 volt DC on the backplanes of all carriers for the port circuit packs. It is required in a G1 upgrade if the system is equipped with a 631BR1 or 631WB1 power unit. The TN752 provides the same capabilities plus power for neon message lamp.

## **Cabinets**

The G1 offers an optional second cabinet. This cabinet, the EPN, enables the system to add up to four more port carriers.

## **Carriers**

There will be three new G1 Control Carriers. The Control Carrier (J58890AH-1) is required in position "A" of the PPN for all G1 systems. The Duplicated Control Carrier (J58890AJ-1) is required in position "B" of the PPN cabinet when the system is equipped with the duplication option. The Expansion Control Carrier (J58890AF-1) is required in position "A" of the EPN cabinet when the system is equipped with two cabinets.

## Software Translation Upgrade

The G1 system software and translations will be saved on the TN774 Tape Drive circuit pack. This tape format is not compatible with either the HCMR or RMSS formatted tapes.

When upgrading from an R1V3 to G1, the R1V3 translations must be copied onto a G1 tape. This is done at the TSC or the NTSO. To ensure that the existing R1V3 translations are copied onto the G1 tape, the system tape must be replaced with a new R1V3 tape. The existing R1V3 translations in the system are copied onto the tape and sent to the TSC or NTSO. The original system tape is then put back into the system. The new R1V3 tape cartridges can be secured from the TSC prior to beginning the upgrade process.

There should be a freeze on any new translations when the new tape is sent to the TSC. If that is not possible, detailed records of any translation changes made during that interval must be kept as those changes will have to be reinput on the G1 tape after the system is upgraded.

The new G1 tape with the translations must be received before the upgrade is started.

### Save Translations

1. Log in at the Manager I terminal.
2. Enter `save translations`. Press `Return`. This command instructs the system to take all translation information in memory and write it onto the tape.
3. If the system is equipped with a TN750B Announcement circuit pack, the recorded announcements can be saved using the save announcement commands. Enter `save announcements`, and press `Return`.
4. Remove the system tape, and install the backup tape.
5. Enter `save translations`. Press `Return`.
6. Enter `save announcements`. Press `Return`.

## Make Upgrade Tape

A new R1V3 tape must be secured from the TSC prior to performing the next steps. There must always be two system tapes on site with the System 75. Do not send the system or backup tape to the TSC.

After the procedures listed above have been performed, the translations in memory should be copied onto the tape that is to be used to make the G1 tape. Perform the following procedures:

1. Remove the backup tape, and install the tape to be used to make the G1 tape.
2. Enter `save translations`. Press `Return`. This command instructs the system to take all translation information in memory and write it onto the tape.
3. If the system is equipped with a TN750B Announcement circuit pack, the recorded announcements can be saved using the `save announcements` commands. Enter `save announcements`, and press `Return`.
4. Remove the tape.
5. Insert the system tape.

The tape removed in Step 3 should be sent to the TSC or NTSO for use in making the G1 tape.

## System Upgrades

There are many configurations of the System 75 R1V3 in the field. Each system is unique in the way it is configured, both software and hardware. The manner in which the system is upgraded will depend on the present configuration. If the system is being expanded in such a manner that an EPN is required, the existing cabinet may be upgraded to the PPN or EPN. The new cabinet could then be either a PPN or EPN. It is also possible that two existing R1V3 systems could be upgraded to a two-cabinet G1.

This section gives a sequential list of the steps required in upgrading the system. Because there are so many variations of systems and only four specific cabinet upgrades, the actual cabinet upgrade information is contained in the “Cabinet Upgrades” section of this chapter. The lists in this section will refer to those sections so that information will not have to be repeated.

### R1V3 Medium to G1 Without Duplication

#### *Upgrade Cabinet*

1. Upgrade the cabinet using the procedures contained in the “Upgrade R1V3 Medium to G1 PPN Without Duplication” portion of the “Cabinet Upgrades” section of this chapter.

#### *Remove Power Failure Ground Strap*

1. Remove the previously installed ground strap from the power failure transfer unit.

#### *Reboot the System*

1. Connect the Manager I terminal to the connector labeled “TERMINAL” on the rear of the “A” carrier.
2. Insert the new G1 system tape.
3. At the power distribution unit, set the main circuit breaker to ON.
4. The system now goes through the rebooting process, loading the system translations from the tape. Rebooting requires 15 to 20 minutes. Refer to the “System Reboot Indications” section in *DEFINITY® Communications System Generic 1 and Generic 3i—Maintenance, 555-204-105*, for circuit pack LED indications and Manager I terminal displays that occur during system reboot.
5. Login at the `login:` prompt on the Manager I terminal, and set the time to ensure that the system is booted properly.

### ***Close Up Cabinet and Reconnect Cables***

1. At the power distribution unit, set the main circuit breaker to OFF.
2. Replace all back panels that were previously removed.
3. At the cabinet, reconnect the connector cables associated with the carrier being replaced.
4. Install the front door on the cabinet if previously removed.
5. Install a DEFINITY label on the cabinet.

### ***Power Up the System***

1. At the power distribution unit, set the main circuit breaker to ON.
2. The system now goes through the rebooting process, loading the system translations on the tape. Rebooting requires 15 to 20 minutes. Refer to the “System Reboot Indications” section in *DEFINITY® Communications System Generic 1 and Generic 3i—Maintenance, 555-204-105*, for circuit pack LED indications and Manager I terminal displays that occur during the system reboot.
3. After the system reboot is finished and all trouble is cleared, verify the EMERGENCY TRANSFER CONTROL switch is set to AUTO. This restores the system to the normal mode.

### ***Retranslate Port Circuits***

If port circuit packs had to be moved because of slot limitations in the new carrier, and they were not moved and retranslated before the original tape was updated and sent to the TSC/NTSO, they must be retranslated now. Refer to *DEFINITY® Communications System Generic 1 and System 75—Administration and Measurement Reports, 555-200-500*, for instructions on performing the retranslations.

### ***Run Acceptance Tests***

Refer to Chapter 8, “Tests,” and perform the appropriate tests.

## **R1V3 Medium to G1 With Duplication**

### ***Upgrade Cabinet***

1. Upgrade the cabinet using the procedures contained in the “Upgrade R1V3 Medium to G1 PPN With Duplication” portion of the “Cabinet Upgrades” section of this chapter.

### ***Remove Power Failure Ground Strap***

1. Remove the ground strap from the power failure transfer unit.

### ***Reboot the System***

1. Connect the Manager I terminal to the connector labeled “DUPLICATION OPTION TERMINAL” on the rear of the “A” carrier.
2. Insert the new G1 system tapes.
3. At the power distribution unit, set the main circuit breaker to ON.
4. The system now goes through the rebooting process, loading the system translations from the tape. Rebooting requires 15 to 20 minutes. Refer to the “System Reboot Indications” section in *DEFINITY® Communications System Generic 1 and Generic 3i—Maintenance, 555-204-105*, for circuit pack LED indications and Manager I terminal displays that occur during system reboot.
5. Login at the `login:` prompt on the Manager I terminal, and set the time to ensure that the system is booted properly.

### ***Close Up Cabinet and Reconnect Cables***

1. At the power distribution unit, set the main AC circuit breaker to OFF.
2. Replace all back panels previously removed.
3. At the cabinet, reconnect the connector cables associated with the carrier being replaced.
4. Install the front door on the cabinet if previously removed.
5. Install a DEFINITY label on the cabinet.

**Power Up the System**

1. At the power distribution unit, set the main circuit breaker to ON.
2. The system now goes through the rebooting process, loading the system translations on the tape. Rebooting requires 15 to 20 minutes. Refer to the “System Reboot Indications” section in *DEFINITY® Communications System Generic 1 and Generic 3i—Maintenance, 555-204-105*, for circuit pack LED indications and Manager I terminal displays that occur during the system reboot.
3. After the system reboot is finished and all trouble is cleared, verify the EMERGENCY TRANSFER CONTROL switch is set to AUTO. This restores the system to the normal mode.

**Retranslate Port Circuits**

If port circuit packs had to be moved because of slot limitations in the new carrier, and they were not moved and retranslated before the original tape was updated and sent to the TSC/NTSO, they must be retranslated now. Refer to *DEFINITY® Communications System Generic 1 and System 75—Administration and Measurement Reports, 555-200-500*, for instructions on performing the retranslations.

**Run Acceptance Tests**

Refer to Chapter 8, “Tests,” and perform the appropriate tests.

**R1V3 Medium to Two-Cabinet G1 Without Duplication****Upgrade Cabinet**

1. Determine if the existing cabinet is being upgraded to the PPN or EPN.
  - If the existing cabinet is being upgraded to the PPN, upgrade the cabinet using the procedures contained in the “Upgrade R1V3 Medium to G1 PPN Without Duplication” portion of the “Cabinet Upgrades” section of this chapter.
  - If the existing cabinet is being upgraded to the EPN, upgrade the cabinet using the procedures contained in the “Upgrade R1V3 Medium to G1 EPN Without Duplication” portion of the “Cabinet Upgrades” section of this chapter.
2. Refer to *DEFINITY® Communications System Generic 1 and Generic 3i—Installation and Test, 555-230-104*, to install the new cabinet.

### ***Connect Fiber-Optic Cable***

One fiber-optic cable (FL2P-P-20) and two lightwave transceivers (9823-type) are required for EPN connections without the Duplication Option if the EPN and PPN are collocated.

When the EPN cabinet is installed remotely from the PPN cabinet, two fiber-optic cables (FL2P-P-20), two lightwave transceivers (9823-type), and two lightwave interface units [provided by the Premises Service Consultant (PSC)] are required.

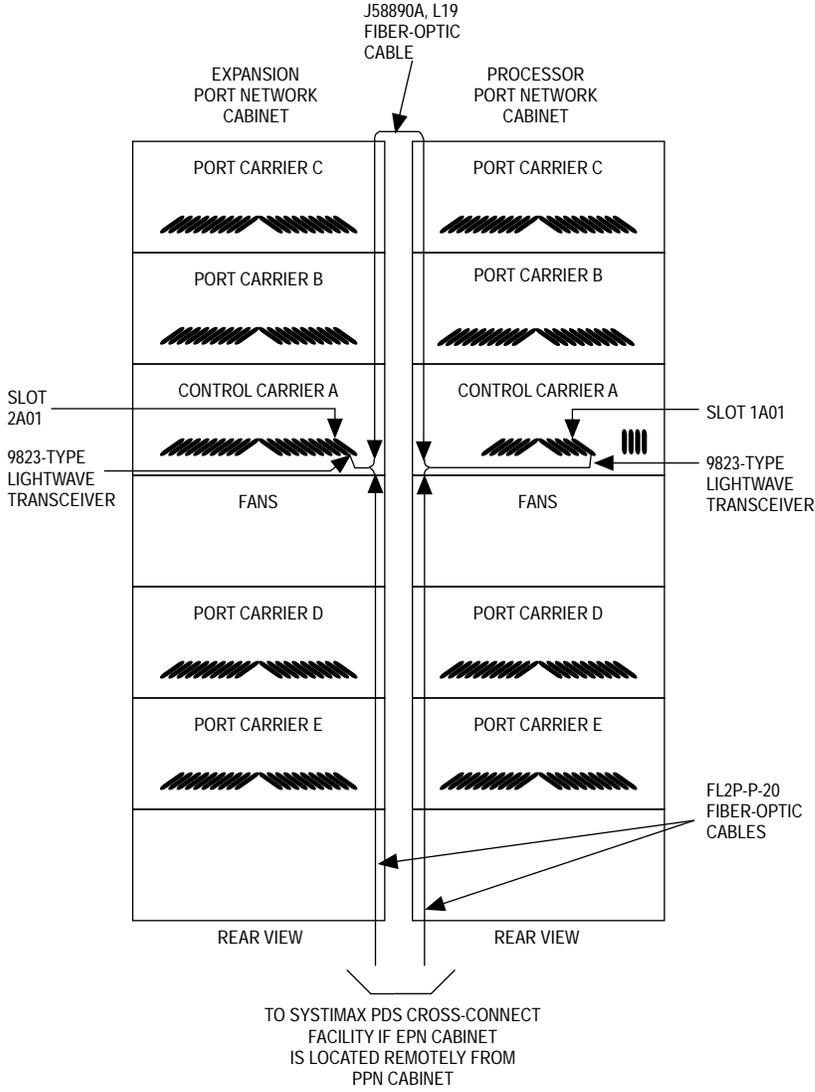
If the cabinets are collocated, the fiber-optic cable should be routed directly from the PPN to the EPN cabinet. The preferred routing is to run the cables up the cable tray and out the top of the cabinet. The cable is then run to the other cabinet, through the top of the cabinet, and down the cable tray to the desired carrier level.

If the cabinets are remote, the cables should be routed down the cable tray and out the bottom of the cabinet to the cross-connect field where the lightwave interface unit is located.

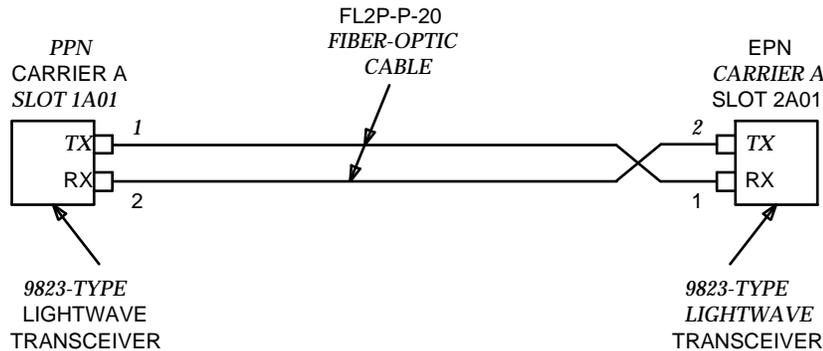
Secure the cables with cable ties against the cable tray walls at the cable tie positions built into the trays.

#### *Collocated*

1. At the rear of the PPN cabinet control carrier (see Figures 2-1 and 2-2):
  - Install a 9823-type lightwave transceiver on the cable connector at slot 1A01.
  - Connect one end of the fiber-optic cable to the 9823-type lightwave transceiver, just installed, at slot 1A01. If there are "A"s and "B"s associated with the connection they must match: A on one end must match A on the other end, and B on one end must match B on the other end. Installing A on one end and B on the other does not work.
  - Secure the fiber-optic cable (with cable ties) against the cable tray wall at the cable tie positions built into the tray.
  - At the top of the cabinet, coil up the surplus length of fiber-optic cable. Secure the cable against the cable tray wall with cable ties.
2. At rear of the EPN cabinet control carrier:
  - Install a 9823-type lightwave transceiver on the cable connector at slot 2A01.
  - Connect the other end of the fiber-optic cable to the 9823-type lightwave transceiver, previously installed at slot 2A01. If there are "A"s and "B"s associated with the connection they must match: A on one end must match A on the other end, and B on one end must match B on the other end. Installing A on one end and B on the other does not work.
  - Secure the fiber-optic cable (with cable ties) against the cable tray wall at the cable tie positions built into the tray.
  - At the top of the cabinet, coil up the surplus length of fiber-optic cable. Secure the cable against the cable tray wall with cable ties.



**FIGURE 2-1. G1 Expansion Port Network (EPN) Cabinet Connections Without Duplication Option**

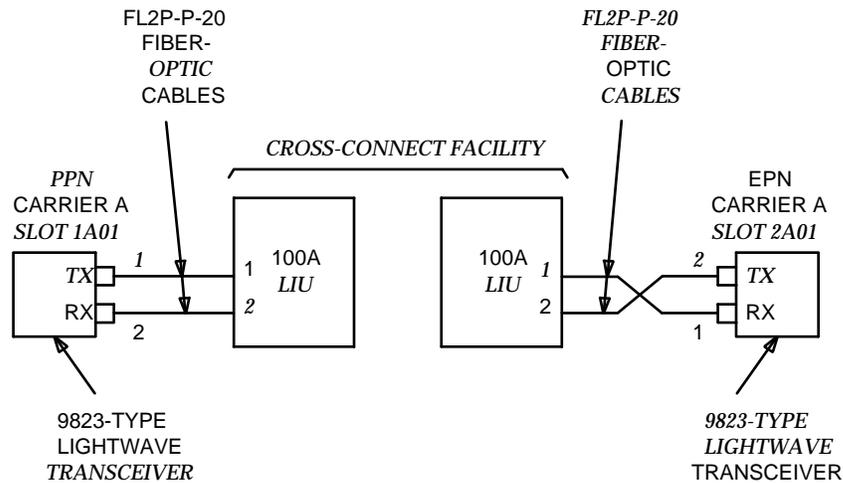


**FIGURE 2-2. Fiber-Optic Connections—Cabinets Collocated**

### Remote Cabinets

1. At the rear of the PPN cabinet, control carrier A (see Figures 2-1 and 2-3):
  - Install a 9823-type lightwave transceiver on the connector at slot 1A01.
  - Connect one end of the fiber-optic cable to the 9823-type lightwave transceiver at slot 1A01. If there are "A"s and "B"s associated with the connection they must match: A on one end must match A on the other end, and B on one end must match B on the other end. Installing A on one end and B on the other does not work.
  - Route the fiber-optic cable from the 9823-type lightwave transceiver to the cabinet cable tray and downward out of the cabinet through the cable manager to the Premises Distribution System (PDS) cross-connect facility.
2. At the PDS cross-connect facility, connect the fiber-optic cable to the lightwave interface unit provided.
3. Secure the fiber-optic cable (with cable ties) against the cable tray wall at the cable tie positions built into the tray.
4. At rear of the EPN cabinet, control carrier A:
  - Install a 9823-type lightwave transceiver on the connector at slot 2A01.
  - Connect the fiber-optic cable to the 9823-type lightwave transceiver slot 2A01. If there are "A"s and "B"s associated with the connection they must match: A on one end must match A on the other end, and B on one end must match B on the other end. Installing A on one end and B on the other does not work.
  - Route the fiber-optic cable from the 9823-type lightwave transceiver to the cabinet cable tray and downward out of the cabinet through the cable manager to the PDS cross-connect facility.
5. At the PDS cross-connect facility, connect the fiber-optic cable to the lightwave interface unit provided.

6. Secure the fiber-optic cable (with cable ties) against the cable tray wall at the cable tie positions built into the tray.
7. At top of cabinet, coil up the surplus length of fiber-optic cable, and secure the cable against the cable wall with cable ties.



**FIGURE 2-3. Fiber-Optic Connection—Cabinets Remote**

#### **Remove Power Failure Ground Strap**

1. Remove the ground strap from the power failure transfer unit.

#### **Reboot the System**

1. Connect the Manager I terminal to the connector labeled “TERMINAL” on the rear of the “A” carrier in the PPN cabinet.
2. Insert the new G1 system tape in the PPN cabinet.
3. At the EPN power distribution unit, set the main circuit breaker to ON.
4. At the PPN power distribution unit, set the main circuit breaker to ON.
5. The system now goes through the rebooting process, loading the system translations from the tape. Rebooting requires 15 to 20 minutes. Refer to the “System Reboot Indications” system in *DEFINITY® Communications System Generic 1 and Generic 3i—Maintenance, 555-204-105*, for circuit pack LED indications and Manager I terminal displays that occur during system reboot.
6. Login at the `login:` prompt on the Manager I terminal, and set the time to ensure that the system is booted properly.

### ***Close Up Cabinet and Reconnect Cables***

1. At the PPN power distribution unit, set the main circuit breaker to OFF.
2. At the EPN power distribution unit, set the main circuit breaker to OFF.
3. Label and disconnect the lightwave transceiver and fiber-optic cables from the appropriate carriers.
4. Replace all back panels previously removed.
5. At the cabinet, reconnect the lightwave transceiver and fiber-optic cables and the connector cables associated with the carrier being replaced.
6. Install the front door on the cabinet if previously removed.
7. Install a DEFINITY label on the cabinet.

### ***Power Up the System***

1. At the EPN power distribution unit, set the main circuit breaker to ON.
2. At the PPN power distribution unit, set the main circuit breaker to ON.
3. The system now goes through the rebooting process, loading the system translations on the tape. Rebooting requires 15 to 20 minutes. Refer to the “System Reboot Indications” section in *DEFINITY® Communications System Generic and Generic 3i—Maintenance, 555-204-105*, for circuit pack LED indications and Manager I terminal displays that occur during the system reboot.
4. After the system reboot is finished and all trouble is cleared, verify that the EMERGENCY TRANSFER CONTROL switch is set to AUTO. This restores the system to the normal mode.

### ***Retranslate Port Circuits***

If port circuit packs had to be moved because of slot limitations in the new carrier, and they were not moved and retranslated before the original tape was updated and sent to the TSC/NTSO, they must be retranslated now. Refer to *DEFINITY® Communications System Generic 1—Administration and Measurement Reports, 555-200-500*, for instructions on performing the retranslations.

### ***Run Acceptance Tests***

Refer to Chapter 8, “Tests,” and perform the appropriate tests.

## R1V3 Medium to Two-Cabinet G1 With Duplication

### *Upgrade Cabinet*

1. Determine if the existing cabinet is being upgraded to the PPN or EPN.
  - If the existing cabinet is being upgraded to the PPN, upgrade the cabinet using the procedures contained in the “Upgrade R1V3 Medium to G1 PPN With Duplication” portion of the “Cabinet Upgrades” section of this chapter.
  - If the existing cabinet is being upgraded to the EPN, upgrade the cabinet using the procedures contained in the “Upgrade R1V3 Medium to G1 EPN With Duplication” portion of the “Cabinet Upgrades” section of this chapter.
2. Refer to *DEFINITY® Communications System Generic 1 and Generic 3i—Installation and Test, 555-230-104*, to install the new cabinet.

### *Connect Fiber-Optic Cables*

Two fiber-optic cables (FL2P-P-20) and four lightwave transceivers (9823-type) are required for EPN connections with duplication if the EPN and PPN are collocated.

When the EPN is installed remotely from the PPN cabinet, four fiber-optic cables (FL2P-P-20), two lightwave transceivers, (9823-type) and four lightwave interface units (provided by PSC) are required.

If the cabinets are collocated, the fiber-optic cable should be routed directly from the PPN to the EPN cabinet. The preferred routing is to run the cables up the cable tray and out the top of the cabinet. The cable is then run to the other cabinet, through the top of the cabinet, and down the cable tray to the desired carrier level.

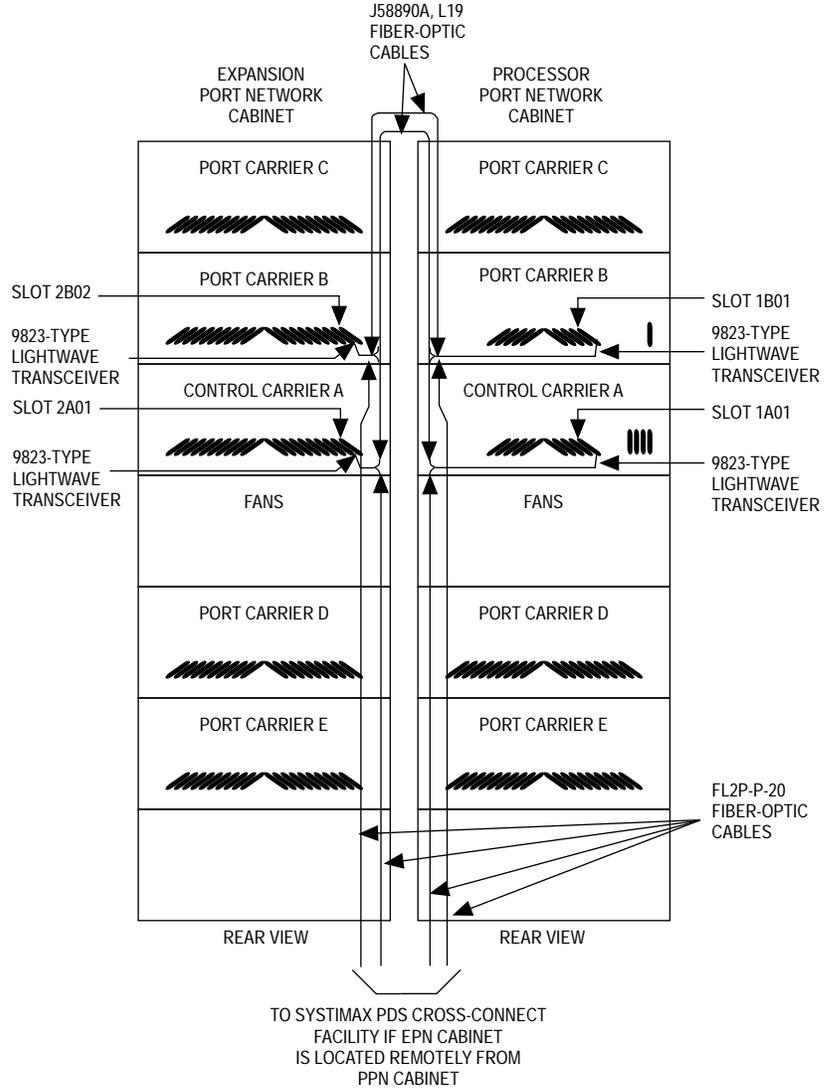
If the cabinets are remote, the cables should be routed down the cable tray and out the bottom of the cabinet to the cross-connect field where the lightwave interface unit is located.

Secure the cables with cable ties against the cable tray walls at the cable tie positions built into the trays.

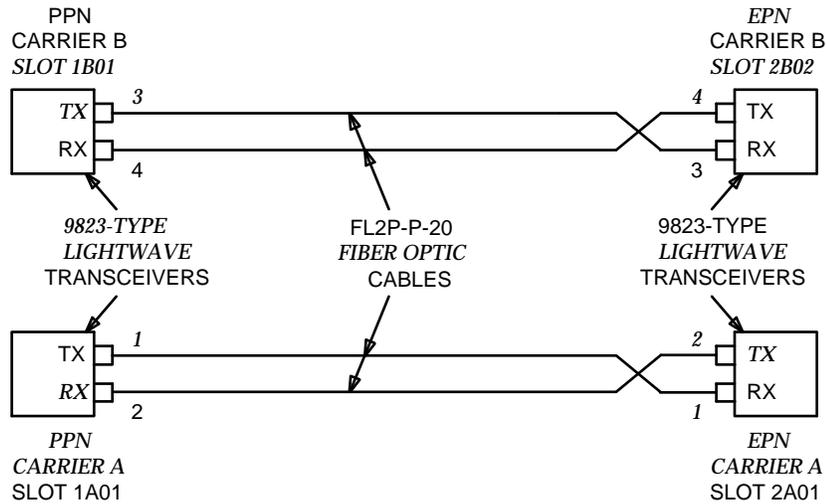
### *Collocated*

1. At the rear of the PPN cabinet, control carrier A (see Figures 2-4 and 2-5):
  - Install a 9823-type lightwave transceiver on the connector at slot 1A01.
  - Connect one end of fiber-optic cable to the 9823-type lightwave transceiver at slot 1A01. If there are "A"s and "B"s associated with the connection, they must match: A on one end must match A on the other end, and B on one end must match B on the other end. Installing A on one end and B on the other does not work.
  - Route the fiber-optic cable from the 9823-type lightwave transceiver to the cabinet cable tray and upward out of the cabinet. Then route the cable down into the cable tray of the EPN cabinet.

2. At the rear of the PPN cabinet, control carrier B:
  - Install a 9823-type lightwave transceiver on the connector at slot 1B01.
  - Connect one end of a fiber-optic cable to the 9823-type lightwave transceiver at slot 1B01. If there are "A"s and "B"s associated with the connection they must match: A on one end must match A on the other end, and B on one end must match B on the other end. Installing A on one end and B on the other does not work.
  - Route the fiber-optic cable from the 9823-type lightwave transceiver to the cabinet cable tray and upward out of the cabinet. Then route the cable down into the cable tray of the EPN cabinet.
3. At the rear of the EPN cabinet, control carrier A:
  - Install a 9823-type lightwave transceiver on the connector at slot 2A01.
  - Connect the fiber-optic cable, coming from the PPN cabinet, control carrier A, to the 9823-type lightwave transceiver at slot 2A01. If there are "A"s and "B"s associated with the connection they must match: A on one end must match A on the other end, and B on one end must match B on the other end. Installing A on one end and B on the other does not work.
4. At the rear of the EPN cabinet, port carrier B:
  - Install a 9823-type lightwave transceiver on the connector at slot 2B02.
  - Connect the fiber-optic cable, coming from the PPN cabinet, control carrier B, to the 9823-type lightwave transceiver at slot 2B02. If there are "A"s and "B"s associated with the connection they must match: A on one end must match A on the other end, and B on one end must match B on the other end. Installing A on one end and B on the other does not work.
5. Secure the fiber-optic cables (with cable ties) against the cable tray walls at the cable tie positions built into the trays.
6. At top of cabinet, coil the surplus length of each fiber-optic cable. Secure the cables against the cable tray wall with cable ties.



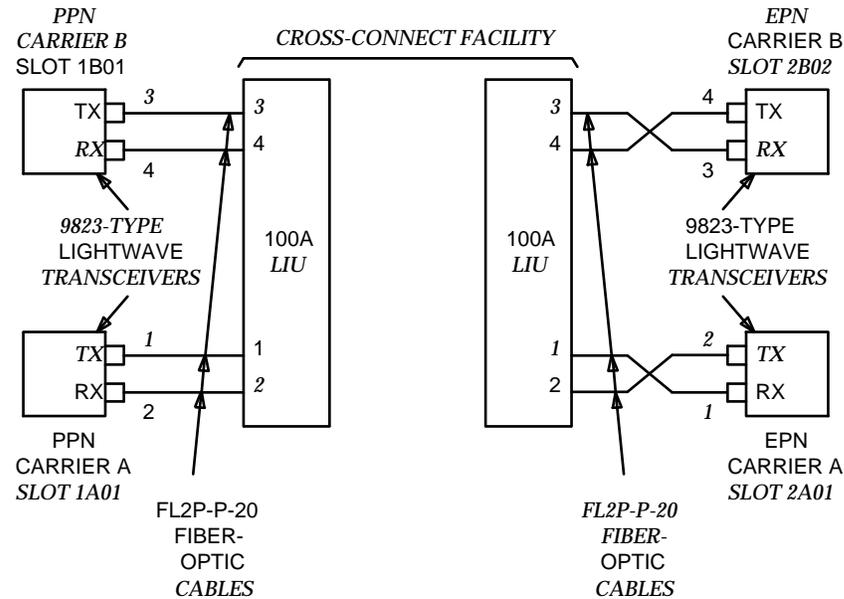
**FIGURE 2-4. EPN Fiber-Optic Cable Connections for G1 Multi-Carrier Cabinet With Duplication Option**



**FIGURE 2-5. Fiber-Optic Cable Connections for Adjacent Cabinet With Duplication Option**

#### Remote

1. At the rear of the PPN cabinet, control carrier A (see Figures 2-4 and 2-6):
  - Install a 9823-type lightwave transceiver on the connector at slot 1A01.
  - Connect one end of the fiber-optic cable to the 9823-type lightwave transceiver at slot 1A01. If there are "A"s and "B"s associated with the connection they must match: A on one end must match A on the other end, and B on one end must match B on the other end. Installing A on one end and B on the other does not work.
  - Route the fiber-optic cable from the 9823-type lightwave transceiver to the cabinet cable tray and downward out of the cabinet through the cable manager to the PDS cross-connect facility.
2. At the PDS cross-connect facility, connect the fiber-optic cable to the lightwave interface unit provided.



**FIGURE 2-6. Fiber-Optic Cable Connections for Remote Cabinet With Duplication Option**

3. Secure the fiber-optic cable (with cable ties) against the cable tray wall at the cable tie positions built into the tray.
4. At the rear of the PPN cabinet, control carrier B:
  - Install a 9823-type lightwave transceiver on the connector at slot 1B01.
  - Connect one end of a fiber-optic cable to the 9823-type lightwave transceiver at slot 1B01. If there are "A"s and "B"s associated with the connection they must match: A on one end must match A on the other end, and B on one end must match B on the other end. Installing A on one end and B on the other does not work.
  - Route the fiber-optic cable from the 9823-type lightwave transceiver to the cabinet cable tray and downward out of the cabinet through the cable manager to the PDS cross-connect facility.
5. At the PDS cross-connect facility, connect the fiber-optic cable to the lightwave interface unit provided.
6. Secure the fiber-optic cable (with cable ties) against the cable tray wall at the cable tie positions built into the tray.

7. At the rear of the EPN cabinet, control carrier A:
  - Install a 9823-type lightwave transceiver on the connector at slot 2A01.
  - Connect one end of a fiber-optic cable to the 9823-type lightwave transceiver at slot 1B01. If there are "A"s and "B"s associated with the connection they must match: A on one end must match A on the other end, and B on one end must match B on the other end. Installing A on one end and B on the other does not work.
  - Route the fiber-optic cable from the 9823-type lightwave transceiver to the cabinet cable tray and downward out of the cabinet through the cable manager to the PDS cross-connect facility.
8. At the PDS cross-connect facility, connect the fiber-optic cable to the lightwave interface unit provided.
9. Secure the fiber-optic cable (with cable ties) against the cable tray wall at the cable tie positions built into the tray.
10. At the rear of the EPN cabinet, port carrier B:
  - Install a 9823-type lightwave transceiver on the connector at slot 2B02.
  - Connect one end of a fiber-optic cable to the 9823-type lightwave transceiver at slot 1B01. If there are "A"s and "B"s associated with the connection they must match: A on one end must match A on the other end, and B on one end must match B on the other end. Installing A on one end and B on the other does not work.
  - Route the fiber-optic cable from the 9823-type lightwave transceiver to the cabinet cable tray and downward out of the cabinet through the cable manager to the PDS cross-connect facility.
11. At the PDS cross-connect facility, connect the fiber-optic cable to the lightwave interface unit provided.
12. Secure the fiber-optic cable (with cable ties) against the cable tray wall at the cable tie positions built into the tray.

### **Remove Power Failure Ground Strap**

1. Remove the previously installed ground strap from the power failure transfer unit.

### **Reboot the System**

1. Connect the Manager I terminal to the connector labeled “DUPLICATION OPTION TERMINAL” on the rear of the “A” carrier in the PPN cabinet.
2. Insert the new G1 system tape in the PPN cabinet.
3. At the EPN power distribution unit, set the main circuit breaker to ON.
4. At the PPN power distribution unit, set the main circuit breaker to ON.
5. The system now goes through the rebooting process, loading the system translations from the tape. Rebooting requires several minutes. Refer to the “System Reboot Indications” section in *DEFINITY® Communications System Generic 1 and Generic 3i—Maintenance, 555-204-105*, for circuit pack LED indications and Manager I terminal displays that occur during system reboot.
6. Login at the `login:` prompt on the Manager I terminal, and set the time to ensure that the system is booted properly.

### **Close Up Cabinet and Reconnect Cables**

1. At the PPN power distribution unit, set the main circuit breaker to OFF.
2. At the EPN power distribution unit, set the main circuit breaker to OFF.
3. Label and disconnect the lightwave transceivers and fiber-optic cables.
4. Replace all back panels previously removed.
5. At the cabinet, reconnect the lightwave transceivers and fiber-optic cables and the connector cables associated with the carrier being replaced.
6. Install the front door on the cabinet if previously removed.
7. Install a DEFINITY label on the cabinet.

### ***Power Up the System***

1. At the EPN power distribution unit, set the main circuit breaker to ON.
2. At the PPN power distribution unit, set the main circuit breaker to ON.
3. The system now goes through the rebooting process, loading the system translations on the tape. Rebooting requires 15 to 20 minutes. Refer to the “System Reboot Indications” section in *DEFINITY® Communications System Generic 1 and Generic 3i—Maintenance, 555-204-105*, for circuit pack LED indications and Manager I terminal displays that occur during the system reboot.
4. After the system reboot is finished and all trouble is cleared, verify the EMERGENCY TRANSFER CONTROL switch is set to AUTO. This restores the system to the normal mode.

### ***Retranslate Port Circuits***

If port circuit packs had to be moved because of slot limitations in the new carrier, and they were not moved and retranslated before the original tape was updated and sent to the TSC/NTSO, they must be retranslated now. Refer to *DEFINITY® Communications System Generic 1 and System 75—Administration and Measurement Reports, 555-200-500*, for instructions on performing the retranslations.

### ***Run Acceptance Tests***

Refer to Chapter 8, “Tests,” and perform the appropriate tests.

## **Two R1V3 Medium to Two-Cabinet G1 Without Duplication**

### ***Upgrade Cabinet***

1. Upgrade the cabinet to be used as the PPN using the procedures in the “Upgrade R1V3 Medium to G1 PPN Without Duplication” portion of the “Cabinet Upgrades” section of this chapter.
2. Upgrade the cabinet to be used as the EPN using the procedures contained in the “Upgrade R1V3 Medium to G1 EPN Without Duplication” portion of the “Cabinet Upgrades” section of this chapter.

### **Connect Fiber-Optic Cables**

One fiber-optic cable (FL2P-P-20) and two lightwave transceivers (9823-type) are required for EPN connections without the Duplication Option if the EPN and PPN are collocated.

When the EPN cabinet is installed remotely from the PPN cabinet, two fiber-optic cables (FL2P-P-20), two lightwave transceivers (9823-type), and two lightwave interface (provided by the PSC) are required.

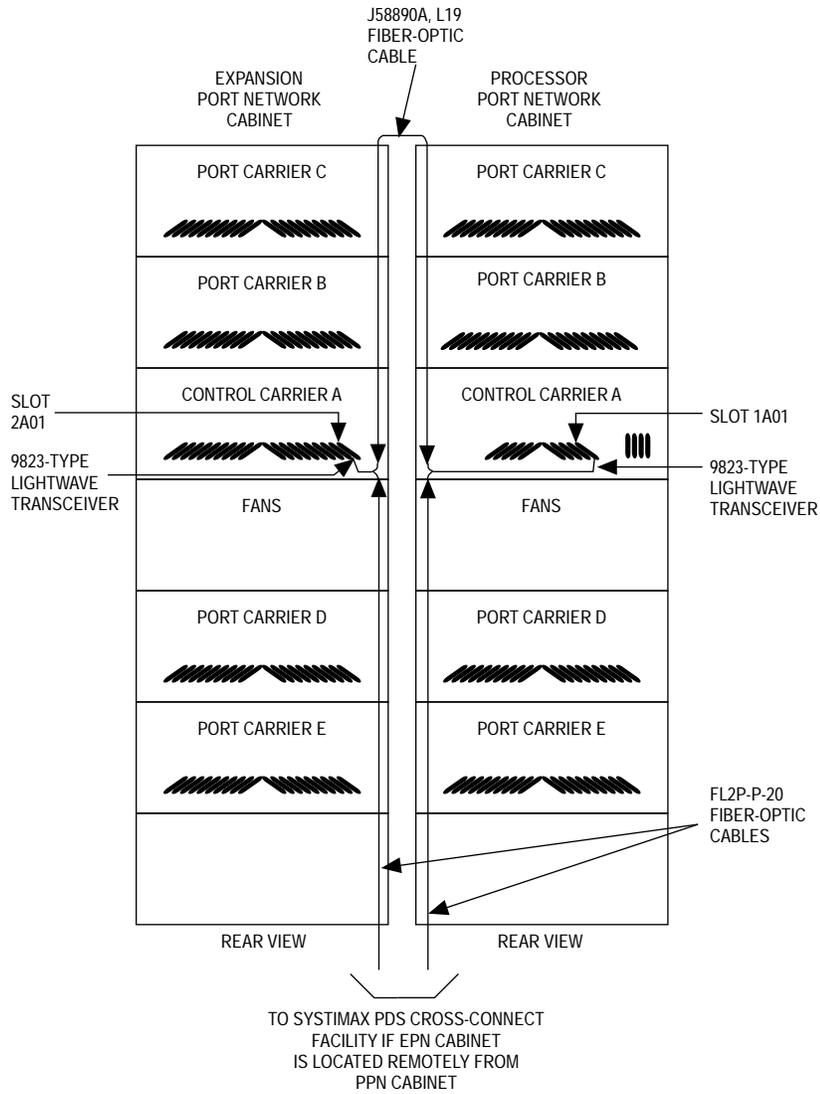
If the cabinets are collocated, the fiber-optic cable should be routed directly from the PPN to the EPN cabinet. The preferred routing is to run the cables up the cable tray and out the top of the cabinet. The cable is then run to the other cabinet, through the top of the cabinet and down the cable tray to the desired carrier level.

If the cabinets are remote, the cables should be routed down the cable tray and out the bottom of the cabinet to the cross-connect field where the lightwave interface unit is located.

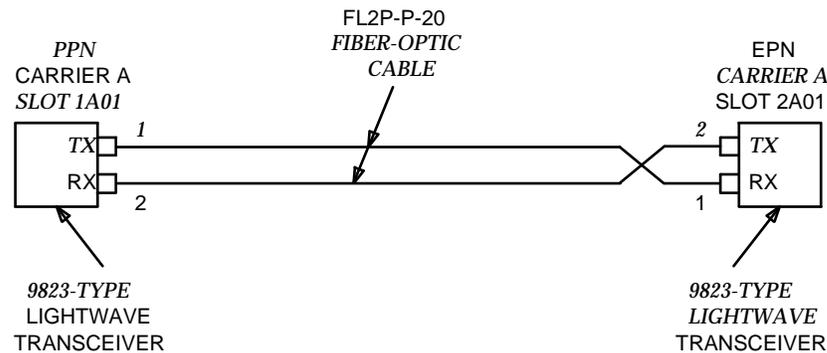
Secure the cables with cable ties against the cable tray walls at the cable tie positions built into the trays.

#### *Collocated*

1. At the rear of the PPN cabinet control carrier (see Figures 2-7 and 2-8):
  - Install a 9823-type lightwave transceiver on the cable connector at slot 1A01.
  - Connect one end of the fiber-optic cable to the 9823-type lightwave transceiver, previously installed, at slot 1A01. If there are "A"s and "B"s associated with the connection they must match: A on one end must match A on the other end, and B on one end must match B on the other end. Installing A on one end and B on the other does not work.
  - Secure the fiber-optic cable (with cable ties) against the cable tray wall at the cable tie positions built into the tray.
  - At the top of the cabinet, coil up the surplus length of fiber-optic cable. Secure the cable against the cable tray wall with cable ties.
2. At rear of the EPN cabinet control carrier:
  - Install a 9823-type lightwave transceiver on the cable connector at slot 2A01.
  - Connect other end of fiber-optic cable to the 9823-type lightwave transceiver, previously installed at slot 2A01. If there are "A"s and "B"s associated with the connection they must match: A on one end must match A on the other end, and B on one end must match B on the other end. Installing A on one end and B on the other does not work.
  - Secure the fiber-optic cable (with cable ties) against the cable tray wall at the cable tie positions built into the tray.
  - At the top of the cabinet, coil up the surplus length of fiber-optic cable. Secure the cable against the cable tray wall with cable ties.



**FIGURE 2-7. G1 Expansion Port Network (EPN) Cabinet Connections Without Duplication Option**

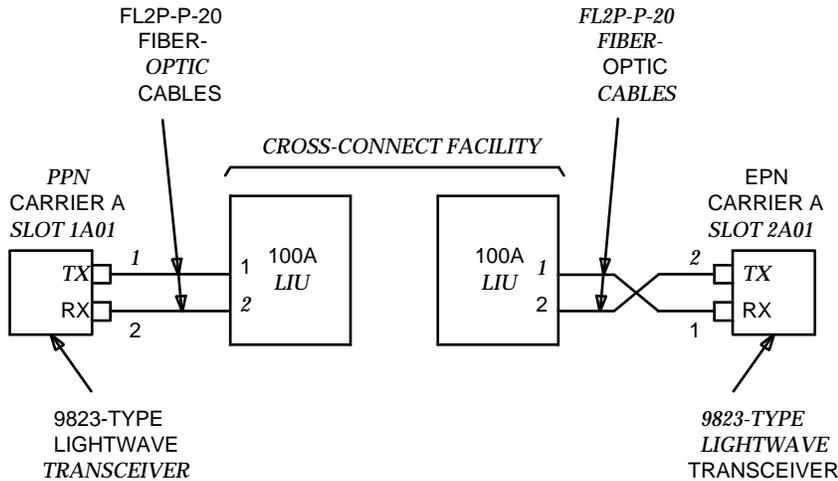


**FIGURE 2-8. Fiber-Optic Connections—Cabinets Collocated**

#### *Remote Cabinets*

1. At the rear of the PPN cabinet, control carrier A (see Figures 2-7 and 2-9):
  - Install a 9823-type lightwave transceiver on the connector at slot 1A01.
  - Connect one end of the fiber-optic cable to the 9823-type lightwave transceiver at slot 1A01. If there are "A"s and "B"s associated with the connection they must match: A on one end must match A on the other end, and B on one end must match B on the other end. Installing A on one end and B on the other does not work.
  - Route the fiber-optic cable from the 9823-type lightwave transceiver to the cabinet cable tray and downward out of the cabinet through the cable manager to the PDS cross-connect facility.
2. At the PDS cross-connect facility, connect the fiber-optic cable to the lightwave interface unit provided.
3. Secure the fiber-optic cable (with cable ties) against the cable tray wall at the cable tie positions built into the tray.
4. At rear of the EPN cabinet, control carrier A:
  - Install a 9823-type lightwave transceiver on the connector at slot 2A01.
  - Connect the fiber-optic cable to the 9823-type lightwave transceiver slot 2A01. If there are "A"s and "B"s associated with the connection they must match: A on one end must match A on the other end, and B on one end must match B on the other end. Installing A on one end and B on the other does not work.
  - Route the fiber-optic cable from the 9823-type lightwave transceiver to the cabinet cable tray and downward out of the cabinet through the cable manager to the PDS cross-connect facility.
5. At the PDS cross-connect facility, connect the fiber-optic cable to the lightwave interface unit provided.

6. Secure the fiber-optic cable (with cable ties) against the cable tray wall at the cable tie positions built into the tray.
7. At top of cabinet, coil up the surplus length of fiber-optic cable, and secure the cable against the cable wall with cable ties.



**FIGURE 2-9. Fiber-Optic Connection—Cabinets Remote**

**Remove Power Failure Ground Strap**

1. Remove the previously installed ground strap from the power failure transfer unit.

**Reboot the System**

1. Connect the System Access Terminal (SAT) (Manager I terminal) to the connector labeled “DUPLICATION OPTION TERMINAL” on the rear of the “A” carrier in the PPN cabinet.
2. Insert the new G1 system tape in the PPN cabinet.
3. At the EPN power distribution unit, set the main circuit breaker to ON.
4. At the PPN power distribution unit, set the main circuit breaker to ON.
5. The system now goes through the rebooting process, loading the system translations from the tape. Rebooting requires 15 to 20 minutes. Refer to the “System Reboot Indications” section in *DEFINITY® Communications System Generic 1 and Generic 3i—Maintenance, 555-204-105*, for circuit pack LED indications and Manager I terminal displays that occur during system reboot.
6. Login at the `login:` prompt on the Manager I terminal and set the time to ensure that the system is booted properly.

**Close Up Cabinet and Reconnect Cables**

1. At the PPN power distribution unit, set the main circuit breaker to OFF.
2. At the EPN power distribution unit, set the main circuit breaker to OFF.
3. Label and disconnect the lightwave transceivers and fiber-optic cables.
4. Replace all back panels previously removed.
5. At the cabinet, reconnect the lightwave transceivers and fiber-optic cables and the connector cables associated with the carrier being replaced.
6. Install the front door on the cabinet if previously removed.
7. Install a DEFINITY label to the cabinet.

**Power Up the System**

1. At the EPN power distribution unit, set the main circuit breaker to ON.
2. At the PPN power distribution unit, set the main circuit breaker to ON.
3. The system now goes through the rebooting process, loading the system translations on the tape. Rebooting requires 15 to 20 minutes. Refer to the “System Reboot Indications” section in *DEFINITY® Communications System Generic 1 and Generic 3i—Maintenance, 555-204-105*, for circuit pack LED indications and Manager I terminal displays that occur during the system reboot.
4. After the system reboot is finished and all trouble is cleared, verify the EMERGENCY TRANSFER CONTROL switch is set to AUTO. This restores the system to the normal mode.

**Retranslate Port Circuits**

If port circuit packs had to be moved because of slot limitations in the new carrier, and they were not moved and retranslated before the original tape was updated and sent to the TSC/NTSO, they must be retranslated now. Refer to *DEFINITY® Communications System Generic 1 and System 75—Administration and Measurement Reports, 555-200-500*, for instructions on performing the retranslations.

**Run Acceptance Test**

Refer to Chapter 8, “Tests,” and perform the appropriate tests.

## Two R1V3 Medium to Two-Cabinet G1 With Duplication

### *Upgrade Cabinet*

1. Upgrade the cabinet to be used as the PPN using the procedures in the “Upgrade R1V3 Medium to G1 PPN With Duplication” portion of the “Cabinet Upgrades” section of this chapter.
2. Upgrade the cabinet to be used as the EPN using the procedures contained in the “Upgrade R1V3 Medium to G1 EPN With Duplication” portion of the “Cabinet Upgrades” section of this chapter.

### *Connect Fiber-Optic Cables*

Two fiber-optic cables (FL2P-P-20) and four lightwave transceivers (9823-type) are required for EPN connections with duplication if the EPN and PPN are collocated.

When the EPN is installed remotely from the PPN cabinet, four fiber-optic cables (FL2P-P-20), two lightwave transceivers (9823-type), and four lightwave interface units (provided by PSC) are required.

If the cabinets are collocated, the fiber-optic cable should be routed directly from the PPN to the EPN cabinet. The preferred routing is to run the cables up the cable tray and out the top of the cabinet. The cable is then run to the other cabinet, through the top of the cabinet and down the cable tray to the desired carrier level.

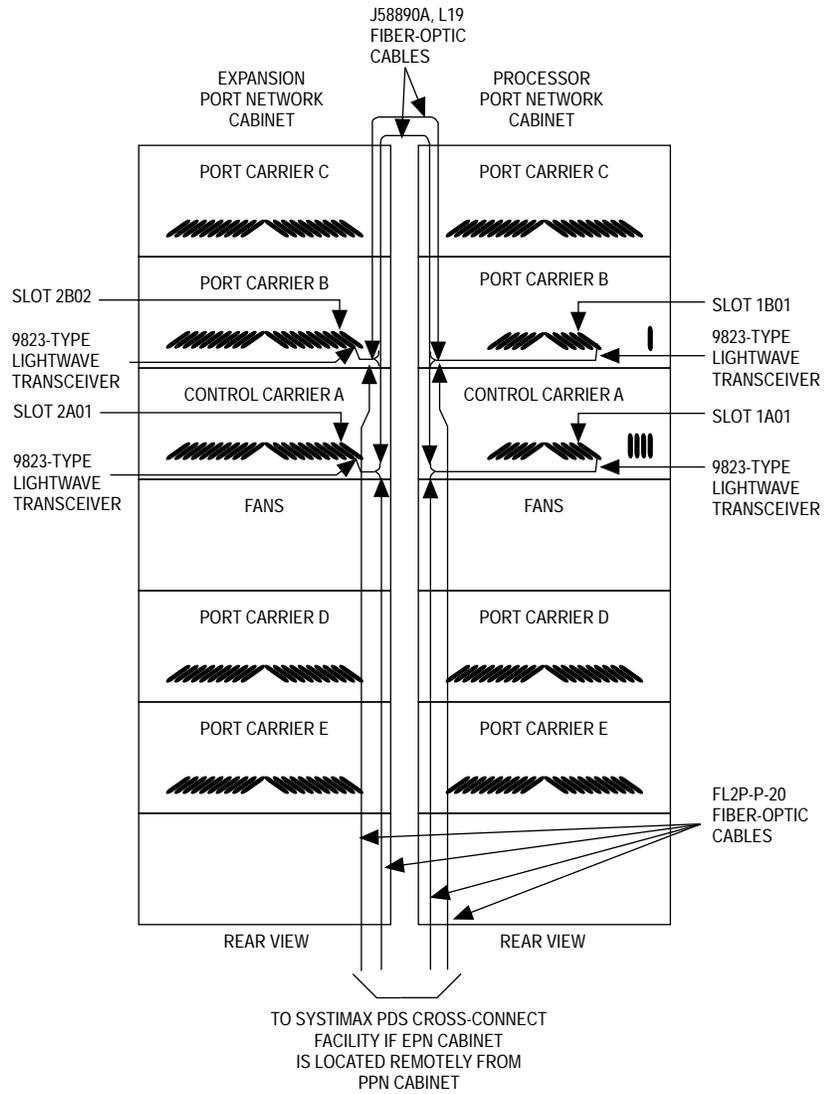
If the cabinets are remote, the cables should be routed down the cable tray and out the bottom of the cabinet to the cross-connect field where the lightwave interface unit is located.

Secure the cables with cable ties against the cable tray walls at the cable tie positions built into the trays.

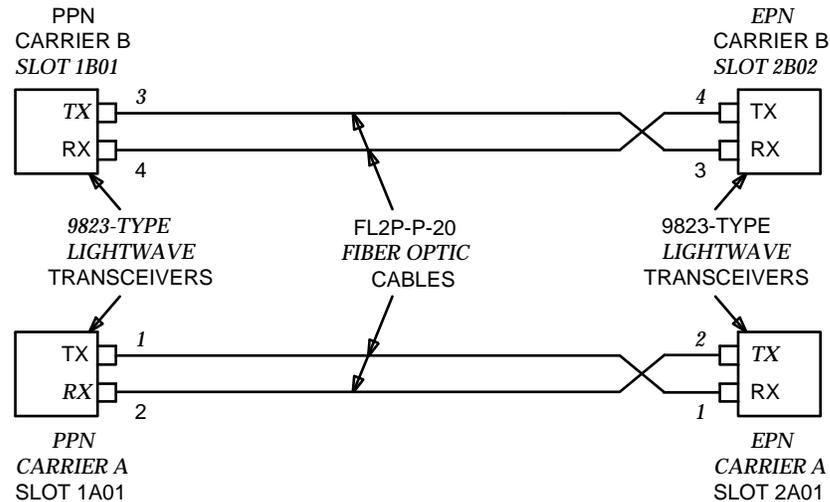
### *Collocated*

1. At the rear of the PPN cabinet, control carrier A (see Figures 2-10 and 2-11):
  - Install a 9823-type lightwave transceiver on the connector at slot 1A01.
  - Connect one end of a fiber-optic cable to the 9823-type lightwave transceiver at slot 1A01. If there are "A"s and "B"s associated with the connection they must match: A on one end must match A on the other end, and B on one end must match B on the other end. Installing A on one end and B on the other does not work.
  - Route the fiber-optic cable from the 9823-type lightwave transceiver to the cabinet cable tray and upward out of the cabinet. Then route the cable down into the cable tray of the EPN cabinet.

2. At the rear of the PPN cabinet, control carrier B:
  - Install a 9823-type lightwave transceiver on the connector at slot 1B01.
  - Connect one end of a fiber-optic cable to the 9823-type lightwave transceiver at slot 1B01. If there are "A"s and "B"s associated with the connection they must match: A on one end must match A on the other end, and B on one end must match B on the other end. Installing A on one end and B on the other does not work.
  - Route the fiber-optic cable from the 9823-type lightwave transceiver to the cabinet cable tray and upward out of the cabinet. Then route the cable down into the cable tray of the EPN cabinet.
3. At the rear of the EPN cabinet, control carrier A:
  - Install a 9823-type lightwave transceiver on the connector at slot 2A01.
  - Connect the fiber-optic cable, coming from the PPN cabinet, control carrier A, to the 9823-type lightwave transceiver at slot 2A01. If there are "A"s and "B"s associated with the connection they must match: A on one end must match A on the other end, and B on one end must match B on the other end. Installing A on one end and B on the other does not work.
4. At the rear of the EPN cabinet, port carrier B:
  - Install a 9823-type lightwave transceiver on the connector at slot 2B02.
  - Connect the fiber-optic cable, coming from the PPN cabinet, control carrier B, to the 9823-type lightwave transceiver at slot 2B02. If there are "A"s and "B"s associated with the connection they must match: A on one end must match A on the other end, and B on one end must match B on the other end. Installing A on one end and B on the other does not work.
5. Secure the fiber-optic cables (with cable ties) against the cable tray walls at the cable tie positions built into the trays.
6. At the top of the cabinet, coil up the surplus length of each fiber-optic cable. Secure the cables against the cable tray wall with cable ties.



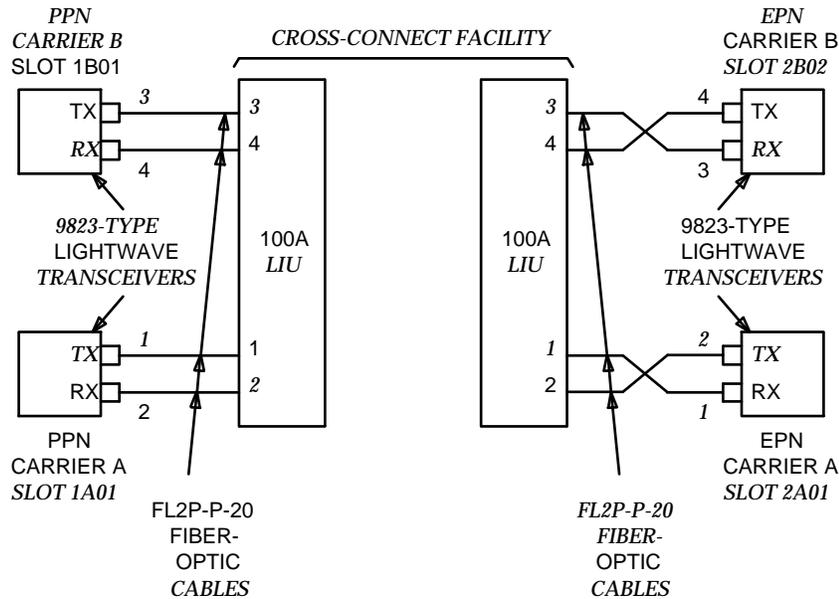
**FIGURE 2-10. EPN Fiber-Optic Cable Connections for G1 Multi-Carrier Cabinet With Duplication Option**



**FIGURE 2-11. Fiber-Optic Cable Connections for Adjacent Cabinet With Duplication Option**

#### Remote

1. At the rear of the PPN cabinet, control carrier A (see Figures 2-10 and 2-12):
  - Install a 9823-type lightwave transceiver on the connector at slot 1A01.
  - Connect one end of a fiber-optic cable to the 9823-type lightwave transceiver at slot 1A01. If there are "A"s and "B"s associated with the connection they must match: A on one end must match A on the other end, and B on one end must match B on the other end. Installing A on one end and B on the other does not work.
  - Route the fiber-optic cable from the 9823-type lightwave transceiver to the cabinet cable tray and downward out of the cabinet through the cable manager to the PDS cross-connect facility.
2. At the PDS cross-connect facility, connect the fiber-optic cable to the lightwave interface unit provided.



**FIGURE 2-12. Fiber-Optic Cable Connections for Remote Cabinet With Duplication Option**

3. Secure the fiber-optic cable (with cable ties) against the cable tray wall at the cable tie positions built into the tray.
4. At the rear of the PPN cabinet, control carrier B:
  - Install a 9823-type lightwave transceiver on the connector at slot 1B01.
  - Connect one end of a fiber-optic cable to the 9823-type lightwave transceiver at slot 1B01. If there are "A"s and "B"s associated with the connection they must match: A on one end must match A on the other end, and B on one end must match B on the other end. Installing A on one end and B on the other does not work.
  - Route the fiber-optic cable from the 9823-type lightwave transceiver to the cabinet cable tray and downward out of the cabinet through the cable manager to the PDS cross-connect facility.
5. At the PDS cross-connect facility, connect the fiber-optic cable to the lightwave interface unit provided.
6. Secure the fiber-optic cable (with cable ties) against the cable tray wall at the cable tie positions built into the tray.

7. At the rear of the EPN cabinet, control carrier A:
  - Install a 9823-type lightwave transceiver on the connector at slot 2A01.
  - Connect one end of a fiber-optic cable to the 9823-type lightwave transceiver at slot 1B01. If there are "A"s and "B"s associated with the connection they must match: A on one end must match A on the other end, and B on one end must match B on the other end. Installing A on one end and B on the other does not work.
  - Route the fiber-optic cable from the 9823-type lightwave transceiver to the cabinet cable tray and downward out of the cabinet through the cable manager to the PDS cross-connect facility.
8. At the PDS cross-connect facility, connect the fiber-optic cable to the lightwave interface unit provided.
9. Secure the fiber-optic cable (with cable ties) against the cable tray wall at the cable tie positions built into the tray.
10. At the rear of the EPN cabinet, port carrier B:
  - Install a 9823-type lightwave transceiver on the connector at slot 2B02.
  - Connect one end of a fiber-optic cable to the 9823-type lightwave transceiver at slot 1B01. If there are "A"s and "B"s associated with the connection they must match: A on one end must match A on the other end, and B on one end must match B on the other end. Installing A on one end and B on the other does not work.
  - Route the fiber-optic cable from the 9823-type lightwave transceiver to the cabinet cable tray and downward out of the cabinet through the cable manager to the PDS cross-connect facility.
11. At the PDS cross-connect facility, connect the fiber-optic cable to the lightwave interface unit provided.
12. Secure the fiber-optic cable (with cable ties) against the cable tray wall at the cable tie positions built into the tray.

***Remove Power Failure Ground Strap***

1. Remove the previously installed ground strap from the power failure transfer unit.

**Reboot the System**

1. Connect the Manager I terminal to the connector labeled “DUPLICATION OPTION TERMINAL” on the rear of the “A” carrier in the PPN cabinet.
2. Insert the new G1 system tape in the PPN cabinet.
3. At the EPN power distribution unit, set the main circuit breaker to ON.
4. At the PPN power distribution unit, set the main circuit breaker to ON.
5. The system now goes through the rebooting process, loading the system translations from the tape. Rebooting requires 15 to 20 minutes. Refer to the “System Reboot Indications” section in *DEFINITY® Communications System Generic 1 and Generic 3i—Maintenance, 555-204-105*, for circuit pack LED indications and Manager I terminal displays that occur during system reboot.
6. Login at the `login:` prompt on the Manager I terminal, and set the time to ensure that the system is booted properly.

**Close Up Cabinet and Reconnect Cables**

1. At the PPN power distribution unit, set the main circuit breaker to OFF.
2. At the EPN power distribution unit, set the main circuit breaker to OFF.
3. Label and disconnect the lightwave transceivers and fiber-optic cables.
4. Replace all back panels previously removed.
5. At the cabinet, reconnect the lightwave transceivers and fiber-optic cables and connector cables associated with the carrier being replaced.
6. Install the front door on the cabinet if previously removed.
7. Install a DEFINITY label on the cabinet.

### ***Power Up the System***

1. At the EPN power distribution unit, set the main circuit breaker to ON.
2. At the PPN power distribution unit, set the main circuit breaker to ON.
3. The system now goes through the rebooting process, loading the system translations on the tape. Rebooting requires 15 to 20 minutes. Refer to the “System Reboot Indications” section in *DEFINITY® Communications System Generic 1 and Generic 3i—Maintenance, 555-204-105*, for circuit pack LED indications and Manager I terminal displays that occur during the system reboot.
4. After the system reboot is finished and all trouble is cleared, verify the EMERGENCY TRANSFER CONTROL switch is set to AUTO. This restores the system to the normal mode.

### ***Retranslate Port Circuits***

If port circuit packs had to be moved because of slot limitations in the new carrier, and they were not moved and retranslated before the original tape was updated and sent to the TSC/NTSO, they must be retranslated now. Refer to *DEFINITY® Communications System Generic 1 and System 75—Administration and Measurement Reports, 555-200-500*, for instructions on performing the retranslations.

### ***Run Acceptance Tests***

Refer to Chapter 8, “Tests,” and perform the appropriate tests.

## Cabinet Upgrades

The procedures contained in this section are not stand-alone procedures. They must be used in conjunction with the procedures contained in the “System Upgrades” section of this chapter. If you were not referred to this part from System Upgrades, you have made a mistake; refer to the Table of Contents.

### Upgrade R1V3 Medium to G1 PPN Cabinet Without Duplication

The System 75 Medium R1V3 is upgraded to the G1 Without Duplication by:

- Removing the tape drive unit
- Removing the control carrier in position “A”
- Installing the J58890AH-1 control carrier in position “A”
- Adding the G1 circuit packs
- Restructuring the port circuits as required

**Prerequisite Hardware**

The equipment in the following table (Table 2-A) **MUST** be on-site before the upgrade is started. Ensure that the tape is the G1 tape.

**TABLE 2-A. Required Hardware**

<b>Equipment</b>	<b>Description</b>	<b>Quantity</b>
J58890AH-1	Control Carrier	1
TN773	Processor	1
TN768	Tone-Clock	1
TN777	Network Control	1
TN770	Memory	1
TN774	Tape Drive	1
TN765 (Note 1)	Processor Interface	max 2 (opt)
J58890TD-1	Tape Cartridge	2
982LS	Current Limiter	1
ZAHF4	Bus Terminator	2
WP91716L6	TDM/LAN Cables	max 3
WP91716L7	TDM/LAN Cables	1 (Note 2)
176A	Apparatus Blank	1
Label	DEFINITY	1

- Note:**
1. Replaces TN716, TN719, and TN738 if present in the system.
  2. Required only if carrier D is present.

### **Required Tools**

The following tools and items may be required during the upgrade:

- High-intensity AC drop light or flashlight
- 3/8-inch flat screwdriver with a 10-inch shank (minimum)
- 5/16-inch and 1/4-inch sockets with a ratchet and 10-inch extension
- Power screwdriver (optional)
- Pliers
- Static-proof box or original circuit pack packaging (pink poly) for transporting circuit packs
- Labels for labeling the cables attached to the rear of cabinets and port circuit pack
- Receptacle for holding approximately 100 self-tapping screws
- Twelve spare #12 and #10 self-tapping screws
- Four spare carrier grounding straps
- Authorized wrist grounding strap
- Cabinet air filter (may be required)
- Backplane pin repair kit (KS-22876-L2 or equivalent)
- One copy of each of the following manuals:
  - *DEFINITY® Communications System Generic 1 and Generic 3i—Maintenance, 555-204-105*
  - *DEFINITY® Communications System Generic 1 and System 75—Administration and Measurement Reports, 555-200-500*
  - *DEFINITY® Communications System Generic 1—Implementation, 555-204-655.*

### **Label Cables**

1. To make reconnecting the cables easier and to ensure they are properly reconnected, label both ends of the connector cables associated with the carrier to be removed (if not already labeled).

### ***Power Down System***

1. At the power distribution unit, set the main AC circuit breaker to OFF.

**CAUTION:** The power failure ground strap must not be connected while the system is powered up.

### ***Install Power Failure Transfer Ground Strap***

1. Connect a lead to pin 49 of the CAP or to pin 49 of the connecting block associated with the power failure transfer panel.
2. Route the lead to an approved ground source.
3. Connect the lead to the approved ground source.

### ***Remove Door and Panels and Disconnect Cables***

1. Remove the front door from the cabinet, if desired.
2. With the cable retainer in front of you and the part number visible (4B or 4C), locate the slot that is almost vertical. This slot is adjacent to the part number. Insert a flat blade screwdriver with a wide blade (1/4-inch is recommended) into the slot. Twist the screwdriver while the blade is in the slot. The retainer will snap open easily, and the cable can be removed.
3. At the cabinet, disconnect the previously labeled cables associated with the carrier to be removed.
4. At the rear of the cabinet, remove the top three panels (positions A, B, and C) and the bottom panel. There are two types of screws holding the back panels to the cabinet. The #10 screws can be removed with a screwdriver or a 1/4-inch socket. The #12 screws can be removed with a screwdriver or a 5/16-inch socket.

### ***Remove Circuit Packs From Carrier "A"***

1. To ensure the circuit packs and power units are properly reinstalled, label all port circuit packs and power units in the "A" carrier.
2. See WARNING. Remove all circuit packs and power units from carrier "A." Store the circuit packs in the static-proof box.

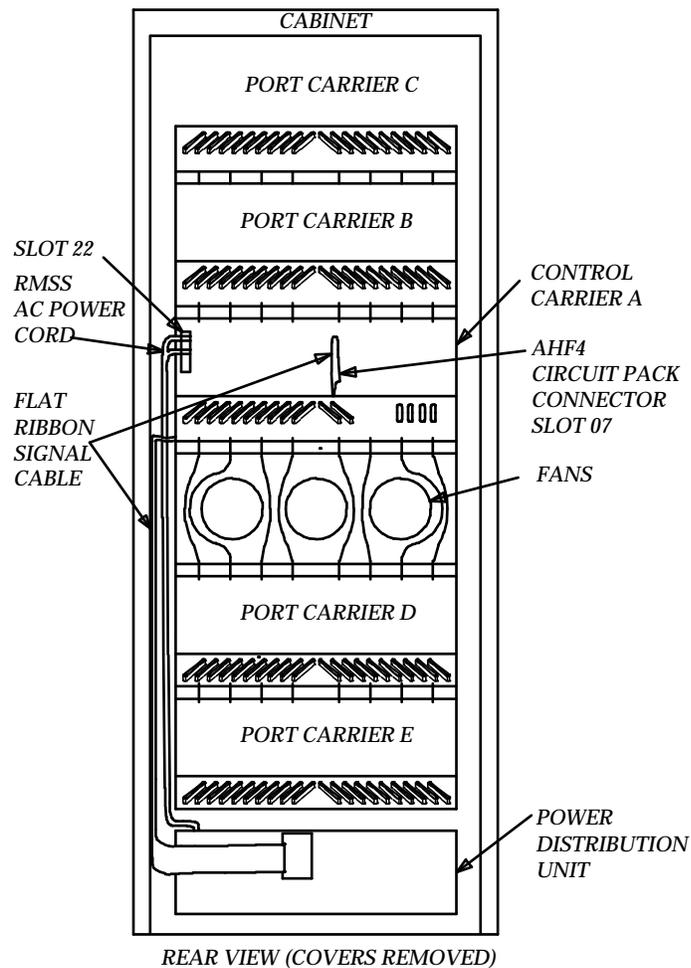
**WARNING:** A wrist strap must always be worn, and the clip must be grounded to the cabinet frame being worked on before inserting and removing any circuit pack.

3. Remove circuit pack blanks from the slots that do not contain circuit packs.
4. Remove the front trim plate from the "A" carrier by pulling straight off.

### ***Remove Tape Drive***

**Note:** The removal of the tape drive does not have to be performed at this time. It can be disconnected at this time, then removed at a later date when time is not as critical.

1. Remove the tape.
2. Disconnect the AHF4 cable adapter from the rear of the “A” carrier (see Figure 2-13).
3. Open the snap connectors, and remove the cable from the adapter. Route the cable back to the tape drive and remove. There are two cable clamps mounted on the cabinet side panels. Use a screwdriver to unsnap the clamps. Neither the cable nor the adapter will be used in the upgraded cabinet.
  - On the HCMR tape drive, disconnect the power supply from the front of the unit, then remove the screws at the rear of the unit that attach the drive to the chassis and slide the tape drive out the front of the cabinet.
  - On the RMSS tape drive, disconnect the red and black wire. Remove the faceplate, then remove the screws that hold the unit to the chassis. Slide the drive out the front of the cabinet.
4. Coil the red and black wire in an out-of-the-way position in the cabinet.
5. Install the 176A Apparatus Blank over the empty space left by the removal of the tape drive.



**FIGURE 2-13. R1V3 System Cabinet—Rear View, Covers Removed**

### **Remove the "A" Carrier**

1. See CAUTION and Note. Disconnect the TDM bus between the "A" and "B" carriers from the "A" and "B" carriers (see Figure 2-14). Remove the AHF3 cable adapters and the cable from the cabinet. They will not be reused.
2. See CAUTION and Note. Disconnect the TDM bus between the "A" and "D" carriers from the "A" and "D" carriers (see Figure 2-14). Remove the AHF3 cable adapter and the cable from the cabinet. They will not be reused.

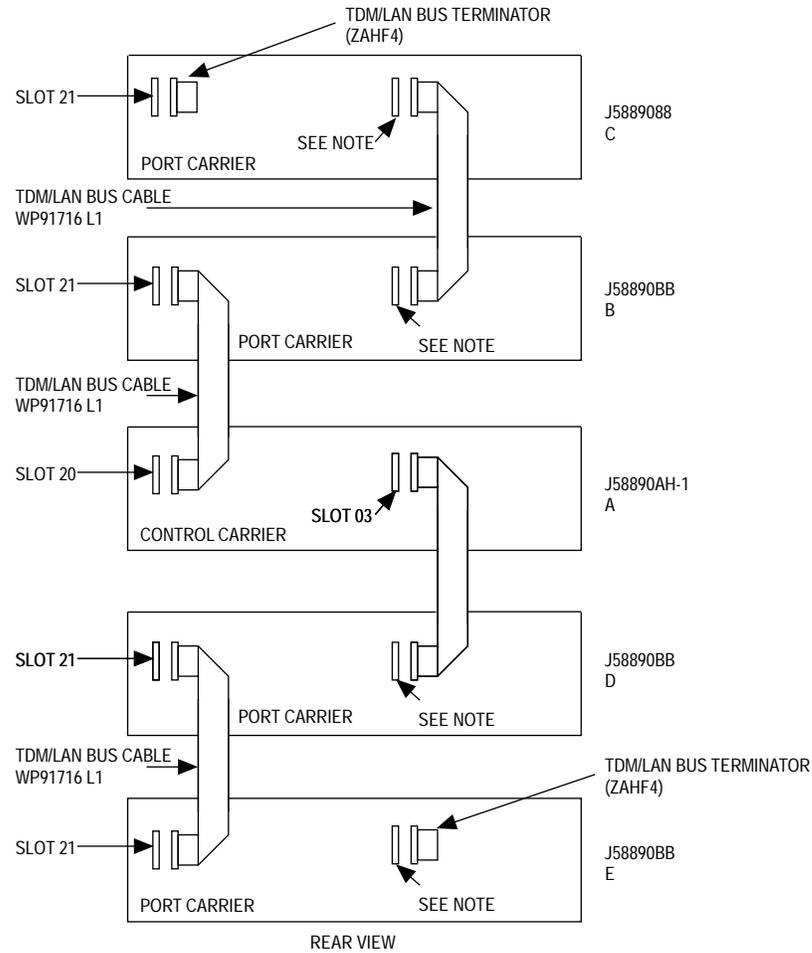
**CAUTION:** When removing the TDM adapters, ensure that none of the short pieces of shrink tubing on the four corner backplane pins come off with the connector.

**Note:** Note the position of the cable adapters before disconnecting the TDM adapters and cables.

3. Disconnect the eight ground straps between the the “A” and “B” carriers from the “A” carrier (see Figure 2-15). These straps will be reconnected to the new “A” carrier.
4. Disconnect the eight ground straps between the “A” and “D” carriers from the “A” carrier (see Figure 2-15). These straps will be reconnected to the new “A” carrier.
5. Slide the latch up, and disconnect the “P1” (small 9 pin) connector and the “P2” (large 37 pin) connector from the “A” carrier.
6. Remove the fan trim plate by pulling straight off.
7. Clean or replace the air filter if necessary.
8. Remove the four screws (top two first) holding the “A” carrier to the cabinet frame. Use a long handle screwdriver or 5/16-inch socket with a 10-inch extension.
9. See CAUTION. Slide the carrier forward 1 to 2 inches; then from the back, check that no cables or wire harnesses are caught on any cabinet and/or carrier framework in such a manner that they could be damaged.

**CAUTION:** Cables and wiring harnesses can be damaged if they catch on framework and too much pressure is used in removing the carrier.

10. Remove the carrier by sliding it out the front of the cabinet.



**NOTE:**  
 ON PORT CARRIER J58890BB-1, CONNECT THE TDM CABLE OR TDM TERMINATOR TO SLOT 02. ON PORT CARRIERS J58890BB-2 OR J58890BB-3, CONNECT THE TDM CABLES OR TDM TERMINATOR TO SLOT 01. IF THE PORT CARRIER HAS J58890BB-1 AND J58890BB-2 STENCILLED ON IT, TREAT IT AS A J58890BB-1.

**FIGURE 2-14. TDM/LAN Bus Wiring Diagram—Rear View**

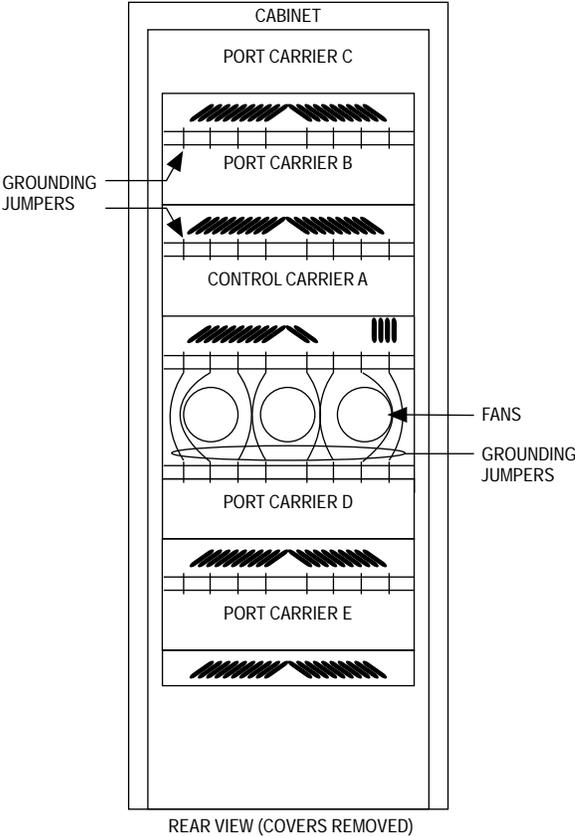


FIGURE 2-15. Grounding Jumper Locations

**Install the New "A" Position Carrier**

1. Visually inspect the carrier for any damage. Verify the backplane pins are not bent.
2. At the rear connector panel of the new carrier, determine which connector will have cables connected; remove the red plastic covers, and install the 4B cable retainers on those connectors.
3. Install the J58890AH-1 control carrier in position "A" by lining up the plastic alignment tip on the top rear of the carrier with the screw holes in the cabinet. These alignment tips will support the carrier while the screws are being installed. Ensure that the power cords are properly placed in the slots in the sides of the carrier.
4. See CAUTION. Fasten the carrier into position with four self-tapping screws saved from the removal of the old carrier.

**CAUTION: Carefully realign the threads on the self-tapping screws by turning them clockwise a turn or two before tightening them to avoid stripping the threads out of the framework.**

5. Connect the "P2" and "P1" (large and small) connectors to the "A" carrier. To get enough slack in the cables, cut the tie wrap holding the intercabinet cable to the upright in the area of the carrier being installed. Snap the connector lock into place to ensure connection is properly made (see Figure 2-16).
6. Connect the ground straps from the "B" carrier to the new "A" carrier (see Figure 2-15). These straps were left connected to the "B" carrier when the old "A" carrier was removed.
7. Connect the ground straps from the "D" carrier to the new "A" carrier (see Figure 2-15). These straps were left connected to the "D" carrier when the old "A" carrier was removed.
8. Connect the TDM/Local Area Network (LAN) bus cables between the "A" and "D" carriers using the new WP91716 L7 TDM/LAN cable (see Figure 2-14 and Table 2-B). The cable is connected to the "A" carrier to the block marked TDM on the right side of the carrier. The cable is connected to the "D" carrier to the block marked TDM on the right side of the carrier.

**TABLE 2-B. TDM/LAN Cable Connections**

"J" Number	Carrier Type	LHS Slot	RHS Slot
J58890BB-1	Port	21	02
J58890BB-2	Port	21	01
J58890BB-3	Port	21	01
J58890AH-1	PPN Control "A"	20	03

9. Connect the TDM/LAN bus cables between the “A” and “B” carriers using the new WP91716 L6 TDM/LAN cable (see Figure 2-14 and Table 2-B). The cable is connected to the “A” carrier to the block marked “TDM” on the left side of the carrier. The cable is connected to the “B” carrier to the block marked “TDM” on the left side of the carrier.
10. See CAUTION and Note. Remove the TDM cables and adapters between carriers “B” and “C.” Install the new WP91716 L6 TDM/LAN cable. The cable is connected to the same connectors that the old cables were disconnected from (right side). (See Figure 2-14 and Table 2-B).
11. See CAUTION and Note. Remove the TDM cables and adapters between carriers “D” and “E.” Install the new WP91716 L6 TDM/LAN cable. The cable is connected to the same connectors that the old cables were disconnected from (left side). (See Figure 2-14 and Table 2-B).

**CAUTION:** When removing the TDM adapters, care should be taken to ensure that none of the short pieces of shrink tubing on the four corner pins of the connector come off.

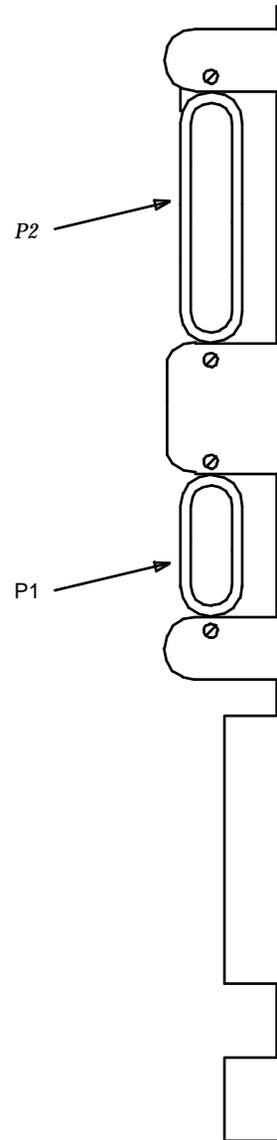
**Note:** Note the position of the cable adapters and terminators before disconnecting the TDM adapters or terminators.

12. See preceding Note. Replace the existing TDM bus terminators (AHF1) with the new ZAHF4 bus terminators. (See Figure 2-14 and Table 2-B).
13. Install the front trim plates on the “A” carrier and the fans.
14. Peel the old decal strip from the trim plates, then install the new decal strip at the bottom of the trim panel. Install the connector decal strip on the rear of the carrier.
15. Install the 631-type power units (removed from R1V3) into the “A” carrier. There are three different pairs of power units available. They are the 631AR1 and 631BR1, the 631WA1 and 631WB1, and the 631DA1 and 631DB1. Do not interchange the units. The 631AR1, 631WA1, or 631DA1 are installed in the left side, while the 631BR1, 631WB1, or 631DB1 are installed in the right side (see Figure 2-17).
16. If the system is equipped with the 631BR1 or 631WB1, install the TN736 power unit on the right side of the carrier, adjacent to the 631BR1 or the 631WB1. If the system is equipped for neon message waiting, a TN752 or TN755B power unit must be used.

**Note:** The TN736 is not required when the 631DB1 power unit is used in the J58890AH-1 control carrier or the J58890BB-2 or J58890BB-3 port carriers. It is required in the J58890BB-1 port carrier regardless of which 631 power unit is provided. Use the TN752 or TN755B if the system is equipped with neon message waiting.

17. Connect the power cords to the power units. The power cords are the white cables equipped with plugs that are run through the slots in the front of each carrier (see Figure 2-18).

18. Install the 982LS current limiter (CURL) on the "A" carrier to the block marked "CURL."  
The curl is inserted with the component on the left as viewed from the rear of the cabinet.



**FIGURE 2-16. P1 and P2 Cable Locations**

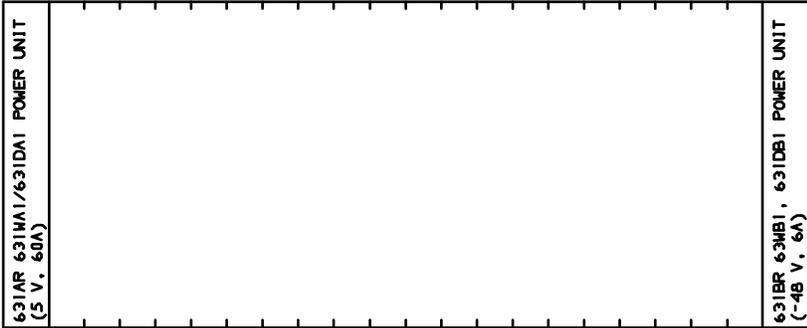


FIGURE 2-17. Power Unit Locations

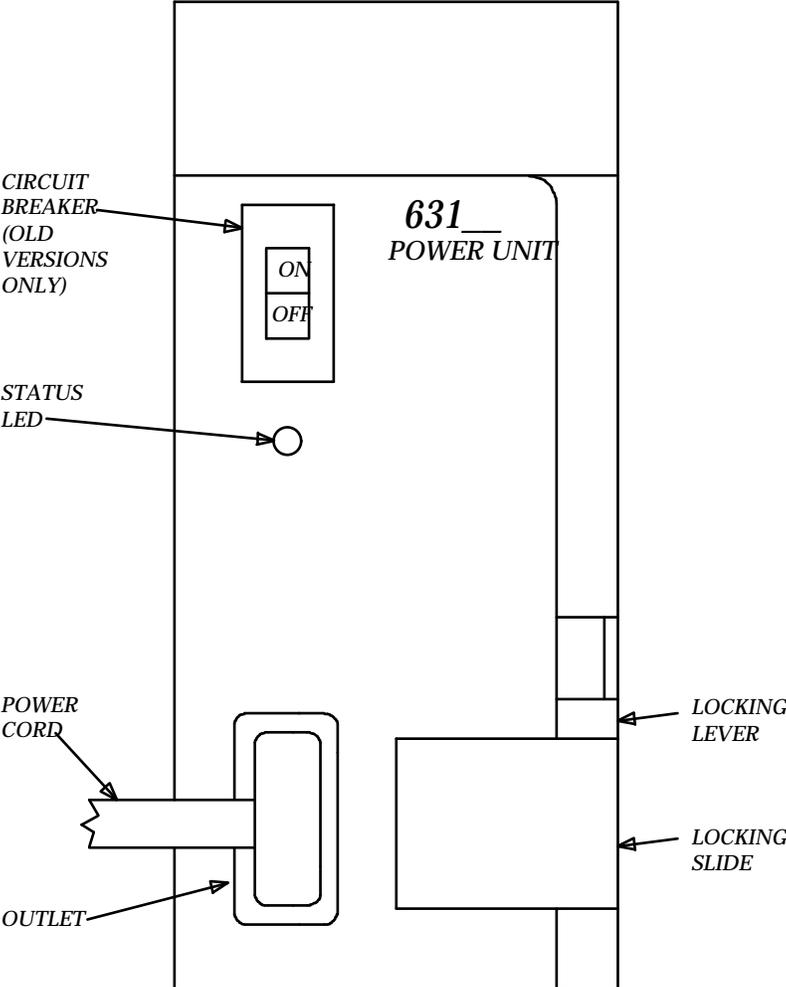


FIGURE 2-18. Typical 631-Type Power Unit

### ***Install Circuit Packs***

1. See WARNING. Install the new G1 circuit packs into carrier “A.” Use the new decal and upgrade configuration document, provided with the equipment, as a guide.

**WARNING:** A wrist strap must always be worn, and the clip must be grounded to the cabinet frame being worked on before inserting and removing any circuit pack.

2. See preceding WARNING and the following Note. Install the port circuit packs previously removed into carrier “A” using the decal and upgrade configuration document, provided with the equipment, as a guide.

**Note:** Because of differences in the number of port slots available in the new carrier, some port circuits may require moving. If this was not performed before the upgrade, install the circuit packs now. The port circuits will have to be translated after the system is rebooted with the G1 tape.

3. Install circuit pack blanks in slots not equipped with circuit packs.

### ***Complete System Upgrade***

Return to the “System Upgrade” section of this chapter that referred you to “Cabinet Upgrades,” and complete the system upgrade.

### **Upgrade R1V3 Medium to G1 PPN With Duplication**

The System 75 Medium R1V3 is upgraded to the G1 With Duplication by:

- Removing the tape drive unit
- Removing the control carrier in position “A”
- Removing the port carrier in position “B”
- Installing the J58890AH-1 control carrier in position “A”
- Installing the J58890AJ-1 control carrier in position “B”
- Adding the G1 circuit packs
- Restructuring the port circuits as required

**Prerequisite Hardware**

The equipment in the following table (Table 2-C) **MUST** be on-site before the upgrade is started. Ensure that the tape is the G1 tape.

**TABLE 2-C. Required Hardware**

<b>Equipment</b>	<b>Description</b>	<b>Quantity</b>
J58890AH-1	Control Carrier A	1
J58890AJ-1	Control Carrier B	1
TN773	Processor	2
TN768	Tone-Clock	2
TN772	Duplication Interface	2
TN777	Network Control	2
TN770	Memory	2
TN774	Tape Drive	2
TN765	Processor Interface	max 2/4 (Note 1)
J58890TB	Tape Cartridge	3
982LS	Current Limiter	1
H600-182 G1	Inter Carrier Cable A	1
H600-182 G1	Inter Carrier Cable B	1
WP91716L6	TDM/LAN Cable	3
WP91716L7	TDM/LAN Cable	1 (Note 2)
ZAHF4	TDM Bus Terminator	2
176A	Apparatus Blank	1
Label	DEFINITY	1

- Note:**
1. Replaces TN716, TN719, or TN738 if present in the system.
  2. Required if equipped with carrier "D."

### **Required Tools**

The following tools and items may be required during the upgrade:

- High-intensity AC drop light or flashlight
- 3/8-inch flat screwdriver with a 10-inch shank (minimum)
- 5/16-inch and 1/4-inch sockets with a ratchet and 10-inch extension
- Power screwdriver (optional)
- Pliers
- Static-proof box or original circuit pack packaging (pink poly) for transporting circuit packs
- Labels for labeling the cables attached to the rear of cabinets and port circuit pack
- Receptacle for holding approximately 100 self-tapping screws
- Twelve spare #12 and #10 self-tapping screws
- Four spare carrier grounding straps
- Authorized wrist grounding strap
- Cabinet air filter (may be required)
- Backplane pin repair kit (KS-22876-L2 or equivalent)
- One copy of each of the following manuals:
  - *DEFINITY® Communications System Generic 1 and Generic 3i—Maintenance, 555-204-105*
  - *DEFINITY® Communications System Generic 1 and System 75—Administration and Measurement Reports, 555-200-500*
  - *DEFINITY® Communications System Generic 1—Implementation, 555-204-655.*

### **Label Cables**

1. To make reconnecting the cables easier and to ensure that they are properly reconnected, label both ends of the connector cables associated with the carrier to be removed (if not already labeled).

### ***Power Down System***

1. At the power distribution unit, set the main circuit breaker to OFF.

### ***Install Power Failure Transfer Ground Strap***

**CAUTION:** The ground strap must not be connected while the system is powered up.

1. Connect a lead to pin 49 of the CAP or to pin 49 of the connecting block associated with the power failure transfer panel.
2. Route the lead to an approved ground source.
3. Connect the lead to the approved ground source.

### ***Remove Door and Panels and Disconnect Cables***

1. Remove the front door from the cabinet if desired.
2. With the cable retainer in front of you and the part number visible (4B or 4C), locate the slot that is almost vertical. This slot is adjacent to the part number. Insert a flat blade screwdriver with a wide blade (1/4-inch is recommended) into the slot. Twist the screwdriver while the blade is in the slot. The retainer will snap open easily, and the cable can be removed.
3. At the cabinet, disconnect previously labeled cables associated with the carrier to be removed.
4. At the rear of the cabinet, remove the top three panels (positions A, B, and C) and the bottom panel. There are two types of screws holding the back panels to the cabinet. The #10 screws can be removed with a screwdriver or a 1/4-inch socket. The #12 screws can be removed with a screwdriver or a 5/16-inch socket.

### ***Remove Circuit Packs From Carriers "A" and "B"***

1. To ensure circuit packs and power units are properly replaced, label all port circuit packs and power units in the "A" and "B" carriers.
2. See WARNING. Remove all circuit packs and power units from carrier "A." Store the circuit packs in the static-proof box.
3. See WARNING. Remove all circuit packs and power units from carrier "B." Store the circuit packs in the static-proof box.

**WARNING:** A wrist strap must always be worn, and the clip must be grounded to the cabinet frame being worked on before inserting and removing any circuit pack.

4. Remove the circuit pack blanks from slots that do not contain circuit packs.
5. Remove the front trim plate from the "B" carrier, then the "A" carrier by pulling straight off.

### ***Remove Tape Drive***

**Note:** The removal of the tape drive does not have to be performed at this time. It can be disconnected at this time, then removed at a later date when time is not as critical.

1. Remove the tape.
2. Disconnect the AHF4 cable adapter from the rear of the “A” carrier (see Figure 2-19).
3. Open the snap connectors, and remove the cable from the adapter. Route the cable back to the tape drive and remove it. There are two cable clamps mounted on the cabinet side panel. Use a screwdriver to unsnap the clamps. Neither the cable nor the adapter will be used in the upgraded cabinet.
  - On the HCMR tape drive, disconnect the power supply from the front of the unit, then remove the screws at the rear of the unit that attach the drive to the chassis and slide the tape drive out the front of the cabinet.
  - On the RMSS tape drive, disconnect the red and black wire. Remove the faceplate, then remove the screws which hold the unit to the chassis. Slide the drive out the front of the cabinet.
4. Coil the red and black wire in an out-of-the-way position in the cabinet.
5. Install the 176A Apparatus Blank over the empty space left by the removal of the tape drive.

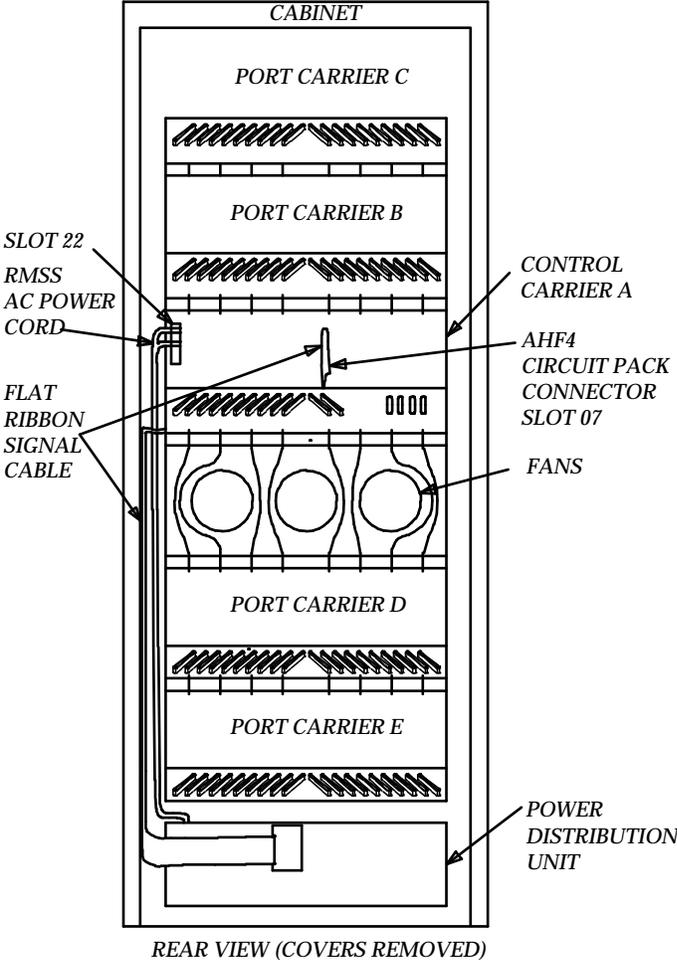


FIGURE 2-19. R1V3 System Cabinet—Rear View, Covers Removed

**Remove the "A" and "B" Carriers**

1. See CAUTION and Note. Disconnect the TDM bus from the "A" and "B" carriers (see Figure 2-20). Remove the AHF3 cable adapters and the cable from the cabinet. They will not be reused.
2. See CAUTION and Note. Disconnect the TDM bus between the "A" and "D" carriers from the "A" and "D" carriers (see Figure 2-20). Remove the AHF3 cable adapter and the cable from the cabinet. They will not be reused.
3. See CAUTION and Note. Disconnect the TDM bus between the "B" and "C" carriers from the "B" and "C" carriers (see Figure 2-20). Remove the AHF3 cable adapter and the cable from the cabinet. They will not be reused.

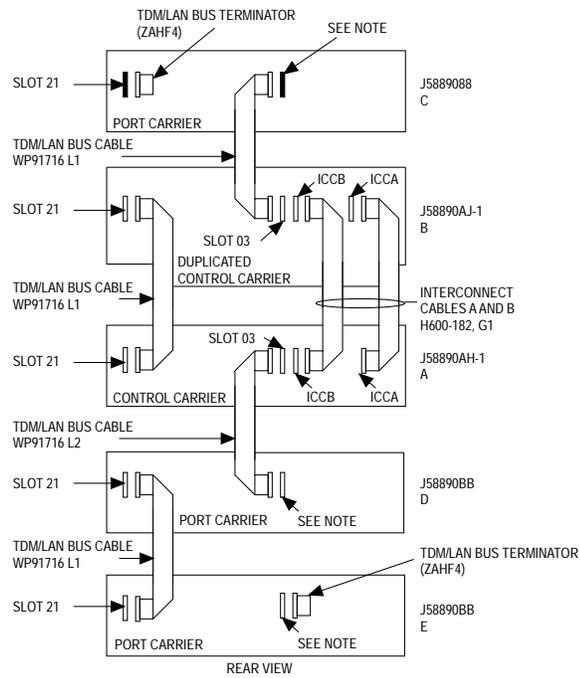
**CAUTION:** When removing the TDM adapters, care should be taken to ensure that none of the short pieces of shrink tubing on the four corner pins of the connector come off.

**Note:** Note the position of the cable adapters and terminators before disconnecting the TDM adapters or terminators.

4. Disconnect, remove, and retain the eight ground straps between the "A" and "B" carriers (see Figure 2-21). These straps will be reused.
5. Disconnect the ground straps between the "A" and "D" carriers from the "A" carrier (see Figure 2-21). These straps will be used to connect to the new "A" carrier.
6. Disconnect the ground straps between the "B" and "C" carriers from the "B" carrier (see Figure 2-21). These straps will be used to connect to the new "B" carrier.
7. Slide the latch up, and disconnect the "P1" (small 9 pin) connector and the "P2" (large 37 pin) connector from the "A" carrier. Move the cables into a position where they will not interfere with removing the carrier.
8. Slide the latch up, and disconnect the "P1" (small 9 pin) connector from the "B" carrier. Move the cable into a position where it will not interfere with removing the carrier.
9. Remove the fan trim plate by pulling straight off.
10. Clean or replace the air filter if necessary.
11. Remove the four screws (top two first) holding the "B" carrier to the cabinet frame. Use a long handle screwdriver or 5/16-inch socket with a 10-inch extension.
12. See CAUTION. Slide the carrier forward 1 to 2 inches, then from the back, check that no cables or wire harnesses are caught on any cabinet and/or carrier framework in such a manner that they could be damaged.

**CAUTION:** Cables and wiring harnesses can be damaged if they catch on framework and too much pressure is used in removing the carrier.

13. Remove the carrier by sliding it out the front of the cabinet.
14. Repeat Steps 11 through 13 for the "A" position carrier.



NOTE:

ON PORT CARRIER J58890BB-1, CONNECT THE TDM CABLE OR TDM TERMINATOR TO SLOT 02. ON PORT CARRIERS J58890BB-2 AND J58890BB-3, CONNECT THE TDM CABLES OR TDM TERMINATOR TO SLOT 01. IF THE PORT CARRIER HAS J58890BB-1 AND J58890BB-2 STENCILED ON IT, TREAT IT AS A J58890BB-1.

**FIGURE 2-20. TDM/LAN Bus Wiring Diagram—Rear View**

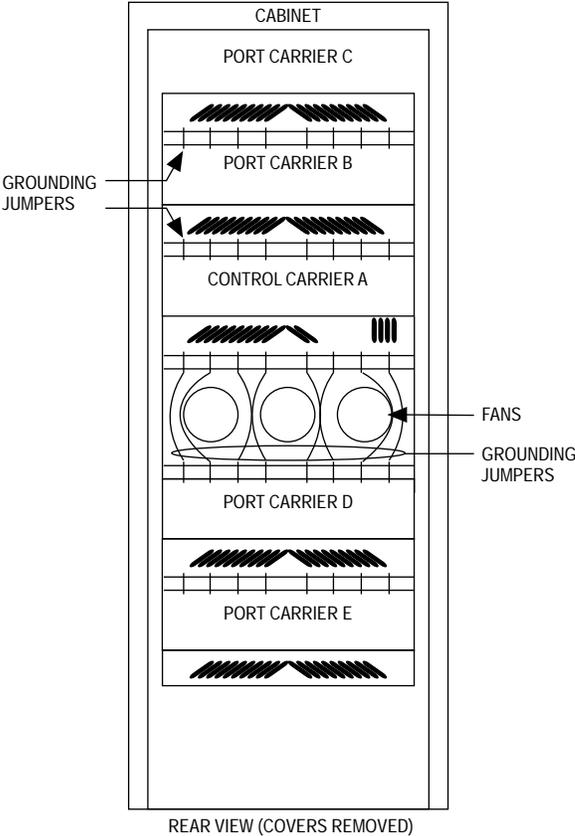


FIGURE 2-21. Grounding Jumper Locations

**Install the New "A" and "B" Position Carriers**

1. Visually inspect the carrier for any damage. Verify the backplane pins are not bent.
2. At the rear connector panel, determine which connectors will have cables connected, remove the red plastic covers, and install the 4B cable retainers on those connectors.
3. Install the J58890AH-1 control carrier in position "A" by lining up the plastic alignment pins on the top rear of the carrier with the screw holes in the cabinet. These alignment pins will support the carrier while the screws are being installed. Ensure that the power cords are properly placed in the slots in the sides of the carrier.
4. See CAUTION. Fasten the carrier into position with four self-tapping screws saved from the removal of the old carrier.

**CAUTION: Carefully realign the threads on the self-tapping screws by turning them clockwise a turn or two before tightening them to avoid stripping the threads out of the framework.**

5. Install the J58890AJ-1 control carrier in Position "B" by repeating Steps 3 and 4.
6. Connect the "P2" and "P1" (large and small) connectors to the "A" carrier. To get enough slack in the cables, cut the tie wrap holding the intercabinet cables to the upright in the area being installed. Snap the connector lock into place to ensure the connection is properly made (see Figure 2-22).
7. Connect the "P1" (small) connector to the "B" carrier. To get enough slack in the cables, cut the tie wrap holding the intercabinet cables to the upright in the area being installed. Snap the connector lock in place to ensure the connection is properly made (see Figure 2-22).
8. Connect the ground straps from the "C" carrier to the new "B" carrier (see Figure 2-21). These straps were left connected to the "C" carrier when the old "B" carrier was removed.
9. Connect the ground straps from the "D" carrier to the new "A" carrier (see Figure 2-21). These straps were left connected to the "D" carrier.
10. Connect the ground straps between the new "A" and "B" carriers (see Figure 2-21). These straps were removed and saved from the old "A" and "B" carriers.
11. Connect the TDM/LAN bus cables between the "A" and "D" carriers using the new WP91716 L7 TDM cable (see Figure 2-20 and Table 2-D). The cable is connected to the "A" carrier to the block marked TDM on the right side of the carrier (see Figure 2-20). The cable is connected to the "D" carrier to the block marked TDM on the right side of the carrier.

TABLE 2-D. TDM/LAN Cable Connections

“J” Number	Carrier Type	LHS Slot	RHS Slot
J58890BB-1	Port	21	02
J58890BB-2	Port	21	01
J58890BB-3	Port	21	01
J58890AH-1	PPN Control “A”	20	03
J58890AJ-1	PPN Control “B”	20	03

12. Connect the TDM/LAN bus cables between the “A” and “B” carriers using the new WP91716 L6 TDM cable (see Figure 2-20 and Table 2-D). The cable is connected to the “A” carrier to the block marked “TDM” on the left side of the carrier. The cable is connected to the “B” carrier to the block marked “TDM” on the left side of the carrier.
13. Connect the TDM/LAN bus cables between the “B” and “C” carriers using the new WP91716 L6 TDM cable (see Figure 2-20 and Table 2-D). The cable is connected to the “B” carrier to the block marked “TDM” on the right side of the carrier. The cable is connected to the “C” carrier to the block marked “TDM” on the right side of the carrier.
14. See CAUTION and Note. Remove the TDM cables and adapters between carriers “D” and “E.” Install the new WP91716 L6 TDM/LAN cable. The cables are connected to the same connectors that the old cables were disconnected from (left side). (See Figure 2-20 and Table 2-D).

**CAUTION:** When removing the TDM adapters, care should be taken to ensure that none of the short pieces of shrink tubing on the four corner pins of the connector come off.

**Note:** Note the position of the cable adapters before disconnecting the TDM adapters and bus cables.

15. See Note above. Replace the existing TDM bus terminators (AHF2) with the new ZAHF4 bus terminators. (See Figure 2-20 and Table 2-D).
16. Peel the old decal strip from both trim plates, then install the new decal strips at the bottom of each trim panel. Install the new connector panel decal on the rear panel.
17. See CAUTION. Install the Inter-Carrier Cables (ICC) cables (H600-182 Gr1) between carriers “A” and “B” by connecting to the ICC blocks on both carriers. (See Table 2-E and Figure 2-23.) The cable is installed so that the dark (red, blue, or purple depending on supplier) stripe is on the bottom at both ends.

**CAUTION:** The ICC cable connectors can be installed so that the backplane pins can be bent. Use extreme caution to ensure the pins are not bent. Double check all connections to verify pins aren’t bent.

TABLE 2-E. Intercabinet Cable Connections

Connect ICC Cables				
	From		To	
	Carrier	CONN	Carrier	CONN
PPN	J58890AH-1	ICCA ICCB	J58890AJ-1	ICCA ICCB

18. Install the front trim plates, first on the “A” carrier, then the “B” carrier. Install the fan trim plate.
19. Install the 631-type power units (removed from R1V3) into both the “A” and “B” carriers. There are three different pairs of power units available. They are the 631AR1 and 631BR1, the 631WA1 and 631WB1, and the 631DA1 and 631DB1. Do not interchange the units. The 631AR1, 631WA1, or 631DA1 are installed in the left side, while the 631BR1, 631WB1, or 631DB1 are installed in the right side (see Figure 2-24).
20. If the system is equipped with the 631BR1 or 631WB1, install the TN736 power unit on the right side of the carrier adjacent to the 631BR1 or the 631WB1. If the system is equipped for neon message waiting, a TN752 or TN755B power unit must be used.
 

**Note:** The TN736 is not required when the 631DB1 power unit is used in the J58890AH-1 and J58890AJ-1 control carriers or the J58890BB-2 or J58890BB-3 port carriers. It is required in the J58890BB-1 port carrier regardless of which 631 power unit is provided. Use the TN752 or TN755B if the system is equipped with neon message waiting.
21. Install the 982LS current limiter (CURL) on the “A” carrier to the block marked “CURL.” The CURL is inserted with the components on the left as viewed from the rear of the cabinet.
22. Connect the power cords to the power units. The power leads are the white cables equipped with plugs that are run through the slots in the front of each carrier (see Figure 2-25).

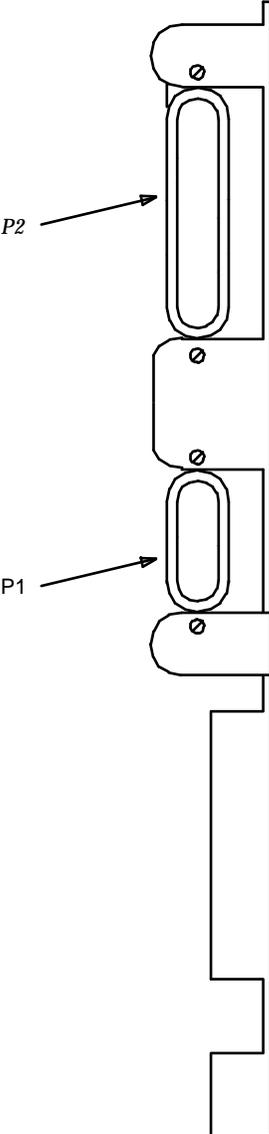


FIGURE 2-22. P1 and P2 Cable Locations

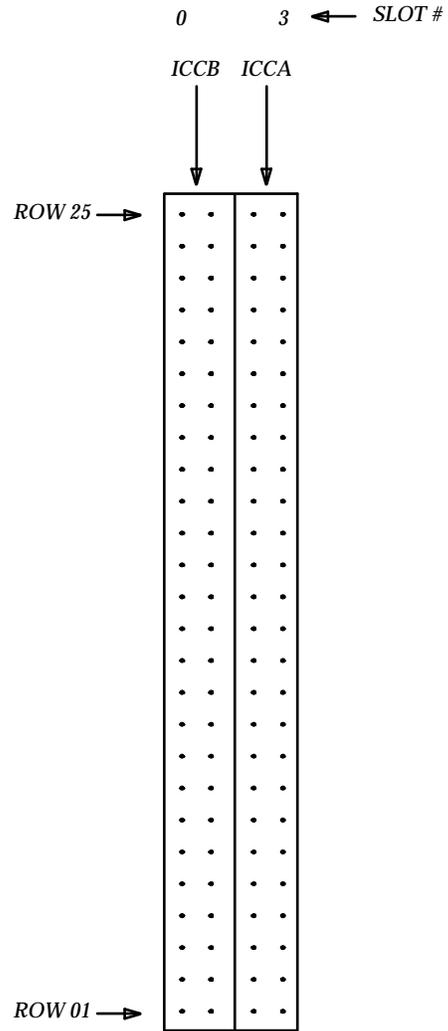


FIGURE 2-23. ICC Block on J58890AH-1 and J58890AJ-1 Carriers

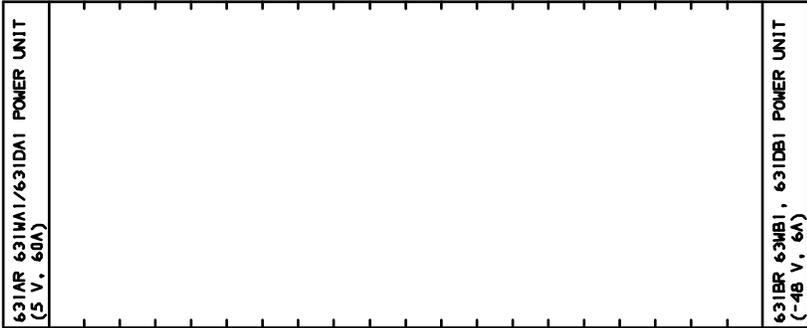


FIGURE 2-24. Power Unit Locations

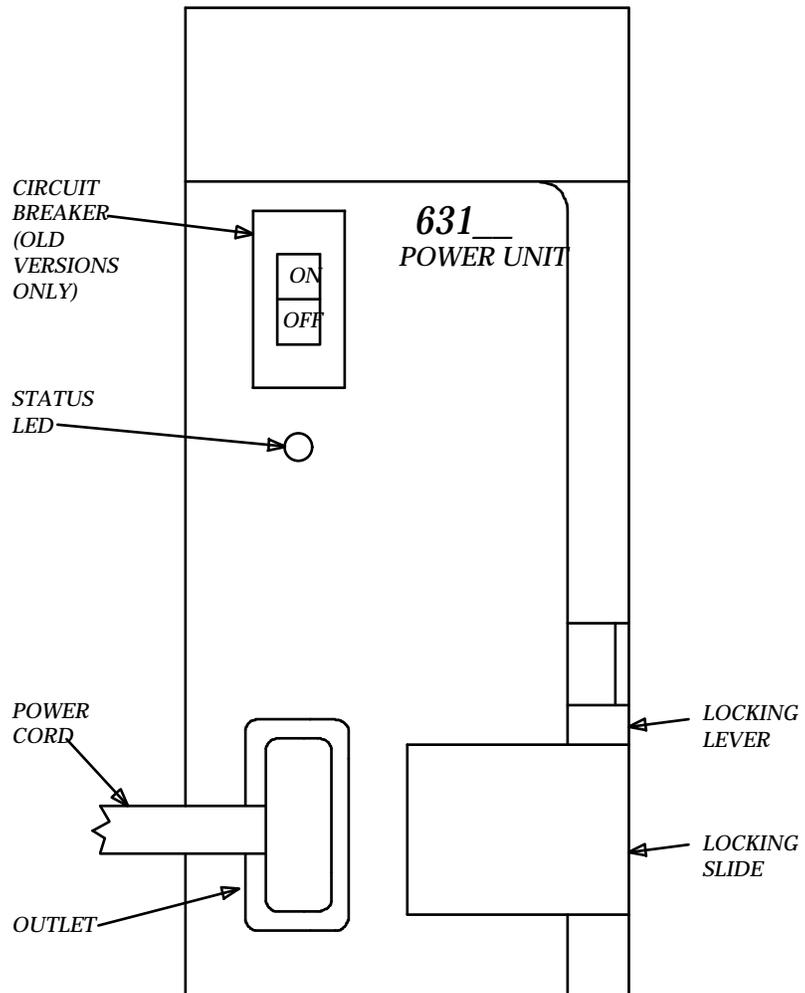


FIGURE 2-25. Typical 631-Type Power Unit

**Test the CURL**

1. Plug the cabinet power cord into the appropriate AC receptacle.
2. At the power distribution unit, set the main circuit breaker to ON.
3. Unplug the power cord from power unit “B” (right-hand side) in the “A” carrier.
4. Verify that the fans continue running. If they are not running, check the installation of the CURL.
5. Reconnect the power cord to the power unit in the “A” carrier, then unplug the power cord from power unit “B” (right-hand side) in the “B” carrier.
6. Verify that the fans continue running. If they are not running, check the installation of the CURL.
7. Reconnect the power cord to the power unit in the “B” carrier.
8. At the power distribution unit, set the main circuit breaker to OFF.

**Install Circuit Packs**

1. See WARNING. Install the new G1 circuit packs into carriers “A” and “B.” Use the new decal and upgrade configuration document, provided with the equipment, as a guide. Since carrier “B” is a duplication of carrier “A,” install the appropriate circuit pack in a slot in the “A” carrier, then install the same circuit pack in the corresponding slot in the “B” carrier.

**WARNING:** A wrist strap must always be worn, and the clip must be grounded to the cabinet frame being worked on before inserting and removing any circuit pack.

2. See WARNING and Note. Install the port circuit packs previously removed into the “A” carrier using the decal and the upgrade configuration document, provided with the equipment, as a guide.
3. See WARNING and Note. Install the port circuit packs previously removed into the “B” carrier using the decal and the upgrade configuration document, provided with the equipment, as a guide.

**Note:** Because of differences in the number of port slots available in the new carriers, some port circuits may require moving. If this was not performed before the upgrade, install the circuit packs now. The port circuits will have to be translated after the system is rebooted with the G1 tape.

4. Install circuit pack blanks in the slots not equipped with circuit packs.

***Complete System Upgrade***

Return to the “System Upgrade” section of this chapter that referred you to the “Cabinet Upgrades,” and complete the system upgrade.

**Upgrade R1V3 Medium to G1 EPN Without Duplication**

The System 75 Medium R1V3 is upgraded to the G1 EPN Without Duplication by:

- Removing the tape drive unit
- Removing the control carrier in position “A”
- Installing the J58890AF-1 control carrier in position “A”
- Adding the G1 circuit packs
- Restructuring the port circuits as required

**Prerequisite Hardware**

The equipment in the following table (Table 2-F) **MUST** be on-site before the upgrade is started. Ensure that the tape is the G1 tape.

**TABLE 2-F. Required Hardware**

<b>Equipment</b>	<b>Description</b>	<b>Quantity</b>
J58890AF-1	Control Carrier	1
TN775	Maintenance	1
TN768	Tone-Clock	1
TN776	Expansion Interface	2 (Note 1)
J58890TB	Tape Cartridge	2
CFY1	Current Limiter	1
FL2P-P-20	Fiber Cable	1 (Note 2)
ZAHF4	TDM Bus Terminators	2
WP91716L6	TDM/LAN Cables	max 3
WP91716L7	TDM/LAN Cable	1 (Note 3)
Label	DEFINITY	1
9823 Type	Lightwave transceiver	2 (Note 4)
176A	Apparatus Blank	1

- Note:**
1. A TN776 is required for the PPN and EPN; both are shipped with the EPN.
  2. Two are required if the EPN and PPN are remotely located.
  3. Required if the system is equipped with a "D" carrier.
  4. Shipped with the EPN cabinet only. Two lightwave transceivers are installed in the EPN, and two in the PPN.

### **Required Tools**

The following tools and items may be required during the upgrade:

- High-intensity AC drop light or flashlight
- 3/8-inch flat screwdriver with a 10-inch shank (minimum)
- 5/16-inch and 1/4-inch sockets with a ratchet and 10-inch extension
- Power screwdriver (optional)
- Pliers
- Static-proof box or original circuit pack packaging for transporting circuit packs
- Labels for labeling the cables attached to the rear of cabinets and port circuit pack
- Receptacle for holding approximately 100 self-tapping screws
- 12 spare #12 and #10 self-tapping screws
- four spare carrier grounding straps
- Authorized wrist grounding strap
- Cabinet air filter (may be required)
- Backplane pin repair kit (KS-22876-L2 or equivalent)
- One copy of each of the following manuals:
  - *DEFINITY® Communications System Generic 1 and Generic 3i—Maintenance, 555-204-105*
  - *DEFINITY® Communications System Generic 1 and System 75—Administration and Measurement Reports, 555-200-500*
  - *DEFINITY® Communications System Generic 1—Implementation, 555-204-655.*

### **Label Cables**

1. To make reconnecting the cables easier and to ensure they are properly reconnected, label both ends of the connector cables associated with the carrier to be removed (if not already labeled).

***Power Down System***

1. At the power distribution unit, set the main AC circuit breaker to OFF.

***Install Power Failure Transfer Ground Strap***

**CAUTION:** The ground strap must not be connected while the system is powered up.

1. Connect a lead to pin 49 of the CAP or to pin 49 of the connecting block associated with the power failure transfer panel.
2. Route the lead to an approved ground source.
3. Connect the lead to the approved ground source.

***Remove Door and Panels and Disconnect Cables***

1. Remove the front door from the cabinet (if desired).
2. With the cable retainer in front of you and the part number visible (4B or 4C), locate the slot that is almost vertical. This slot is adjacent to the part number. Insert a flat blade screwdriver with a wide blade (1/4-inch is recommended) into the slot. Twist the screwdriver while the blade is in the slot. The retainer will snap open easily, and the cable can be removed.
3. At the cabinet, disconnect previously labeled cables associated with the carrier to be removed.
4. At the rear of the cabinet, remove the top three panels (positions A, B, and C) and the bottom panel. There are two types of screws holding the back panels to the cabinet. The #10 screws can be removed with a screwdriver or a 1/4-inch socket. The #12 screws can be removed with a screwdriver or a 5/16-inch socket.

### ***Remove Circuit Packs From Carrier "A"***

1. To ensure circuit packs and power units are properly replaced, label all port circuit packs and power units in the "A" carrier.
2. See WARNING. Remove all circuit packs and power units from carrier "A." Store the circuit packs in the static-proof box.

**WARNING:** A wrist strap must always be worn, and the clip must be grounded to the cabinet frame being worked on before inserting and removing any circuit pack.

3. Remove circuit pack blanks from slots not equipped with circuit packs.
4. Remove the front trim plate from the "A" carrier by pulling straight off.

### ***Remove Tape Drive***

**Note:** The removal of the tape drive does not have to be performed at this time. It can be disconnected at this time, then removed at a later date when time is not as critical.

1. Remove tape.
2. Disconnect the AHF4 cable adapter from the rear of the "A" carrier (see Figure 2-26).
3. Open the snap connectors and remove the cable from the adapter. Route the cable back to the tape drive and remove it. There are two cable clamps on the cabinet side panel. Use a screwdriver to unsnap them. Neither the cable nor the adapter will be used in the upgraded cabinet.
  - On the HCMR tape drive, disconnect the power supply from the front of the unit, then remove the screws at the rear of the unit that attach the drive to the chassis and slide the tape drive out the front of the cabinet.
  - On the RMSS tape drive, disconnect the red and black wire. Remove the faceplate, then remove the screws that hold the unit to the chassis. Slide the drive out the front of the cabinet.
4. Coil the red and black wire in an out-of-the-way position in the cabinet.
5. Install the 176A Apparatus Blank over the empty space left by the removal of the tape drive.

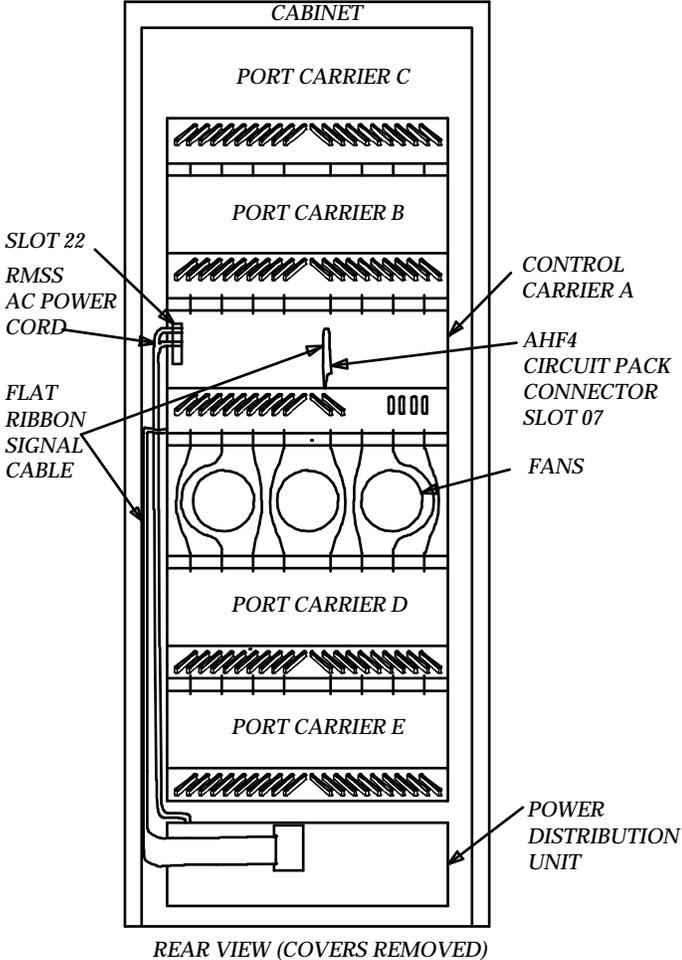


FIGURE 2-26. R1V3 System Cabinet—Rear View, Covers Removed

**Remove the "A" Carrier**

1. See CAUTION and Note. Disconnect the TDM bus between the "A" and "B" carriers from the "A" and "B" carriers (see Figure 2-27). Remove the AHF3 cable adapters and the cable from the cabinet. They will not be reused.
2. See CAUTION and Note. Disconnect the TDM bus between the "A" and "D" carriers from the "A" and "D" carriers (see Figure 2-27 and Note). Remove the AHF3 cable adapters and the cable from the cabinet. They will not be reused.

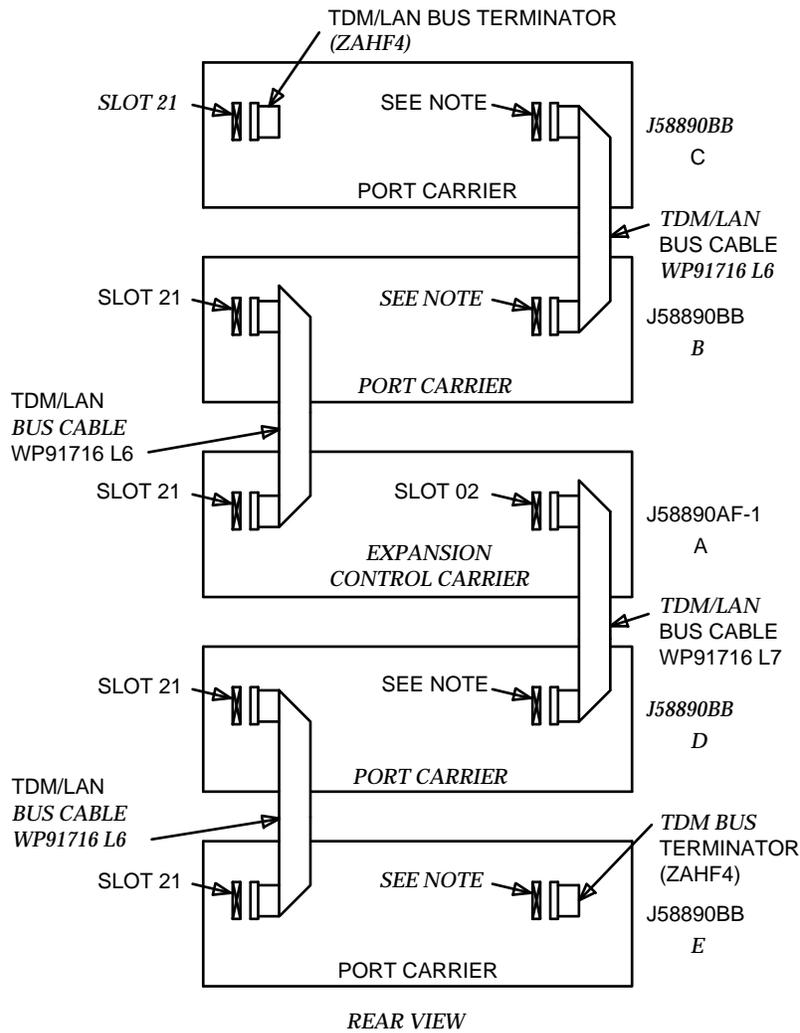
**CAUTION:** When removing the TDM adapters, care should be taken to ensure that none of the short pieces of shrink tubing on the four corner pins of the connector come off.

**Note:** Note the position of the cable Adapters before disconnecting the TDM adapters.

3. Disconnect the eight ground straps between the "A" and "B" carriers from the "A" carrier (see Figure 2-28). These straps will be reconnected to the new "A" carrier.
4. Disconnect the eight ground straps between the "A" and "D" carriers from the "A" carrier (see Figure 2-28). These straps will be reconnected to the new "A" carrier.
5. Slide the latch up, and disconnect the "P1" (small 9 pin) connector and the "P2" (large 37 pin) connector from the "A" carrier. Move the cables into a position where they will not interfere with removing the carrier.
6. Remove the fan trim plate by pulling straight off.
7. Clean or replace the air filter if necessary.
8. Remove the four screws (top two first) holding the "A" carrier to the cabinet frame. Use a long handle screwdriver or 5/16-inch socket with a 10-inch extension.
9. See CAUTION. Slide the carrier forward 1 to 2 inches; then from the back, check that no cables or wire harnesses are caught on any cabinet and/or carrier framework in such a manner that they could be damaged.

**CAUTION:** Cables and wiring harnesses can be damaged if they catch on framework and too much pressure is used in removing the carrier.

10. Remove the carrier by sliding it out the front of the cabinet.



**FIGURE 2-27. TDM/LAN Bus Wiring Diagram—Rear View**

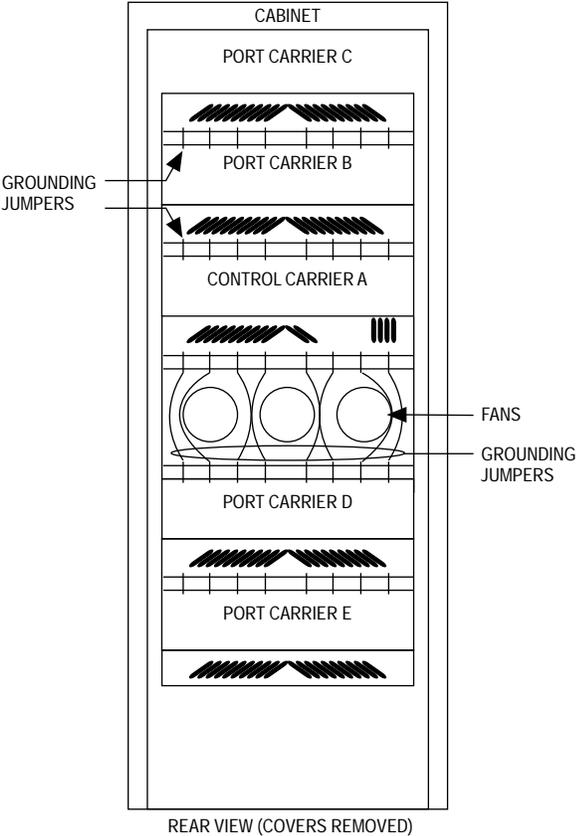


FIGURE 2-28. Grounding Jumper Locations

**Install the New "A" Position Carrier**

1. Visually inspect the carrier for any damage. Verify the backplane pins are not bent.
2. At the rear connector panel, determine which connectors will have connector cables connected, and install the 4B cable retainers on these connectors.
3. Install the J58890AF-1 control carrier in position "A" by lining up the plastic alignment tips on the top rear of the carrier with the screw holes in the cabinet. These alignment tips will support the carrier while the screws are being replaced. Ensure that the power cords are properly placed in the slots in the sides of the carrier.
4. See CAUTION. Fasten the carrier into position with four self-tapping screws saved from the removal of the old carrier.

**CAUTION:** Carefully realign the threads on the self-tapping screws by turning them clockwise a turn or two before tightening them to avoid stripping the threads out of the framework.

5. Connect the "P2" and "P1" (large and small) connectors to the "A" carrier (see Figure 2-29). To get enough slack in the cables, cut the tie wrap holding the intercabinet cables from the upright in the area being installed. Snap the connector lock into place to ensure the connection is properly made.
6. Connect the ground straps from the "B" carrier to the new "A" carrier (see Figure 2-28). These straps were left connected to the "B" carrier when the old "A" carrier was removed.
7. Connect the ground straps from the "D" carrier to the new "A" carrier (see Figure 2-28). These straps were left connected to the "D" carrier when the old "A" carrier was removed.
8. Connect the TDM/LAN bus cables between the "A" and "D" carriers using the new WP91716 L7 TDM/LAN cable (see Figure 2-27 and Table 2-G). The cable is connected to the "A" carrier to the block marked TDM on the right side of the carrier. The cable is connected to the "D" carrier to the block marked TDM on the right side of the carrier.

**TABLE 2-G. TDM/LAN Cable Connections**

"J" Number	Carrier Type	LHS Slot	RHS Slot
J58890BB-1	Port	21	02
J58890BB-2	Port	21	01
J58890BB-3	Port	21	01
J58890AF-1	EPN Control "A"	21	02

9. Connect the TDM/LAN bus cables between the “A” and “B” carriers using the new WP91716 L6 TDM/LAN cable (see Figure 2-27 and Table 2-G). The cable is connected to the “A” carrier to the block marked TDM on the left side of the carrier. The cable is connected to the “B” carrier to the block marked TDM on the left side of the carrier.
10. See CAUTION and Note. Remove the TDM cables and adapters between carriers “B” and “C.” Install the new WP91716 L6 TDM/LAN cable. The cables are connected to the same connectors that the old cables were disconnected from (right side). (See Figure 2-27 and Table 2-G.)
11. See CAUTION and Note. Remove the TDM cables and adapters between carriers “D” and “E.” Install the new WP91716 L6 TDM/LAN cable. The cables are connected to the same connectors that the old cables were disconnected from (left side). (See Figure 2-27 and Table 2-G.)

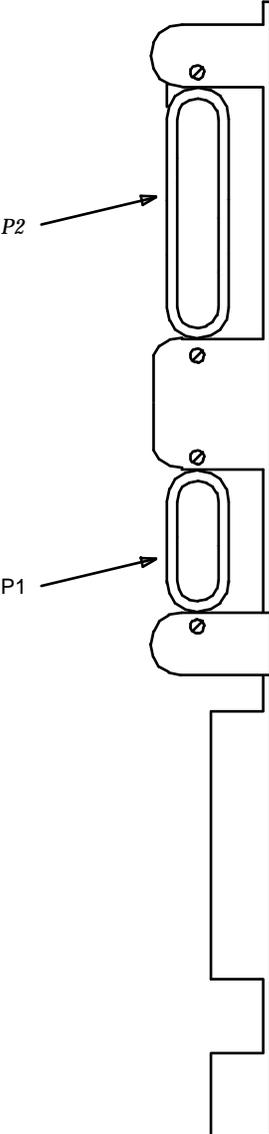
**CAUTION:** When removing the TDM adapters, care should be taken to ensure that none of the short pieces of shrink tubing on the four corner pins of the connector come off.

**Note:** Note the position of the TDM cable adapters and terminators before disconnecting the TDM cable adapters or terminators.

12. See Note. Replace the existing TDM bus terminators (AHF1) with the new ZAHF4 bus terminators. (See Figure 2-27 and Table 2-G.)
13. Install the front trim plates on the “A” carrier. Install the fan trim plate.
14. Peel the old decal strip from the trim plates, then install the new decal strip at the bottom of the trim panel. Install the new connector panel decal on the rear connector panel.
15. Install the 631-type power units (removed from R1V3) into the “A” carrier. There are three different pairs of power units available. They are the 631AR1 and 631BR1, the 631WA1 and 631WB1, and the 631DA1 and 631DB1. Do not interchange the units. The 631AR1, 631WA1, or 631DA1 are installed in the left side, while the 631BR1, 631WB1, or 631DB1 are installed in the right side (see Figure 2-30).
16. If the system is equipped with the 631BR1 or 631WB1, install the TN736 power unit on the right side of the carrier adjacent to the 631BR1 or the 631WB1. If the system is equipped for neon message waiting, a TN752 or TN755B power unit must be used.

**Note:** The TN736 is not required when the 631DB1 power unit is used in the J58890AF-1 control carrier or the J58890BB-2 or J58890BB-3 port carriers. It is required in the J58890BB-1 port carrier regardless of which 631 power unit is provided. Use the TN752 or TN755B if the system is equipped with neon message waiting.

17. Install the CFY1 current limiter (CURL) on the “A” carrier to the block marked “CURL.” The CURL is inserted with the components on the left side as viewed from the rear.
18. Connect the power cords to the power units. The power leads are the white cables equipped with plugs that are run through the slots in the front of each carrier (see Figure 2-31).



**FIGURE 2-29. P1 and P2 Cable Locations**

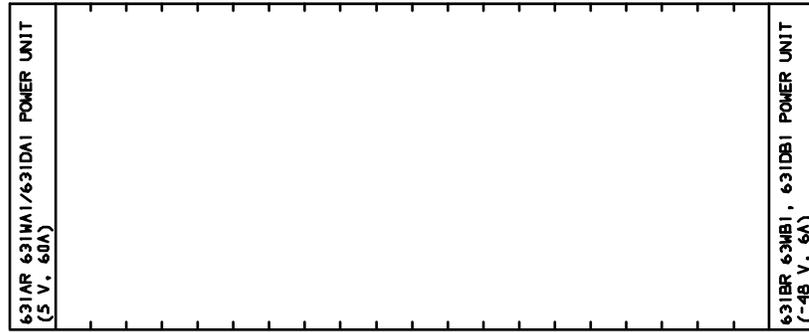


FIGURE 2-30. Power Unit Locations

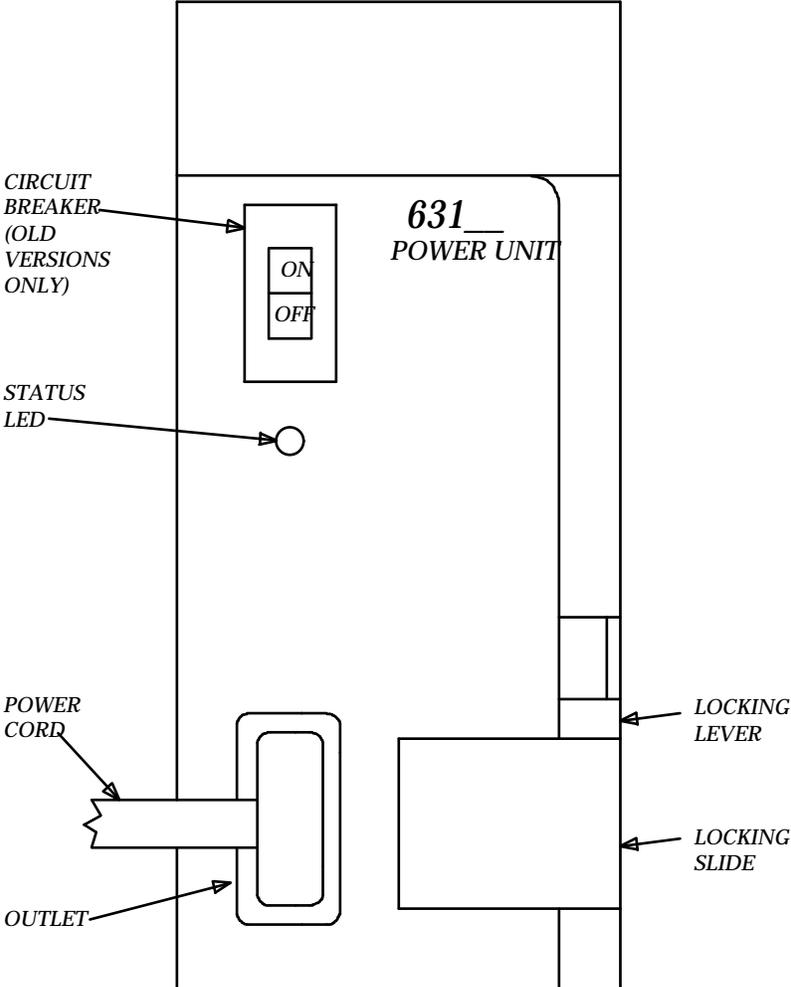


FIGURE 2-31. Typical 631-Type Power Unit

### ***Install Circuit Packs***

1. See WARNING. Install the new G1 circuit packs into carrier “A.” Use the new decal and upgrade configuration document, provided with the equipment, as a guide.

**WARNING:** A wrist strap must always be worn, and the clip must be grounded to the cabinet frame being worked on before inserting and removing any circuit pack.

2. See preceding WARNING and the following Note. Install the port circuit packs previously removed into the “A” carrier using the decal and upgrade configuration document, provided with the equipment, as a guide.

**Note:** Because of differences in the number of port slots available in the new carrier, one port circuit may require moving. If this was not performed before the upgrade, install the circuit pack now. The port circuit will have to be translated after the system is rebooted with the G1 tape.

3. Install circuit pack blanks in slots not equipped with circuit packs.
4. Ensure that the PPN associated with this EPN is equipped with a TN776.

### ***Complete System Upgrade***

Return to the “System Upgrade” section of this chapter that referred you to the “Cabinet Upgrades,” and complete the system upgrade.

### **Upgrade R1V3 Medium to G1 EPN With Duplication**

The System 75 Medium R1V3 is upgraded to the G1 EPN with Duplication by:

- Removing the tape drive unit
- Removing the control carrier in position “A”
- Installing the J58890AF-1 control carrier in position “A”
- Adding the G1 circuit packs
- Restructuring the port circuits as required

**Prerequisite Hardware**

The equipment in the following table (Table 2-H) **MUST** be on-site before the upgrade is started.

**TABLE 2-H. Required Hardware**

<b>Equipment</b>	<b>Description</b>	<b>Quantity</b>
J58890AF-1	Control Carrier	1
TN775	Maintenance	1
TN768	Tone-Clock	2
TN776	Expansion Interface	4 (Note 1)
CFY1	Current Limiter	1
H-600-204 G1	Inter-Carrier Cable A	1
H-600-204 G1	Inter-Carrier Cable B	1
FL2P-P-20	Fiber Cable	2 (Note 2)
WP91716L6	TDM/LAN cable	3
WP91716L7	TDM/LAN cable	max 1 Note 3
ZAHF4	TDM Bus terminator	2
9823 Type	Lightwave transceiver	4 (Note 3)
176A	Apparatus Blank	1
Label	DEFINITY	1

- Note:**
1. Shipped with EPN cabinet only. Two TN776s are installed in the EPN, and two are installed in PPN.
  2. Four required if EPN and PPN are remotely located.
  3. Shipped with the EPN cabinet only. Two lightwave transceivers are installed in the EPN, and two in the PPN.

### ***Required Tools***

The following tools and items may be required during the upgrade:

- High-intensity AC drop light or flashlight
- 3/8-inch flat screwdriver with a 10-inch shank (minimum)
- 5/16-inch and 1/4-inch sockets with a ratchet and 10-inch extension
- Power screwdriver (optional)
- Pliers
- Static-proof box or original circuit pack packaging for transporting circuit packs
- Labels for labeling the cables attached to the rear of cabinets and port circuit pack
- Receptacle for holding approximately 100 self-tapping screws
- Twelve spare #12 and #10 self-tapping screws
- Four spare carrier grounding straps
- Authorized wrist grounding strap
- Cabinet air filter (may be required)
- Backplane pin repair kit (KS-22876-L2 or equivalent)
- One copy of each of the following manuals:
  - *DEFINITY® Communications System Generic 1 and Generic 3i—Maintenance, 555-204-105*
  - *DEFINITY® Communications System Generic 1 and System 75—Administration and Measurement Reports, 555-200-500*
  - *DEFINITY® Communications System Generic 1—Implementation, 555-204-655*

### ***Label Cables***

1. To make reconnecting the cables easier and to ensure they are properly reconnected, label both ends of the connector cables associated with the carrier to be removed (if not already labeled).

### ***Power Down System***

1. At the power distribution unit, set the main AC circuit breaker to OFF.

### ***Install Power Failure Transfer Ground Strap***

**CAUTION:** The ground strap must not be connected while the system is powered up.

1. Connect a lead to pin 49 of the CAP or to pin 49 of the connecting block associated with the power failure transfer panel.

2. Route the lead to an approved ground source.
3. Connect the lead to the approved ground source.

***Remove Door and Panels and Disconnect Cables***

1. Remove the front door from the cabinet (if desired).
2. With the cable retainer in front of you and the part number visible (4B or 4C), locate the slot that is almost vertical. This slot is adjacent to the part number. Insert a flat blade screwdriver with a wide blade (1/4-inch is recommended) into the slot. Twist the screwdriver while the blade is in the slot. The retainer will snap open easily, and the cable can be removed.
3. Disconnect previously labeled cables associated with the carrier to be removed.
4. At the rear of the cabinet, remove the top three panels (positions A, B, and C) and the bottom panel. There are two types of screws holding the back panels to the cabinet. The #10 screws can be removed with a screwdriver or a 1/4-inch socket. The #12 screws can be removed with a screwdriver or a 5/16-inch socket.

***Remove Circuit Packs From Carriers "A" and "B"***

1. To ensure the circuit packs and power units are properly replaced, label all port circuit packs and power units in the "A" and "B" carriers.
2. See WARNING. Remove all circuit packs from carrier "A." Store the circuit packs in the static-proof box.
3. See WARNING. Relocate the circuit packs that are in slots 1 and 2 in the "B" carrier.

**WARNING:** A wrist strap must always be worn, and the clip must be grounded to the cabinet frame being worked on before inserting and removing any circuit pack.

4. Disconnect the power leads from the "B" carrier.
5. Remove the circuit pack blanks from the slots which are not equipped with circuit packs.
6. Remove the front trim plate from the "B" carrier by pulling straight off. Then remove the front trim plate from the "A" carrier.

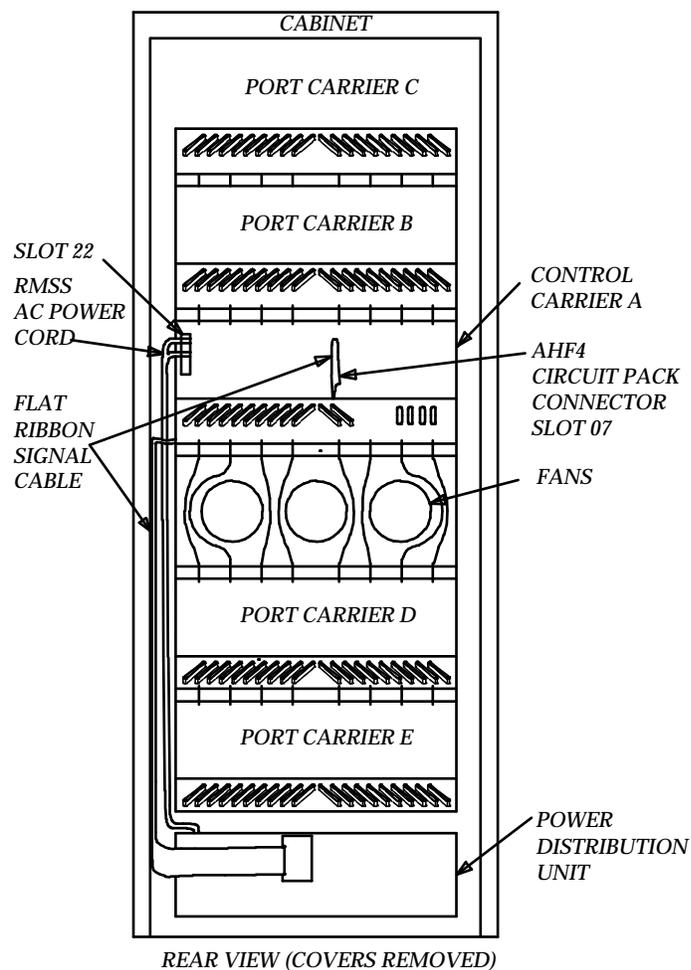
***Remove Tape Drive***

**Note:** The removal of the tape drive does not have to be performed at this time. It can be disconnected at this time, then removed at a later date when time is not as critical.

1. Remove tape.
2. Disconnect the AHF4 cable adapter from the rear of the "A" carrier (see Figure 2-32).
3. Open the snap connectors, and remove the cable from the adapter. Route the cable back to the tape drive and remove it. There are two cable clamps mounted on the

cabinet side panel. Use a screwdriver to unsnap the cable clamps. Neither the cable nor the adapter will be used in the upgraded cabinet.

- On the HCMR tape drive, disconnect the power supply from the front of the unit, then remove the screws at the rear of the unit that attach the drive to the chassis and slide the tape drive out the front of the cabinet.
  - On the RMSS tape drive, disconnect the red and black wire. Remove the faceplate, then remove the screws which hold the unit to the chassis. Slide the drive out the front of the cabinet.
4. Coil the red and black wire in an out-of-the-way position in the cabinet.
  5. Install the 176A Apparatus Blank over the empty space left by the removal of the tape drive.



**FIGURE 2-32. R1V3 System Cabinet—Rear View, Covers Removed**

**Remove the "A" Carrier**

1. See the following CAUTION and Note. Disconnect the TDM bus between the "A" and "B" carriers from the "A" and "B" carriers (see Figure 2-33). Remove the AHF3 cable adapters and the cable from the cabinet. They will not be reused.
2. See CAUTION and Note. Disconnect the TDM bus between the "A" and "D" carriers from the "A" and "D" carriers (see Figure 2-33). Remove the AHF3 cable adapter and the cable from the cabinet. They will not be reused.

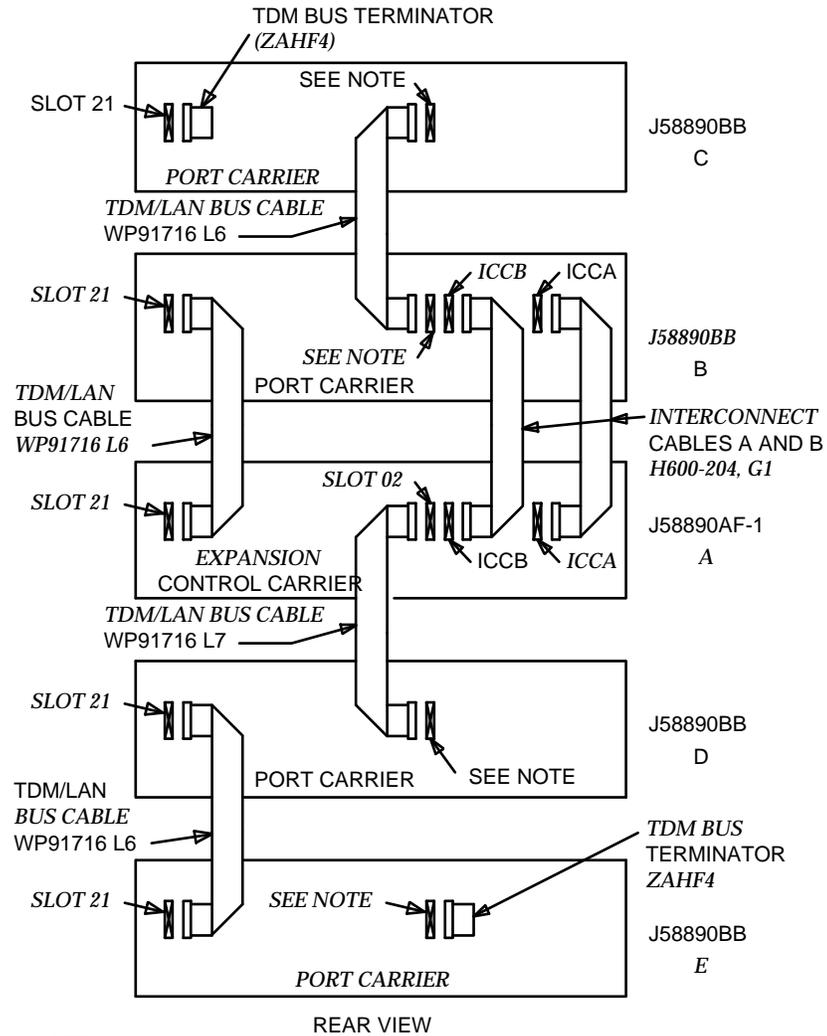
**CAUTION:** When removing the TDM adapters, care should be taken to ensure that none of the short pieces of shrink tubing on the four corner pins of the connector come off.

**Note:** Note the position of the TDM cable adapters before disconnecting the TDM cable adapters.

3. Disconnect the ground straps between the "A" and "B" carriers from the "A" carrier (see Figure 2-34). These straps will be used to connect to the new "A" carrier.
4. Disconnect the ground straps between the "A" and "D" carriers from the "A" carrier (see Figure 2-34). These straps will be used to connect to the new "A" carrier.
5. Slide the latch up, and disconnect the "P1" (small 9 pin) connector and the "P2" (large 37 pin) connector from the "A" carrier. Move the cables into a position where they will not interfere with removing the carrier.
6. Remove the fan trim plate by pulling straight off.
7. Clean or replace the air filter if necessary.
8. Remove the four screws (top two first) holding the "A" carrier to the cabinet frame. Use a long handle screwdriver or 5/16-inch socket with a 10-inch extension.
9. See CAUTION. Slide the carrier forward 1 to 2 inches; then, from the back check that no cables or wire harnesses are caught on any cabinet and/or carrier framework in such a manner that they could be damaged.

**CAUTION:** Cables and wiring harnesses can be damaged if they catch on framework and too much pressure is used in removing the carrier.

10. Remove the carrier by sliding it out the front of the cabinet.



**NOTE:**  
ON PORT CARRIER J58890BB-1, CONNECT TDM CABLE ADAPTER OR TDM TERMINATOR TO SLOT 02. ON PORT CARRIERS J58890BB-2 AND J58890BB-3, CONNECT THE TDM CABLE ADAPTERS OR TDM TERMINATOR TO SLOT 01.

**FIGURE 2-33. TDM/LAN Bus Wiring Diagram—Rear View**

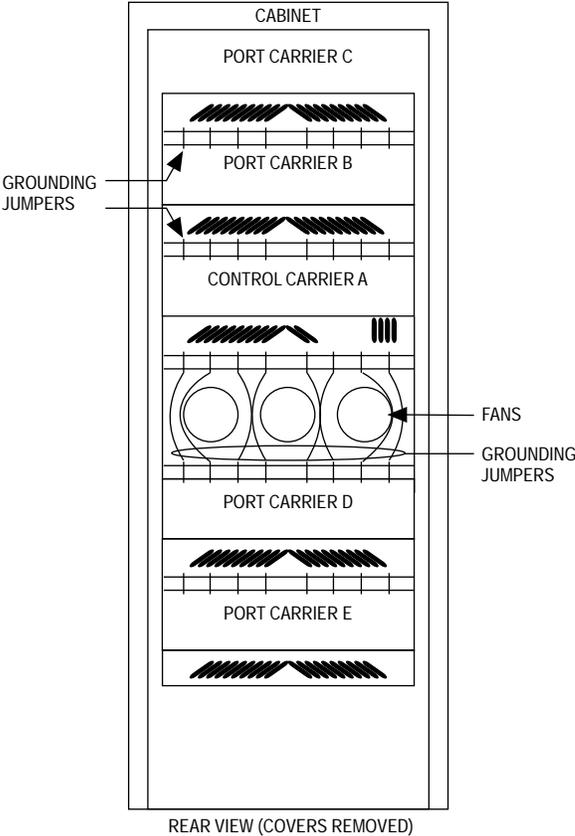


FIGURE 2-34. Grounding Jumper Locations

**Install the New "A" Position Carrier**

1. Visually inspect the carrier for any damage. Verify the backplane pins are not bent.
2. At the rear connector panel, determine which connectors will have connector cables connected and install the 4B cable retainers on those connectors.
3. Install the J58890AF-1 control carrier in position "A" by lining up the plastic alignment tips on the top rear of the carrier with the screw holes in the cabinet. These alignment tips will support the carrier while the screws are being replaced. Ensure that the power cords are properly placed in the slots in the sides of the carrier.
4. See CAUTION. Fasten the carrier into position with four self-tapping screws saved from the removal of the old carrier.

**CAUTION:** Carefully realign the threads on the self-tapping screws by turning them clockwise a turn or two before tightening them to avoid stripping the threads out of the framework.

5. Connect the "P2" and "P1" (large and small) connectors to the "A" carrier. To get enough slack in the cables, cut the tie wrap holding the intercabinet cables from the upright in the area of the carrier being installed. Snap the connector lock into place to ensure the connection is properly made (see Figure 2-35).
6. Connect the ground straps from the "D" carrier to the new "A" carrier (see Figure 2-34). These straps were left connected to the "D" carrier.
7. Connect the ground straps from the "B" carrier to the new "A" carrier (see Figure 2-34 and Table 2-I). These straps were left connected to the "D" carrier.

**TABLE 2-I. TDM/LAN Cable Connections**

"J" Number	Carrier Type	LHS Slot	RHS Slot
J58890BB-1	Port	21	02
J58890BB-2	Port	21	01
J58890BB-3	Port	21	01
J58890AF-1	EPN Control "A"	21	02

8. Connect the TDM/LAN bus cables between the "A" and "D" carriers using the new WP91716 L7 TDM cable (see Figure 2-33 and Table 2-I). The cable is connected to the "A" carrier to the block marked "TDM" on the right side of the carrier. The cable is connected to the "D" carrier to the block marked "TDM" on the right side of the carrier.
9. Connect the TDM/LAN bus cables between the "A" and "B" carriers using the new WP91716 L6 TDM cable (see Figure 2-33 and Table 2-I). The cable is connected to the "A" carrier to the block marked "TDM" on the left side of the carrier. The cable is connected to the "B" carrier to the block marked "TDM" on the left side of the carrier.

10. See CAUTION and Note. Remove the TDM cables and adapters between carriers “B” and “C.” Install the new WP91716 L6 TDM/LAN cable. The cables are connected to the same connectors that the old cables were disconnected from (right side). (See Figure 2-33 and Table 2-I).
11. See CAUTION and Note. Remove the TDM cables and adapters between carriers “D” and “E.” Install the new WP91716 L6 TDM/LAN cable. The cables are connected to the same connectors that the old cables were disconnected from (left side). (See Figure 2-33 and Table 2-I).

**CAUTION:** When removing the TDM adapters, care should be taken to ensure that none of the short pieces of shrink tubing on the four corner pins of the connector come off.

**Note:** Note the position of the TDM cable adapters and terminators before disconnecting the TDM adapters or terminators.

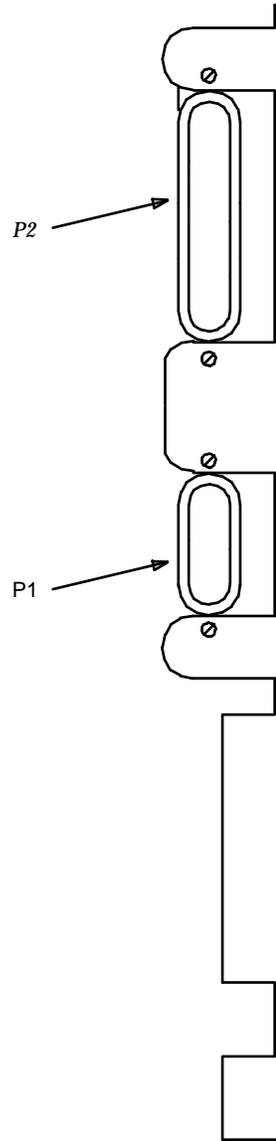
12. Replace the existing TDM bus terminators (AHF1) with the new ZAHF4 bus terminators. (See Figure 2-33).
13. Install the front trim plates, first on the “A” carrier and then the “B” carrier.
14. Peel the old decal strip from both trim plates, then install the new decal strips at the bottom of each trim panel. Install the new connector panel decal to the rear connector panel.
15. See CAUTION. Install the ICC cables (H600-204 G1) between carriers “A” and “B.” Connect the cables to the ICC block on both carriers (see Table 2-J and Figure 2-36). The cable is installed so that the dark (red, blue, or purple depending upon the supplier) colored stripe is on the bottom at both ends.

**CAUTION:** The ICC cable connectors can be installed so that the backplane pins can be bent. Use extreme caution to ensure the pins are not bent. Double check all connections to verify pins aren’t bent.

16. Install the CFY1 current limiter (CURL) on the “A” carrier to the block marked “CURL.” The curl is inserted with the components on the left as viewed from the rear of the cabinet.
17. Install the 631-type power units (removed from R1V3) into the “A” carrier. There are three different pairs of power units available. They are the 631AR1 and 631BR1, the 631WA1 and 631WB1, and the 631DA1 and 631DB1. Do not interchange the units. The 631AR1, 631WA1, or 631DA1 are installed in the left side, while the 631BR1, 631WB1, or 631DB1 are installed in the right side (see Figure 2-37).
18. If the system is equipped with the 631BR1 or 631WB1, install the TN736 power unit on the right side of carrier adjacent to the 631BR1 or the 631WB1. If the system is equipped for neon message waiting, a TN752 or TN755B power unit must be used.

**Note:** The TN736 is not required when the 631DB1 power unit is used in the J58890AH-1 control carrier or the J58890BB-2 or J58890BB-3 port carriers. It is required in the J58890BB-1 port carrier regardless of which 631 power unit is provided. Use the TN752 or TN755B if the system is equipped with neon message waiting.

19. Connect the power cords to the power units. The power cords are the white cables equipped with plugs that are run through the slots in the front of each carrier (see Figure 2-38).



**FIGURE 2-35. P1 and P2 Cable Locations**



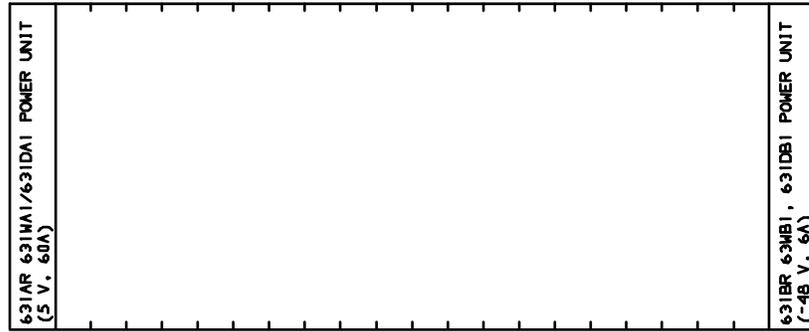


FIGURE 2-37. Power Unit Locations

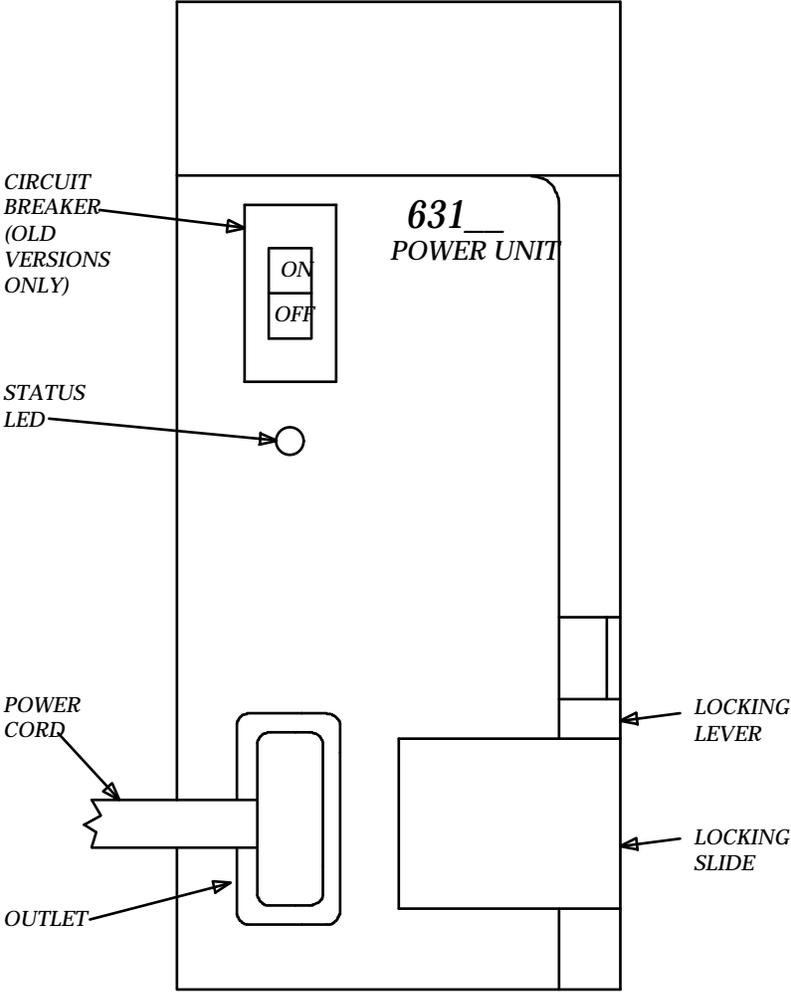


FIGURE 2-38. Typical 631-Type Power Unit

### ***Test the CURL***

1. Plug the cabinet power cord into the appropriate receptacle.
2. At the power distribution unit, set the main circuit breaker to ON.
3. Unplug the power cord from the power unit “B” (right-hand side) in the “A” carrier.
4. Verify that the fans continue running. If they are not running, check the installation of the CURL.
5. Reconnect the power cord to the power unit in the “A” carrier, then unplug the power cord from power unit “B” (right-hand side) in the “B” carrier.
6. Verify that the fans continue running. If they are not running, check the installation of the CURL.
7. Reconnect the power cord to the power unit in the “B” carrier.
8. At the power distribution unit, set the main circuit breaker to OFF.

### ***Install Circuit Packs***

1. See WARNING. Install the new G1 circuit packs into carriers “A” and “B.” Use the new decal and upgrade configuration document, provided with the equipment, as a guide.

**WARNING:** A wrist strap must always be worn, and the clip must be grounded to the cabinet frame being worked on before inserting and removing any circuit pack.

2. See preceding WARNING and the following Note. Install the port circuit packs previously removed into the “A” carrier using the decal and upgrade configuration document, provided with the equipment, as a guide.
3. See preceding WARNING and the following Note. Install the port circuit packs previously removed into the “B” carrier using the decal and the upgrade configuration document, provided with the equipment, as a guide.

**Note:** Because of differences in the number of port slots available in the new carriers, some port circuits may require moving. If this was not performed before the upgrade, install the circuit packs now. The port circuits will have to be translated after the system is rebooted with the G1 tape.

4. Verify that the associated PPN is equipped with two TN776s.

### ***Complete System Upgrade***

Return to the “System Upgrade” section of this chapter that referred you to the “Cabinet Upgrades,” and complete the system upgrade.



## CHAPTER 3. UPGRADE PROCESS R1V3 to G1 SINGLE-CARRIER CABINET

This chapter provides the information necessary to upgrade the System 75 XE from a Release 1 Version 3 (R1V3) system to a DEFINITY G1 Single-Carrier Cabinet. The hardware and software involved in the upgrades and the upgrade procedures are also provided.

G1 systems will ship from the factory in new multi-carrier or single-carrier cabinets. The upgraded systems will be in the old style cabinets. Therefore, the new G1 systems and the upgraded G1 systems will look different but will be functionally the same.

The following processes are required for a Version 3 to G1 upgrade:

- Hardware upgrades that involve changing cabinets, adding cabinets, and replacing and adding circuit packs
- Replacing the software tape
- Software upgrades that involve saving, loading, and reentering system translations
- Testing the upgraded system to verify proper operation

G1 features and functions are listed in the *DEFINITY® Communications System Generic 1 and Generic 3i—Feature Description, 555-230-201*. *DEFINITY® Communications System Generic 1—Implementation, 555-204-655*, provides the procedures and forms required to implement the Version 2 features. *DEFINITY® Communications System Generic 1 and System 75—Administration and Measurement Reports, 555-200-500*, provides the commands and procedures required to initialize and administer the System 75.

## Considerations

### Service Interruption

The upgrade process requires a service interruption of approximately 5 to 10 hours. This service interruption must be closely coordinated with the customer and the local account team.

### Communication Between Equipment Rooms

If the upgrade consists of equipment that is in a remote location, the upgrade activity will be much easier if temporary communications are established between the equipment rooms.

### Contact Network Craft

The network craft must be contacted before the upgrade is started. It is possible that if the network craft is not involved in the upgrade that the links will be busied out.

### Relocation of Port Circuit Packs

An upgrade to G1 can result in port circuit packs having to be moved and retranslated. This is a result of the new control cabinet having fewer port slots than the old control cabinet. If the system is being upgraded to include the duplication option, the “B” position cabinet will have to be replaced with a second control cabinet. This results in the loss of even more port slots.

Losing the port slots in positions “A” and “B” will result in a minimum of moving circuit packs and retranslating them. It could require adding a port cabinet or even a second network (EPN) to the system.

It is recommended that the relocation of the port circuits and the retranslation be completed before the upgrade. If this can be done before the tape is copied and sent off, the translations will be on the G1 tape at the time of the upgrade. This will also lessen any service interruption that may occur at the time of the upgrade. If an EPN is required, it cannot be added until the time of the upgrade. The R1V3 software will not support the EPN.

### Power

If a new cabinet is added, it may be either AC- or DC-powered. If the cabinet being added is powered differently from the existing cabinet(s), the existing cabinet(s) does not have to be converted as mixed power configurations are allowed.

If a new cabinet powered by AC is to be added, a separate AC receptacle must be added for each cabinet added to the system. This AC receptacle must not be shared with any other equipment or be under the control of a wall switch. It should not be located under the cross-connect field. Any available power source can be used as long as the phase or leg provides 115-AC volts at the required drain.

If a new cabinet powered by DC is to be added, refer to *DEFINITY® Communications System Generic 1 and Generic 3i—Installation and Test, 555-204-104*, for DC requirements.

### **Isolator**

All peripherals connected to a DC-powered system via the asynchronous Electronic Industries Association (EIA)-232 interface on the PPN A or PPN B carrier or the EPN Maintenance circuit pack requires an 116A isolator. The isolator is inserted at the EIA-232 interface between the peripheral and the interface connector.

### **Power Failure Stations**

The ground for the power failure stations is derived from the system Aux cable. During the upgrade it will be disconnected, thus causing the power failure stations to not work. A ground strap will have to be run to the power failure transfer panel. The strap should be added before the power is removed and removed before the system is powered up.

### **Software**

The G1 system software and translations will be saved on the TN774 Tape Drive circuit pack. This tape format is not compatible with the R1V3 tape.

The translations in the R1V3 system must be copied on a new tape and sent to the Technical Service Center (TSC) or the NTSO to be copied onto a G1 tape. This process takes a minimum of two weeks. The G1 tape must be back before the upgrade can be started. Two tapes (1 system and 1 backup) must always be retained on site with the System 75 XE.

### **Alarm Connections**

The AUXILIARY Connector on System 75XE R1V3 systems had appearances for Alarm Monitors 1M, 1m, 2M, 2m, 3M, 3m, and 3W. The AUXILIARY Connector on DEFINITY G1 systems has appearances for 1M and 1m only. If the system being upgraded had alarms connected to the other alarm monitor connections, they will have to be dropped.

## Hardware Description

### Circuit Packs

Only four circuit packs are required for the basic G1 system upgrades. The other seven will be provided on an optional basis for G1 features, as required by the customer.

The four required circuit packs are:

- TN773  
The Processor circuit pack manages the control of the entire system. It also executes the stored programs to perform call processing activity and MTP functions.
- TN770  
The TN770 Memory circuit pack provides the memory required by G1. It provides 6 megabytes of memory.
- TN777  
The TN777 Network Control circuit pack continuously monitors the port circuit packs for activity. It contains four data channels that transfer this information to the Processor circuit pack. It also connects equipment such as Data Services facilities, SMDR devices, on-premises pooled modem or administration terminal, or an off-premises administration terminal.
- TN774  
The TN774 Tape Unit stores the software information for the system. It contains a tape drive that provides 32 megabytes of storage space and a -48 volt to +12 volt DC converter used by the tape drive. It also provides LEDs that monitor the activity of the tape drive.

The six optional new circuit packs are:

- TN765  
The TN765 PI provides four data links to the TDM bus and a link through the memory bus to the processor. This circuit pack has four ports that provide interfaces to the 3B2 MSA, DCS, CMS, and AUDIX.
- TN767  
The TN767 DS1 Interface allows the ISDN-PRI 1.451 signaling to be carried transparently on any of the 24 ports of the trunk between the TDM bus and the DS1 facility. It also performs robbed-bit signaling using CO, TIE, DID, or OPS signaling protocol in any remaining ports on a per port basis.
- TN768  
The TN768 Tone-Clock circuit pack allows the system to control which of the two tone clocks provides the system clocking, and which TDM bus is used for tones. The TN768 has a ring generator detection circuit and provides a clock with tighter tolerances. It must be used when an EPN is added or when DS1, DCS, and Automatic Call Distribution (ACD) features are used.

- TN772

The TN772 DI is required with the duplication option. It selects the active processing element in a duplicated system and coordinates the interchange of processing elements.

- TN775

The Maintenance circuit in the EPC is the TN775. It provides monitoring and control of the environment and power signals. It provides two serial links to communicate with the EI circuit packs. The TN775 provides the connection for the Manager I terminal.

- TN776

The TN776 EI is used to provide the interconnect between the PPN and EPN. It packages the TDM control channel for transmission over the fiber link between cabinets. The TN776 provides the time interchange between cabinets and communicates with the maintenance circuit pack in the expansion cabinet.

## **Network**

The G1 offers an optional second network. This network, the EPN, enables the system to add up to three more port cabinets.

## **Cabinets**

There are three new Control Cabinets for the G1 system. The J58890L Control Cabinet is required in position "A" for the PPN. The J58890M Control Cabinet is required in position "B" of the PPN. The J58890N Expansion Control Cabinet is required in position "A" of the EPN. The G1 uses the same J58890H Port Cabinet as the R1V3 system.

## Software Translation Upgrade

The G1 system software and translations will be saved on the TN774 Tape Drive circuit pack. This tape format is not compatible with the R1V3 tape.

When upgrading from a R1V3 to G1, the R1V3 translations must be copied onto a G1 tape. This is done at the TSC or the NTSO. To ensure that the existing R1V3 translations are copied onto the G1 tape, the system tape must be replaced with a new R1V3 tape. The existing R1V3 translations in the system are copied onto the tape and sent to the TSC or NTSO. The original system tape is then put back into the system and rebooted to bring the system back to its previous status. The new R1V3 tape cartridges can be secured from the TSC prior to beginning the upgrade process.

There should be a freeze on any new translations when the new tape is sent to the TSC. If that is not possible, detailed records of any translation changes made during that interval must be kept as those changes will have to be reinput on the G1 tape after the system is upgraded.

The new G1 tape with the translations must be received before the upgrade is started.

### Save Translations

1. Login at the Manager I terminal.
2. Enter `save translations`. Press `Return`. This command instructs the system to take all translation information in memory and write it onto the tape.
3. If the system is equipped with a TN750B Announcement circuit pack, the recorded announcements can be saved using the save announcement commands. Enter `save announcements`, and press `Return`.
4. Remove the system tape, and install the backup tape.
5. Enter `save translations`. Press `Return`.
6. Enter `save announcements`. Press `Return`.

### Make the Upgrade Tape

A new R1V3 tape must be secured from the TSC prior to performing the next steps. There must always be two system tapes on site with the System 75. Do not send the system or backup tape to the TSC.

After the preceding procedures have been performed, the translations in memory should be copied onto the tape that is to be used to make the G1 tape. Perform the following procedures:

1. Remove the backup tape, and install the tape to be used to make the G1 tape.
2. Enter `save translations`. Press `Return`. This command instructs the system to take all translation information in memory and write it onto the tape.
3. Enter `save announcements`. Press `Return`.
4. Remove the tape.
5. Insert the system tape. Enter `reset system 4`.

The tape removed in Step 3 should be sent to the TSC or NTSO for use in making the G1 tape.

## System Upgrades

There are many configurations of the System 75 XE R1V3 in the field. Each system is unique in the way it is configured, both software and hardware. The manner in which the system is upgraded will depend on the present configuration. The upgrade may require replacing the control cabinet, adding a second control cabinet, or moving and retranslating port circuits. The upgrade may involve adding a new network. The new network could be either a PPN or EPN. The existing network could be upgraded to either a G1 PPN or EPN. The upgrade could also involve upgrading two existing R1V3 systems into one G1 system with two networks.

This section gives a sequential list of the steps required in upgrading the system. Because there are so many variations of systems and only three specific cabinet upgrades, the actual cabinet upgrade information is contained in the “Cabinet Upgrades” section of this chapter. The lists in this section will refer to those sections so that information will not have to be repeated.

### System 75 XE R1V3 to G1 PPN Without Duplication

#### *Upgrade Cabinet*

1. Upgrade the cabinet using the procedures contained in the “Upgrade System 75 XE R1V3 to G1 PPN Without Duplication” portion of the “Cabinet Upgrades” section of this chapter.

#### *Remove Power Failure Ground Strap*

1. Remove the previously installed ground strap from the power failure transfer unit.

#### *Reboot the System*

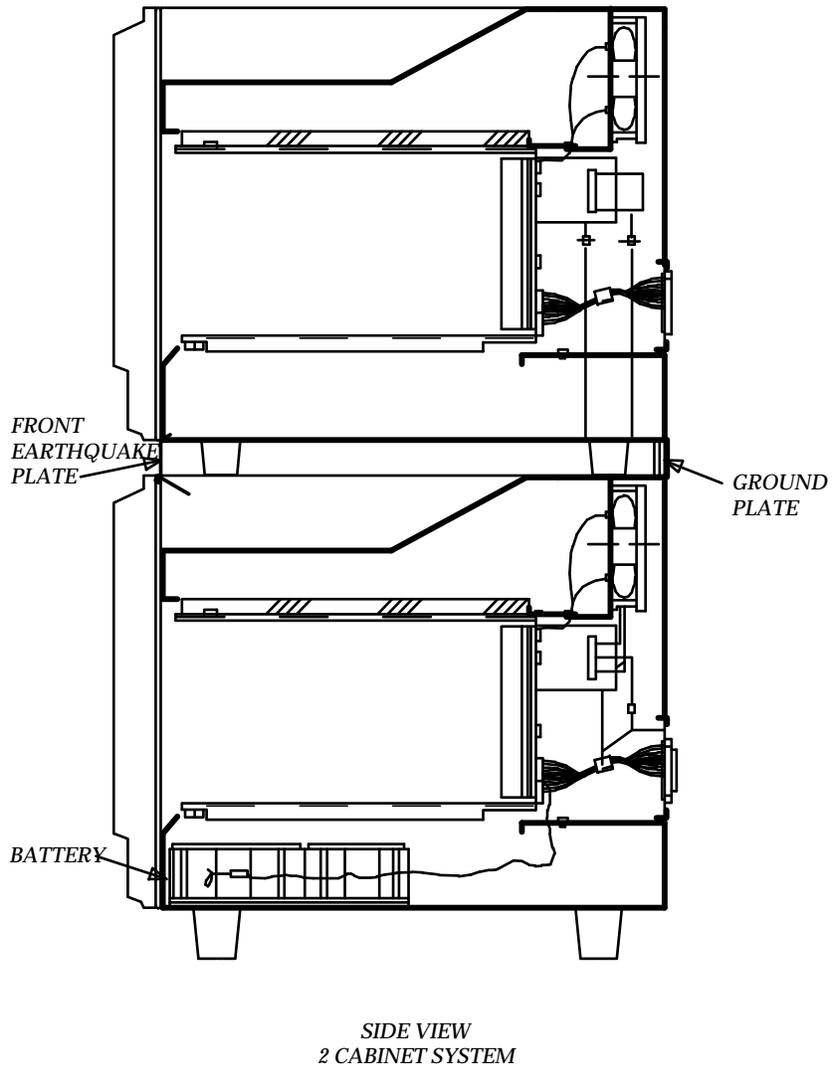
1. Connect the Manager I terminal to the connector labeled “TERMINAL” on the rear of the “A” cabinet.
2. Insert the new G1 system tape.
3. At the rear of each cabinet on the back of the power supply, set the circuit breaker to ON.
4. The system now goes through the rebooting process, loading the system translations from the tape. Rebooting requires 15 to 20 minutes. Refer to the “System Reboot Indications” section in *DEFINITY® Communications System Generic 1 and Generic 3i—Maintenance, 555-204-105*, for circuit pack LED indications and Manager I terminal displays that occur during system reboot.
5. Login at the `login:` prompt on the Manager I terminal, and set the time to ensure that the system is booted properly.

***Close Up Cabinet Without Earthquake Protection and Reconnect Cables***

1. At the rear of each cabinet on the back of the power supply, set the circuit breaker to OFF.
2. Replace all cables that were labeled and removed.
3. Install the front door on each cabinet.
4. Install the DEFINITY label on the cabinet.
5. Install the top and bottom rear covers. Ensure that the new J58890L rear cover are installed on the correct carrier. Do not use them on the port cabinets.

***Close Up Cabinet With Earthquake Protection and Reconnect Cables***

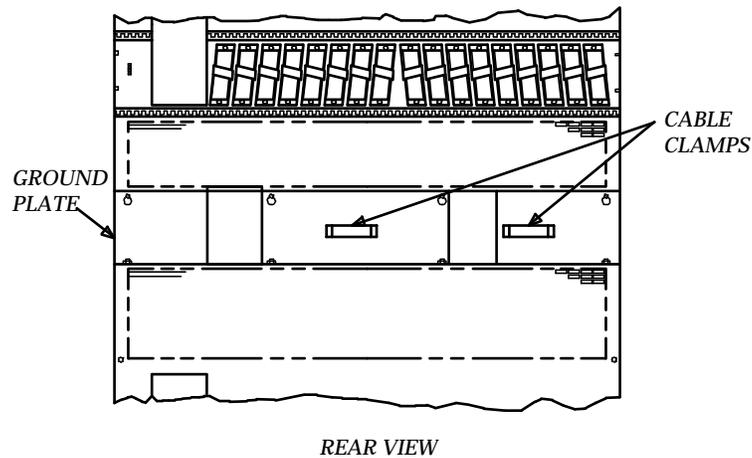
1. At the rear of each cabinet on the back of the power supply, set the circuit breaker to OFF.
2. Replace all cables that were labeled and removed.
3. Install the upper and lower rear panels with all the screws except for the screws that run along the top and bottom of the cabinet.
4. Line up the four holes in the ground plate with the four holes at the bottom of the lower rear cover of the upper cabinet, and install the screws but do not tighten.
5. Line up the ground plate with the top holes of the upper rear cover of the lower cabinet. Install the four screws but do not tighten.
6. At the front of the cabinet, line up the earthquake front plate with the holes at the top and bottom of the cabinet (see Figure 3-1). Install the eight screws but do not tighten.
7. Tighten all screws.
8. Repeat Steps 3 through 7 for all cabinets.
9. Install the front door on each cabinet.
10. Install the DEFINITY label on the cabinet.



**FIGURE 3-1. Single-Carrier Cabinet Ground Plate, Earthquake Front Plate, and Battery Locations**

***Install Cable Clamps***

At the rear of the cabinets, using screws provided, install two cable clamps on each ground plate (see Figure 3-2). These clamps are used to hold the port cables.



**FIGURE 3-2. Ground Plate and Cable Clamps Locations**

### ***Power Up the System***

1. At the rear of each cabinet on the back of the power supply, set the circuit breaker to ON.
2. The system now goes through the rebooting process, loading the system translations on the tape. Rebooting requires 15 to 20 minutes. Refer to the “System Reboot Indications” section in *DEFINITY® Communications System Generic 1 and Generic 3i—Maintenance, 555-204-105*, for circuit pack LED indications and Manager I terminal displays that occur during the system reboot.
3. After the system reboot is finished and all trouble is cleared, verify the EMERGENCY TRANSFER CONTROL switch is set to AUTO. This restores the system to the normal mode.

### ***Retranslate Port Circuits***

If port circuit packs had to be moved because of slot limitations in the new cabinet, and they were not moved and retranslated before the original tape was updated and sent to the TSC/NTSO, they must be retranslated now. Refer to *DEFINITY® Communications System Generic 1 and System 75—Administration and Measurement Reports, 555-200-500*, for instructions on performing the retranslations.

### ***Run Acceptance Tests***

Refer to Chapter 8, “Tests,” and perform the appropriate tests.

## System 75 XE R1V3 to G1 PPN With Duplication

### ***Upgrade Cabinet***

1. Upgrade the cabinet using the procedures contained in the “Upgrade System 75 XE R1V3 to G1 PPN With Duplication” portion of the “Cabinet Upgrades” section of this chapter.

### ***Remove Power Failure Ground Strap***

1. Remove the previously installed ground strap from the power failure transfer unit.

### ***Reboot the System***

1. Connect the Manager I terminal to the connector labeled “TERMINAL” on the rear of the “A” cabinet.
2. Insert the new G1 system tapes.
3. At the rear of each cabinet on the back of the power supply, set the circuit breaker to ON.
4. The system now goes through the rebooting process, loading the system translations from the tape. Rebooting requires 15 to 20 minutes. Refer to the “System Reboot Indications” section in *DEFINITY® Communications System Generic 1 and Generic 3i—Maintenance, 555-204-105*, for circuit pack LED indications and Manager I terminal displays that occur during system reboot.
5. Login at the `login:` prompt on the Manager I terminal, and set the time to ensure that the system is booted properly.

### ***Close Up Cabinet Without Earthquake Protection and Reconnect Cables***

1. At the rear of each cabinet on the back of the power supply, set the circuit breaker to OFF.
2. Replace all cables that were labeled and removed.
3. Install the front door on each cabinet.
4. Install the DEFINITY label on the existing port cabinet.
5. Install the top and bottom rear covers. Ensure that the new J58890L and J58890M rear covers are installed on the correct carrier. Do not use them on the port cabinets.

### ***Close Up Cabinet With Earthquake Mounting and Reconnect Cables***

1. At the rear of each cabinet on the back of the power supply, set the circuit breaker to OFF.
2. Replace all cables that were labeled and removed.
3. Install the upper and lower rear panels with all the screws except for the screws that run along the top and bottom of the cabinet but do not tighten.

4. Line up the four holes in the ground plate with the four holes at the bottom of the lower rear cover of the upper cabinet, and install the screws but do not tighten.
5. Line up the ground plate with the top holes of the upper rear cover of the lower cabinet. Install the four screws but do not tighten.
6. At the front of the cabinet, line up the earthquake front plate with the holes at the top and bottom of the cabinet (see Figure 3-1). Install the eight screws but do not tighten.
7. Tighten all screws.
8. Repeat Steps 2 through 7 for remaining cabinets
9. Install the front door on each cabinet.
10. Install the DEFINITY label on the cabinet.

### ***Install Cable Clamps***

At the rear of the cabinets, using screws provided, install two cable clamps on each ground plate (see Figure 3-2). These clamps are used to hold the port cables.

### ***Power Up the System***

1. At the rear of each cabinet on the back of the power supply, set the circuit breaker to ON.
2. The system now goes through the rebooting process, loading the system translations on the tape. Rebooting requires 15 to 20 minutes. Refer to the “System Reboot Indications” section in *DEFINITY® Communications System Generic 1 and Generic 3i—Maintenance, 555-200-105*, for circuit pack LED indications and Manager I terminal displays that occur during the system reboot.
3. After the system reboot is finished and all trouble is cleared, verify the EMERGENCY TRANSFER CONTROL switch is set to AUTO. This restores the system to the normal mode.

### ***Retranslate Port Circuits***

If port circuit packs had to be moved because of slot limitations in the new cabinet, and they were not moved and retranslated before the original tape was updated and sent to the TSC/NTSO, they must be retranslated now. Refer to *DEFINITY® Communications System Generic 1 and System 75—Administration and Measurement Reports, 555-200-500*, for instructions on performing the retranslations.

### ***Run Acceptance Tests***

Refer to Chapter 8, “Tests,” and perform the appropriate tests.

### **System 75 XE R1V3 to G1 EPN With or Without Duplication**

This upgraded network will be used in conjunction with a new PPN network. Install the new network using *DEFINITY® Communications System Generic 1 and Generic 3i—Installation and Test, 555-230-104*.

#### ***Upgrade Cabinet***

1. Upgrade the cabinet using the procedures contained in the “Upgrade System 75 XE R1V3 to G1 EPN With or Without Duplication” part of the “Cabinet Upgrades” section of this chapter.

#### ***Remove Power Failure Ground Strap***

1. Remove the previously installed ground strap from the power failure transfer unit.

#### ***Reboot the System***

1. Connect the Manager I terminal to the connector labeled “TERMINAL” on the rear of the “A” cabinet in the PPN.
2. Insert the new G1 system tape.
3. At the rear of each cabinet on the back of the power supply, set the circuit breaker to ON.
4. The system now goes through the rebooting process, loading the system translations from the tape. Rebooting requires 15 to 20 minutes. Refer to the “System Reboot Indications” section in *DEFINITY® Communications System Generic 1 and Generic 3i—Maintenance, 555-204-105*, for circuit pack LED indications and Manager I terminal displays that occur during system reboot.
5. Login at the `login:` prompt on the Manager I terminal, and set the time to ensure that the system is booted properly.

#### ***Close Up Cabinet Without Earthquake Protection and Reconnect Cables***

1. At the rear of each cabinet on the back of the power supply, set the circuit breaker to OFF.
2. Replace all cables that were labeled and removed.
3. Install the front door on each cabinet.
4. Install the DEFINITY label on the existing port cabinet.
5. Install the top and bottom rear covers. Ensure that the new J58890L and J58890M rear covers are installed on the correct carrier. Do not use them on the port cabinets.

#### ***Close Up Cabinet With Earthquake Mounting and Reconnect Cables***

1. At the rear of each cabinet on the back of the power supply, set the circuit breaker to OFF.

2. Replace all cables that were labeled and removed.
3. Install the upper and lower rear panels with all the screws except for the screws that run along the top and bottom of the cabinet. Do not tighten the screws.
4. Line up the holes four in the ground plate with the four holes at the bottom of the lower rear cover of the upper cabinet, and install the screws but do not tighten.
5. Line up the ground plate with the top holes of the upper rear cover of the lower cabinet. Install the four screws but do not tighten.
6. At the front of the cabinet, line up the earthquake front plate with the holes at the top and bottom of the cabinet (see Figure 3-1). Install the eight screws but do not tighten.
7. Tighten all screws.
8. Repeat Steps 3 through 7 for remaining cabinets.
9. Install the front door on each cabinet.
10. Install the DEFINITY label on the cabinet.

### ***Install Cable Clamps***

At the rear of the cabinets, using screws provided, install two cable clamps on each ground plate (see Figure 3-2). These clamps are used to hold the port cables.

### ***Power Up the System***

1. At the rear of each cabinet on the back of the power supply, set the circuit breaker to ON.
2. The system now goes through the rebooting process, loading the system translations on the tape. Rebooting requires 15 to 20 minutes. Refer to the “System Reboot Indications” section in *DEFINITY® Communications System Generic 1 and Generic 3i—Maintenance, 555-204-105*, for circuit pack LED indications and Manager I terminal displays that occur during the system reboot.
3. After the system reboot is finished and all trouble is cleared, verify the EMERGENCY TRANSFER CONTROL switch is set to AUTO. This restores the system to the normal mode.

### ***Retranslate Port Circuits***

If port circuit packs had to be moved because of slot limitations in the new cabinet, and they were not moved and retranslated before the original tape was updated and sent to the TSC/NTSO, they must be retranslated now. Refer to *DEFINITY® Communications System Generic 1—Administration and Measurement Reports, 555-200-500*, for instructions on performing the retranslations.

### ***Run Acceptance Tests***

Refer to Chapter 8, “Tests,” and perform the appropriate tests.

## Two Existing System 75 XEs R1V3 to One G1 PPN and EPN Without Duplication

### ***Upgrade Cabinet***

1. Upgrade the cabinet to be used as the PPN using the procedures contained in the “Upgrade System 75 XE R1V3 to G1 PPN Without Duplication” part of the “Cabinet Upgrades” section of this chapter.
2. Upgrade the cabinet to be used as the EPN using the procedures contained in the “Upgrade System 75 XE R1V3 to G1 EPN Without Duplication” part of the “Cabinet Upgrades” section of this chapter.

### ***Remove Power Failure Ground Strap***

1. Remove the previously installed ground strap from the power failure transfer unit.

### ***Reboot the System***

1. Connect the Manager I terminal to the connector labeled “TERMINAL” on the rear of the “A” cabinet in the PPN.
2. Insert the new G1 system tape.
3. At the rear of each cabinet on the back of the power supply, set the circuit breaker to ON.
4. The system now goes through the rebooting process, loading the system translations from the tape. Rebooting requires 15 to 20 minutes. Refer to the “System Reboot Indications” section in *DEFINITY® Communications System Generic 1 and Generic 3i—Maintenance, 555-204-105*, for circuit pack LED indications and Manager I terminal displays that occur during system reboot.
5. Login at the `login:` prompt on the Manager I terminal, and set the time to ensure that the system is booted properly.

### ***Close Up Cabinet Without Earthquake Protection and Reconnect Cables***

1. At the rear of each cabinet on the back of the power supply, set the circuit breaker to OFF.
2. Replace all cables that were labeled and removed.
3. Install the front door on each cabinet.
4. Install the DEFINITY label on the existing port cabinet.
5. Install the top and bottom rear covers. Ensure that the new J58890L and J58890M rear covers are installed on the correct carrier. Do not use them on the port cabinets.

### ***Close Up Cabinet With Earthquake Mounting and Reconnect Cables***

1. At the rear of each cabinet on the back of the power supply, set the circuit breaker to OFF.

2. Replace all cables that were labeled and removed.
3. Install the upper and lower rear panels with all the screws except for the screws that run along the top and bottom of the cabinet.
4. Line up the four holes in the ground plate with the four holes at the bottom of the lower rear cover of the upper cabinet, and install the screws but do not tighten.
5. Line up the ground plate with the top holes of the upper rear cover of the lower cabinet. Install the four screws but do not tighten.
6. At the front of the cabinet, line up the earthquake front plate with the holes at the top and bottom of the cabinet (see Figure 3-1). Install the eight screws but do not tighten.
7. Tighten all screws.
8. Repeat Steps 3 through 7 for the remaining cabinet.
9. Install the front door on each cabinet.
10. Install the DEFINITY label on the cabinet.

### ***Install Cable Clamps***

At the rear of the cabinets, using screws provided, install two cable clamps on each ground plate (see Figure 3-2). These clamps are used to hold the port cables.

### ***Power Up the System***

1. At the rear of each cabinet on the back of the power supply, set the circuit breaker to ON.
2. The system now goes through the rebooting process, loading the system translations on the tape. Rebooting requires 15 to 20 minutes. Refer to the “System Reboot Indications” section in *DEFINITY® Communications System Generic 1 and Generic 3i—Maintenance, 555-204-105*, for circuit pack LED indications and Manager I terminal displays that occur during the system reboot.
3. After the system reboot is finished and all trouble is cleared, verify the EMERGENCY TRANSFER CONTROL switch is set to AUTO. This restores the system to the normal mode.

### ***Retranslate Port Circuits***

If port circuit packs had to be moved because of slot limitations in the new cabinet, and they were not moved and retranslated before the original tape was updated and sent to the TSC/NTSO, they must be retranslated now. Refer to *DEFINITY® Communications System Generic 1—Administration and Measurement Reports, 555-200-500*, for instructions on performing the retranslations.

### ***Run Acceptance Tests***

Refer to Chapter 8, “Tests,” and perform the appropriate tests.

## Two Existing System 75 XEs R1V3 to One G1 PPN and EPN With Duplication

### ***Upgrade Cabinet***

1. Upgrade the cabinet to be used as the PPN using the procedures contained in the “Upgrade System 75 XE R1V3 to G1 PPN With Duplication” part of the “Cabinet Upgrades” section of this chapter.
2. Upgrade the cabinet to be used as the EPN using the procedures contained in the “Upgrade System 75 XE R1V3 to G1 EPN With Duplication” part of the “Cabinet Upgrades” section of this chapter.

### ***Remove Power Failure Ground Strap***

1. Remove the previously installed ground strap from the power failure transfer unit.

### ***Reboot the System***

1. Connect the Manager I terminal to the connector labeled “TERMINAL” on the rear of the “A” cabinet in the PPN.
2. Insert the new G1 system tape.
3. At the rear of each cabinet on the back of the power supply, set the circuit breaker to ON.
4. The system now goes through the rebooting process, loading the system translations from the tape. Rebooting requires 15 to 20 minutes. Refer to the “System Reboot Indications” section in *DEFINITY® Communications System Generic 1 and Generic 3i—Maintenance, 555-204-105*, for circuit pack LED indications and Manager I terminal displays that occur during system reboot.
5. Login at the `login:` prompt on the Manager I terminal, and set the time to ensure that the system is booted properly.

### ***Close Up Cabinet Without Earthquake Protection and Reconnect Cables***

1. At the rear of each cabinet on the back of the power supply, set the circuit breaker to OFF.
2. Replace all cables that were labeled and removed.
3. Install the front door on each cabinet.
4. Install the DEFINITY label on the existing port cabinet.
5. Install the top and bottom rear covers. Ensure that the new J58890L and J58890M rear covers are installed on the correct carrier. Do not use them on the port cabinets.

### ***Close Up Cabinet With Earthquake Mounting and Reconnect Cables***

1. At the rear of each cabinet on the back of the power supply, set the circuit breaker to OFF.

2. Replace all cables that were labeled and removed.
3. Install the upper and lower rear panels with all the screws except for the screws that run along the top and bottom of the cabinet. Do not tighten the screws.
4. Line up the four holes in the ground plate with the four holes at the bottom of the lower rear cover of the upper cabinet, and install the screws but do not tighten.
5. Line up the ground plate with the top holes of the upper rear cover of the lower cabinet. Install the four screws but do not tighten.
6. At the front of the cabinet, line up the earthquake front plate with the holes at the top and bottom of the cabinet (see Figure 3-1). Install the eight screws but do not tighten.
7. Tighten all screws.
8. Repeat Steps 3 through 7 for remaining cabinets.
9. Install the front door on each cabinet.
10. Install the DEFINITY label on the cabinet.

### ***Install Cable Clamps***

At the rear of the cabinets, using screws provided, install two cable clamps on each ground plate (see Figure 3-2). These clamps are used to hold the port cables.

### ***Power Up the System***

1. At the rear of each cabinet on the back of the power supply, set the circuit breaker to ON.
2. The system now goes through the rebooting process, loading the system translations on the tape. Rebooting requires 15 to 20 minutes. Refer to the “System Reboot Indications” section in *DEFINITY® Communications System Generic 1 and Generic 3i—Maintenance, 555-204-105*, for circuit pack LED indications and Manager I terminal displays that occur during the system reboot.
3. After the system reboot is finished and all trouble is cleared, verify the EMERGENCY TRANSFER CONTROL switch is set to AUTO. This restores the system to the normal mode.

### ***Retranslate Port Circuits***

If port circuit packs had to be moved because of slot limitations in the new cabinet, and they were not moved and retranslated before the original tape was updated and sent to the TSC/NTSO, they must be retranslated now. Refer to *DEFINITY® Communications System Generic 1—Administration and Measurement Reports, 555-204-500*, for instructions on performing the retranslations.

### ***Run Acceptance Tests***

Refer to Chapter 8, “Tests,” and perform the appropriate test.

## Cabinet Upgrades

The procedures contained in this section are not stand-alone procedures. They must be used in conjunction with the procedures contained in the System Upgrades section of this chapter. If you were not referred to this part from System Upgrades, you have made a mistake. Refer to the Table of Contents.

All of the System 75 XE cabinet upgrades require, at a minimum, that the control cabinet be replaced. Since the control cabinet is the bottom cabinet in the network, the system will have to be completely dismantled. It is very important that all the cables that are to be disconnected be properly labeled to make reconnecting them much easier.

### Upgrade System 75 XE R1V3 to G1 PPN Without Duplication

The System 75 XE R1V3 is upgraded to the G1 Without Duplication by:

- Removing the control cabinet in position “A”
- Installing the J58890L control cabinet in position “A”
- Adding the G1 circuit packs
- Restructuring the port circuits as required

**Prerequisite Hardware**

The equipment in the following table (Table 3-A) **MUST** be on-site before the upgrade is started. Ensure that the tape is the G1 tape.

**TABLE 3-A. Required Hardware**

<b>Equipment</b>	<b>Description</b>	<b>Quantity</b>
J58890L	Control Cabinet	1
TN773	Processor	1
TN777	Network Control	1
TN770	Memory	1
TN774	Tape Drive	1
TN765	Processor Interface	1 (Note 1)
J58890TD1 -L1	Tape Cartridge	2
AHF110	TDM Bus terminators	2
WP91716L-3	TDM/LAN Cable	(Note 2)
WP-91153	Power Unit	1
Label	DEFINITY	1 per cabinet
846408268	Earthquake Front Plate	1 (Note 3)
846408386	Earthquake Ground Plate	1 (Note 3)
846408250	Stiffener	1 (Note 3)
846408243	Earthquake Front Angle Bkt	1 (Note 3)

- Note:**
1. The existing system may already be equipped with this circuit pack. It is required in a 2-port network (PPN and EPN).
  2. This number can be 0 to 3, depending upon the number of port cabinets.
  3. Required only if earthquake protection is provided.

### **Required Tools**

The following tools and items may be required during the upgrade:

- Flashlight or high-intensity AC drop light
- 1/4-inch flat screwdriver
- Power screwdriver (optional)
- 1/4-inch socket with ratchet (optional)
- Pliers
- Static-proof box or original circuit pack packaging for transporting circuit packs
- Labels for labeling the cables attached to the rear of cabinets and port circuit pack
- A receptacle for holding screws
- About one dozen No. 8 self-tapping screws
- New air filter (optional)
- Backplane pin repair kit (KS-22876-L2 or equivalent)
- One copy of each of the following manuals:
  - *DEFINITY® Communications System Generic 1 and Generic 3i—Maintenance, 555-204-105*
  - *DEFINITY® Communications System Generic 1 and System 75—Administration and Measurement Reports, 555-200-500*
  - *DEFINITY® Communications System Generic 1—Implementation, 555-204-655*

### **Label Cables**

1. To make reconnecting the cables easier and to ensure they are properly reconnected, label all the cables (Manager I terminal, connector, PI, etc.) associated with the system (if not already labeled).

### **Power Down System**

1. At the rear of each cabinet on the back of the power supply, set the circuit breaker to OFF.

### ***Disconnect Power and Grounding***

1. Disconnect the cabinet power cords from the rear of the each cabinet.
2. Disconnect the coupled bonding conductor.
3. See Note. Disconnect the 6-AWG cabinet ground wire from the ground bar in the cabinet.

**Note:** A screwdriver is required to loosen and tighten the bolts that secure the ground wire to the ground bar.

### ***Install Power Failure Transfer Ground Strap***

**CAUTION:** The ground strap must not be connected while the system is powered up.

1. Connect a lead to pin 49 of the CAP or to pin 49 of the connecting block associated with the power failure transfer panel.
2. Route the lead to an approved ground source.
3. Connect the lead to the approved ground source.

### ***Remove Door and Panels and Disconnect Cables***

1. Remove the front door from all the cabinets.
2. Disconnect all the previously labeled connector cables.
3. Disconnect the Manager I terminal from the TERM connector.
4. Remove the ground plate(s) between all cabinets.
5. Remove top and bottom rear panels from all cabinets.

### ***Remove Circuit Packs***

1. Label all port circuit packs in the control cabinet.
2. See WARNING. Remove all circuit packs and power units from the control cabinet. Store the circuit packs in the static-proof box.
3. See WARNING. Remove the TN741 from the port carrier in position "B."

**WARNING:** A wrist strap must always be worn, and the clip must be grounded to the cabinet frame being worked on before inserting and removing any circuit pack.

### ***Disconnect TDM Cables***

1. See Note. Remove all the TDM cables and AHF103 TDM bus cable adapters. They will not be reused.

**Note:** Note the position of the TDM cable adapters and terminators before disconnecting the TDM adapters or terminators.

### ***Remove the Existing Control Cabinet***

Since the control cabinet is located at the bottom of the network, the system will have to be completely dismantled. At this point in the upgrade, all the power, grounding, TDM, and connector cables should be disconnected. Before you proceed, ensure that there is adequate space available to place each cabinet in an out-of-the-way location as the network is dismantled.

1. Remove the cabinet clip between each cabinet.
2. See WARNING. Remove the port cabinet(s) and place in a safe place.

**WARNING:** Port cabinets may weigh as much as 125 pounds each and require two handlers to unstack the cabinets. If the “D” cabinet is to be removed, remove the front door, power supply, and circuit packs from the fourth cabinet to lighten the load. Make sure the two handlers are capable (size and strength) of lifting the cabinet from the fourth position.

3. If the control cabinet is earthquake mounted, remove the hardware securing the cabinet to the floor.
4. Move the existing control cabinet out of its present location. It will not be reused, so it can be removed from the area at this time.

### ***Unpack and Inspect New Control Cabinet for Damage***

1. See WARNING. Unpack cabinet.

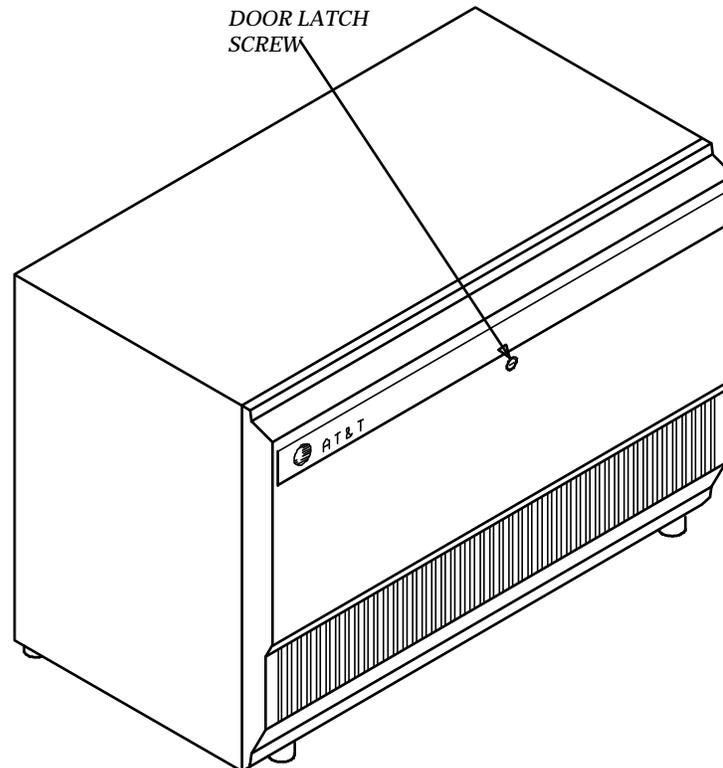
**WARNING:** Care must be taken to avoid injury while cutting and removing bands.

2. Visually inspect the cabinet for any physical damage caused during shipping. Report any damage for appropriate action per local procedures.

### ***Remove Front Door***

Remove the front door of the new control carrier.

1. Use a screwdriver, and turn the door latch screw counterclockwise one quarter turn to release the door (see Figure 3-3).
2. Lift the door from the lower slots and remove it from the cabinet.



**FIGURE 3-3. G1 Cabinet Door Latch Screw Location**

### ***Install Control Cabinet***

1. See WARNING. Position the control cabinet at the desired location.

**WARNING:** The cabinet may weigh as much as 130 pounds and requires two handlers. Use extreme caution.

2. If earthquake protection is not required, install hole plugs (provided with cabinet) in the holes previously occupied by the two carriage bolts at the bottom rear of the cabinet.

*Add Earthquake Protection*

1. If earthquake protection is required:
  - a. Place the Front Mounting Angle at the location selected for the front of the control cabinet.
  - b. Using the angle as the template, mark the location of the mounting bolts.
  - c. Drill two holes, 1/2-inch in diameter and 1-1/2 inches deep, at the spot marked in Step b.
  - d. Mount the Front Mounting Angle to the floor (Figure 3-4).
  - e. Move the cabinet back into place, and attach the cabinet to the angle with two No. 12-24 by 1/2-inch thread-forming screws.
  - f. Insert a pencil or marker through holes previously occupied with the carriage bolts in the bottom rear of the cabinet, and mark the floor directly beneath each hole.
  - g. Remove the screws installed in Step e and move the cabinet out of the way.
  - h. Drill two holes, 1/2 inch in diameter and 1-1/2 inches deep, at the spot marked in Step f.
  - i. Move the cabinet back into place.
  - j. Attach the cabinet to the front mounting angle using four No. 12-24 by 1/2-inch thread forming screws.
  - k. In the rear of the cabinet, lay the stiffener on the bottom of the cabinet, aligning the stiffener with the holes in the bottom of the cabinet.
  - l. Fasten the cabinet to the floor (Figure 3-5).

**Note:** This procedure is only a portion of the complete earthquake protection package. Instructions for adding the earthquake front plate and earthquake ground plate will be given at the appropriate location in this chapter to follow the logical installation sequence.

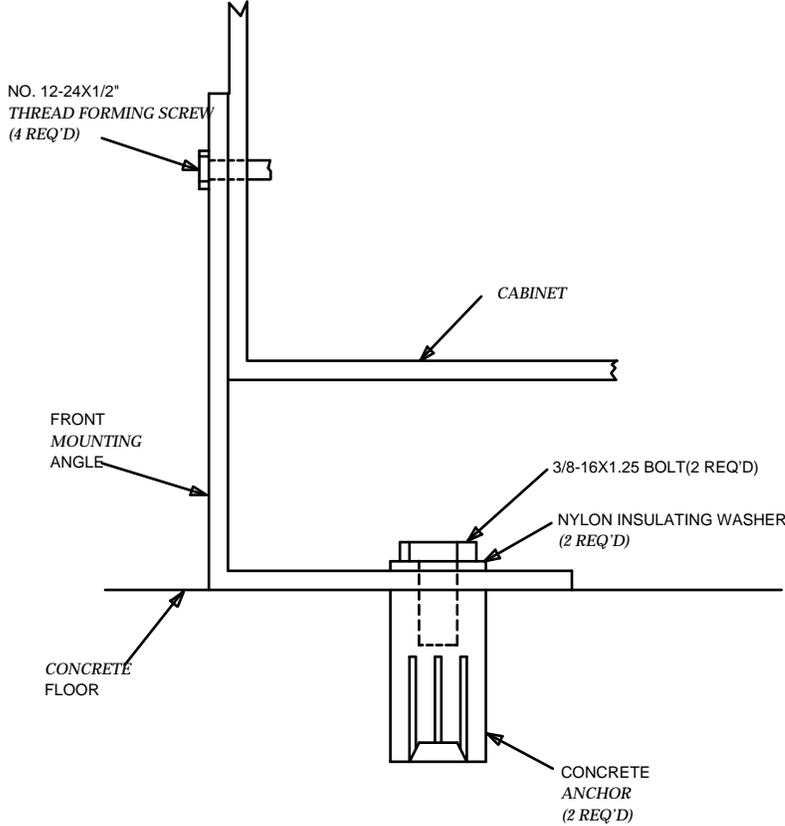
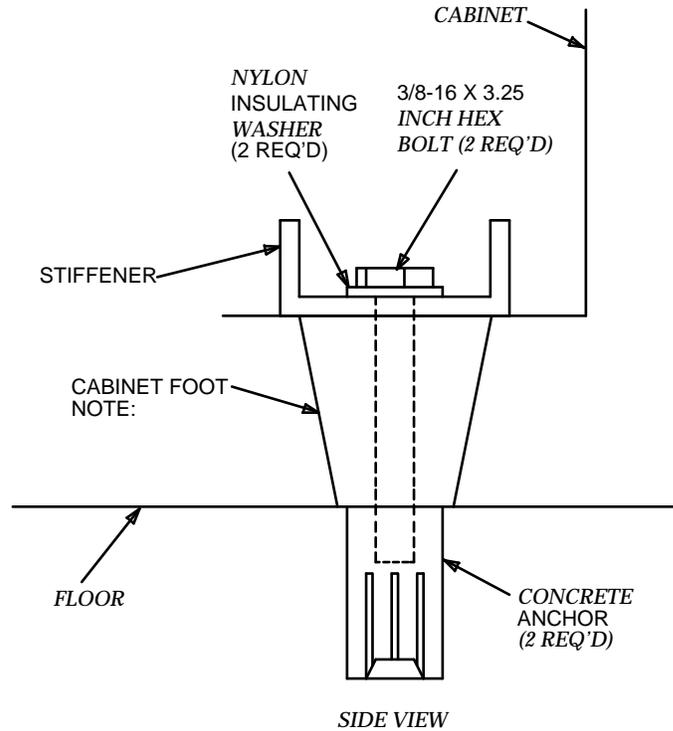


FIGURE 3-4. Front Mounting Angle—Concrete Floor



NOTE: BOLT DOES NOT RUN THROUGH CABINET FOOT

**FIGURE 3-5. Cabinet Earthquake Mounting—Concrete Floor**

**Install Port Cabinet(s)**

1. See preceding WARNING. Place the port cabinets into the position from which they were previously removed (see Figure 3-6).
2. Install the new cabinet labels on the front and rear of the port cabinets.

**Install Circuit Packs**

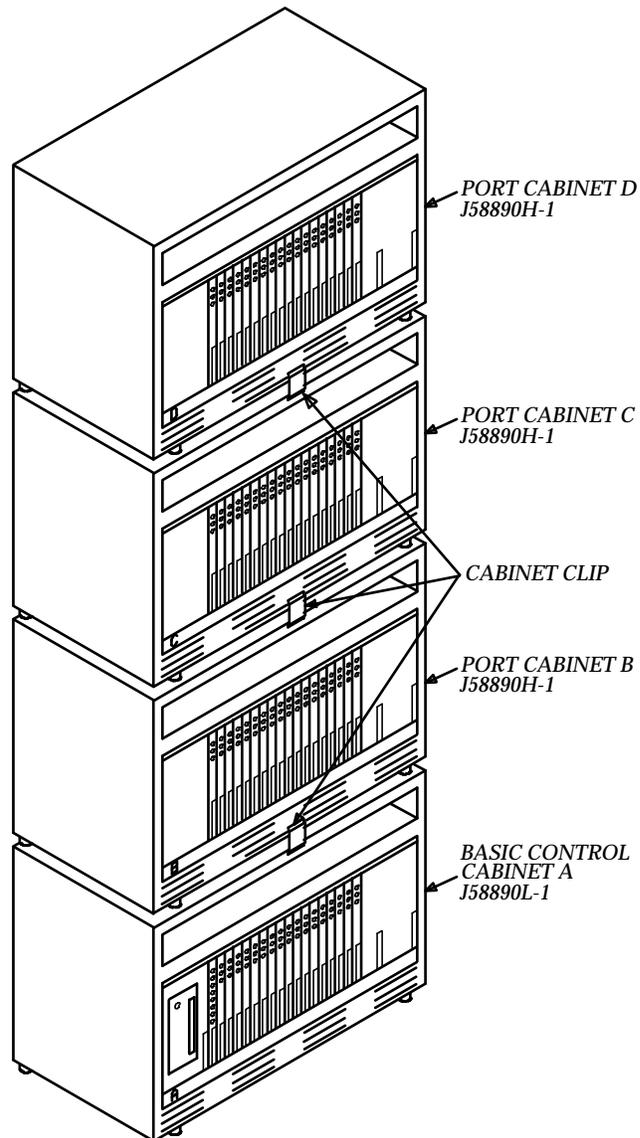
1. See WARNING. Using the label and upgrade configuration document, provided with the equipment, install the G1 circuit packs in the new control cabinet.

**WARNING: A wrist strap must always be worn, and the clip must be grounded to the cabinet frame being worked on before inserting and removing any circuit pack.**

2. See preceding WARNING. Replace the circuit packs and power supply in port cabinet “D” if they were previously removed.

3. See preceding WARNING and Note. Install the port circuit packs previously removed into the new control cabinet using the decal and upgrade configuration document, provided with the equipment, as a guide.

**Note:** Because of differences in the number of port slots available in the new cabinet, some port circuits may require moving. If this was not performed before the upgrade, install the circuit packs now. The port circuits will have to be retranslated after the system is rebooted with the G1 tape.



**FIGURE 3-6. G1 4-Cabinet System—Front View, Doors Removed**

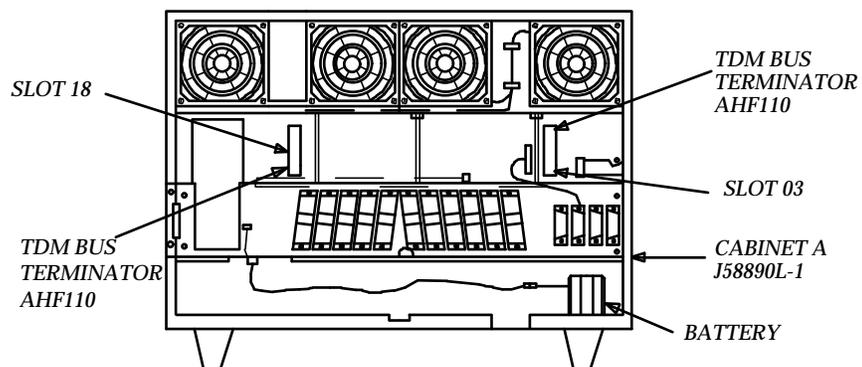
### Verify TDM Bus Terminators

1. If the system is a single cabinet system, verify the two AHF110 TDM Bus terminators are located as shown in Figure 3-7.
2. If the system is a multi-cabinet system:
  - a. Verify that the AHF110 TDM Bus terminator is installed on the right side of the control cabinet looking from the back of the cabinet as shown in Figure 3-8.
  - b. On the top port cabinet, remove the existing TDM terminator (AHF1), and replace it with a AHF110 TDM Bus terminator (see Figure 3-8).

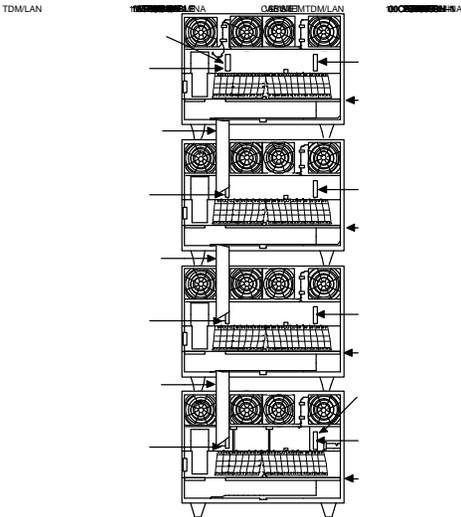
### Connect TDM/LAN Bus Cables

Route and connect the new WP91716L-3 TDM/LAN bus cables (see Figure 3-8). Use the following steps to route the cables between the R1V3 port cabinets being reused. The new bus cable is not run through the existing slot in the rear shelf.

1. Loosen two left (as viewed from the rear) connector panel screws, then remove the other two connector panel screws.
2. Attach the TDM/LAN cable to the backplane, and slide the cable between the connector panel and the rear shelf (not through the existing hole in the shelf). Route the cable along the bottom of the cabinet.
3. Replace and tighten the connector panel screws.



**FIGURE 3-7. G1 Control Cabinet TDM Bus Terminator Locations**



**FIGURE 3-8. G1 TDM/LAN Bus Connections**

### ***Install Ground Plate(s)***

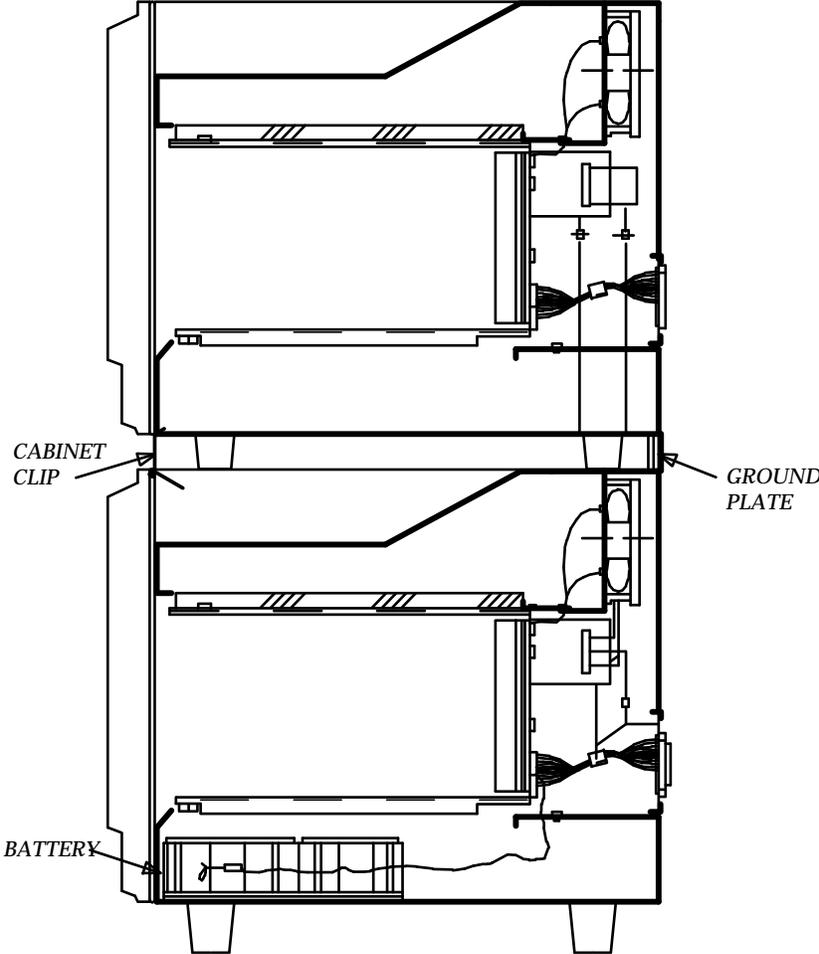
**Note:** If the system being upgraded is mounted with earthquake protection, do not install the ground plates at this time.

A ground plate is required between each cabinet (see Figure 3-9). The ground plate not only provides the ground connection between cabinets, it also stabilizes the cabinets.

1. At the rear of the cabinets, replace the upper and lower panels (leave the screws loose) (see Note).

**Note:** The rear covers on the new control cabinet are different from the older ones. The bottom rear cover for the port cabinet in position “B” must be replaced with the new version so the TDM/LAN cables and ground plates can be properly installed.

2. Place ground plate over the lower rear panel of the upper cabinet so that the four screws that attach the lower rear panel go through the four ground plate keyhole slots.
3. Slide the ground plate down over the upper rear panel of the lower cabinet so that the four screws that attach the upper rear panel go through the four lower ground plate slots.
4. Assure that the exposed portion of the TDM/LAN bus cable that is between the cabinets does not get pinched.
5. Tighten all screws.



SIDE VIEW  
2 CABINET SYSTEM

FIGURE 3-9. Ground Plate, Cabinet Clip, and Battery Locations

### ***Install Cabinet Clip(s)***

**Note:** This procedure is only used on systems without earthquake protection.

A cabinet clip, used to stabilize the cabinets, is required between each cabinet.

At the front of the cabinets, install a cabinet clip between the cabinets by hooking the clip into the slot of the upper cabinet and snapping the straight leg of the clip into the slot on the lower cabinet (see Figures 3-2 and 3-6).

### ***Connect Power and Grounding***

1. Reconnect the 6-AWG cabinet ground wire from the ground bar in the cabinet.

**Note:** A screwdriver is required to loosen and tighten the bolts that secure the ground wire to the ground bar.

2. Reconnect the coupled bonding conductor.
3. Reconnect the cabinet power cords at the rear of each cabinet.

### ***Complete System Upgrade***

Return to the “System Upgrades” section in this chapter, and complete the system upgrade.

### **Upgrade System 75 XE R1V3 to G1 PPN With Duplication**

The System 75 XE R1V3 is upgraded to the G1 PPN With Duplication by:

- Removing the control cabinet in position “A”
- Removing the port cabinet in position “B”
- Installing the J58890L control cabinet in position “A”
- Installing the J58890M control cabinet in position “B”
- Adding the G1 circuit packs
- Restructuring the port circuits as required

This upgrade requires installing the J58890M cabinet in position “B.” If the system is presently equipped with a port cabinet in position “B”, it will either have to be replaced or moved into position “C.” If it is moved into position “C,” then the “C” cabinet (if provided) must be moved into position “D.” If a carrier in position “D” is displaced, it will have to be moved into an EPN.

### ***Prerequisite Hardware***

The equipment in the following table (Table 3-B) **MUST** be on-site before the upgrade is started. Ensure that the tape is the G1 tape.

TABLE 3-B. Required Hardware

Equipment	Description	Quantity
J58890L	Control Cabinet	1
J58890M	Control Cabinet	1
WP-91153	Power Unit	2
TN773	Processor	2
TN777	Network Control	2
TN770	Memory	2
TN774	Tape Drive	2
TN765	Processor Interface	2 (opt)
TN768	Tone-Clock	2
TN748	Tone Detector	2
TN772	Duplication Interface	2
845798719	“C” Label	2
845948082	“D” Label	2
WP91716L-3	TDM/LAN Cable	(Note 1)
CFY1	Current Limiter	1
H600-259,G1	ICC cables	3
AFH110	TDM Bus terminators	4 (Note 2)
846307817	Lower Rear Cover	1
846307809	Ground Plate	1
J58890TD1-L1	Tape Cartridge	4
Label	DEFINITY	1 per cabinet
846408268	Earthquake Front Plate	1 (Note 3)
846408386	Earthquake Ground Plate	1 (Note 3)
846408250	Stiffener	1 (Note 3)
846408243	Earthquake Front Angle Bkt	1 (Note 3)

- Note:**
1. This number can be 1 to 3, depending on the number of port cabinets.
  2. Two terminators for the PPN and two for the EPN are required.
  3. Required if earthquake protection is provided.

**Required Tools**

The following tools and items may be required during the upgrade:

- Flashlight or high intensity AC drop light
- 1/4-inch flat screwdriver
- Power screwdriver (optional)
- Pliers
- 1/4-inch socket with ratchet (optional)
- Static-proof box or original circuit pack packaging for transporting circuit packs
- Labels for labeling the cables attached to the rear of cabinets and port circuit pack
- A receptacle for holding screws
- Twelve spare #8 self-tapping screws
- Backplane pin repair kit (KS-22876-L2 or equivalent)
- New air filter (optional)
- One copy of each of the following manuals:
  - *DEFINITY® Communications System Generic 1 and Generic 3i—Maintenance, 555-204-105*
  - *DEFINITY® Communications System Generic 1 and System 75—Administration and Measurement Reports, 555-200-500*
  - *DEFINITY® Communications System Generic 1—Implementation, 555-204-655*

**Label Cables**

1. To make reconnecting the cables easier and to ensure they are properly reconnected, label all the cables (Manager I terminal, connector, PI, etc.) associated with the system (if not already labeled).

**Power Down System**

1. At the rear of each cabinet on the back of the power supply, set the circuit breaker to OFF.

**Disconnect Power and Grounding**

1. Disconnect the cabinet power cords from the rear of the each cabinet.
2. Disconnect the coupled bonding conductor.
3. Disconnect the 6-AWG cabinet ground wire from the ground bar in the cabinet.

**Note:** A screwdriver is required to loosen and tighten the bolts that secure the ground wire to the ground bar.

***Install Power Failure Transfer Ground Strap***

**CAUTION:** The ground strap must not be connected while the system is powered up.

1. Connect a lead to pin 49 of the CAP or to pin 49 of the connecting block associated with the power failure transfer panel.
2. Route the lead to an approved ground source.
3. Connect the lead to the approved ground source.

***Remove Door and Panels and Disconnect Cables***

1. Remove the front door from all the cabinets.
2. Disconnect all the previously labeled connector cables.
3. Disconnect the Manager I terminal from the TERM connector.
4. Remove the ground plates(s) between all cabinets.
5. Remove top and bottom rear panels from each cabinet.

***Remove Circuit Packs From the Control Cabinet***

1. Label all port circuit packs in the control cabinet.
2. See WARNING. Remove all circuit packs and power units from the control cabinet. Store the circuit packs in the static-proof box.

**WARNING:** A wrist strap must always be worn, and the clip must be grounded to the cabinet frame being worked on before inserting and removing any circuit pack.

***Remove Circuit Packs from Port Cabinet "B"***

1. Label all circuit packs in Cabinet "B."
2. See preceding WARNING. Remove all circuit packs and power units from the cabinet. Store the circuit packs in the static-proof box.

***Disconnect TDM Cables***

1. Remove all the TDM cables and AHF103 TDM cable adapters.

### ***Remove the Existing Control Cabinet and Port Cabinet "B"***

Since the control cabinet is located at the bottom of the network, the system will have to be completely dismantled. At this point in the upgrade, all the power, grounding, TDM, and connector cables should be disconnected. Before you proceed, ensure that there is adequate space available to place each cabinet in an out-of-the-way location as the network is dismantled.

1. Remove the cabinet clip between each cabinet.
2. See WARNING. Remove the port cabinet(s) and place in a safe place.

**WARNING: Port cabinets may weigh as much as 125 pounds each and require two handlers to unstack the cabinets. If the "D" cabinet is to be removed, remove the front door, power supply, and circuit packs from the fourth cabinet to lighten the load. Make sure the two handlers are capable (size and strength) of lifting the cabinet from the fourth position.**

3. If the control cabinet is earthquake mounted, remove the hardware securing the cabinet to the floor.
4. Move the existing control cabinet out of its present location. It will not be reused, so it can be removed from the equipment room at this time.

### ***Unpack and Inspect New Control Cabinets for Damage***

1. See WARNING. Unpack cabinets.

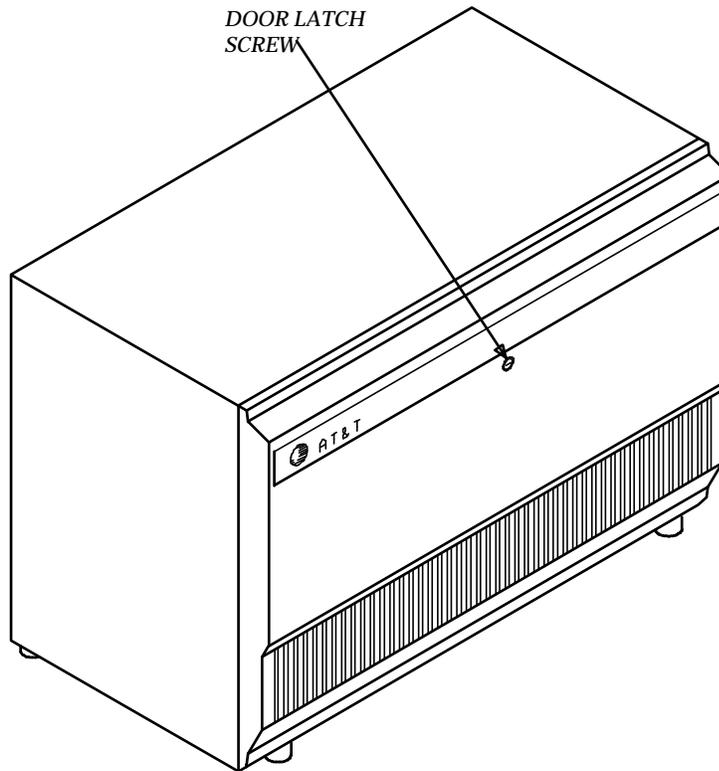
**WARNING: Care must be taken to avoid injury while cutting and removing bands.**

2. Visually inspect cabinets for any physical damage caused during shipping. Report any damage for appropriate action per local procedures.

### ***Remove Front Door***

Remove the front door of control cabinets "A" and "B."

1. Use a screwdriver, and turn door latch screw counterclockwise one quarter turn to release door (see Figure 3-10).
2. Lift door from lower slots and remove from cabinet.



**FIGURE 3-10. G1 Cabinet Door Latch Screw Location**

### ***Install Control Cabinets***

1. See WARNING. Position the control cabinet at the desired location.

**WARNING:** The cabinet may weigh as much as 130 pounds and requires two handlers. Use extreme caution.

2. If earthquake protection is not required, install hole plugs (provided with cabinet) in the holes previously occupied by the two carriage bolts at the bottom rear of the cabinet.

### ***Add Earthquake Protection***

1. If earthquake protection is required:
  - a. Place the Front Mounting Angle at the location selected for the front of the control cabinet.
  - b. Using the angle as the template, mark the location of the mounting bolts.
  - c. Drill two holes, 1/2 inch in diameter and 1-1/2 inches deep, at the spot marked in Step b.

- d. Mount the Front Mounting Angle to the floor (Figure 3-11).
- e. Move the cabinet back into place, and attach the cabinet to the angle with two No. 12-24 by 1/2-inch thread-forming screws.
- f. Insert a pencil or marker through holes previously occupied with the carriage bolts in the bottom rear of the cabinet, and mark the floor directly beneath each hole.
- g. Remove the screws installed in Step e, and move the cabinet out of the way.
- h. Drill two holes, 1/2 inch in diameter and 1-1/2 inches deep, at the spot marked in Step f.
- i. Move the cabinet back into place.
- j. Attach the cabinet to the front mounting angle using four No. 12-24 by 1/2-inch thread forming screws.
- k. In the rear of the cabinet, lay the stiffener on the bottom of the cabinet, aligning the stiffener with the holes in the bottom of the cabinet.
- l. Fasten the cabinet to the floor (Figure 3-12).

**Note:** This procedure is only a portion of the complete earthquake protection package. Instructions for adding the earthquake front plate and earthquake ground plate will be given at the appropriate location in this chapter to follow the logical installation sequence.

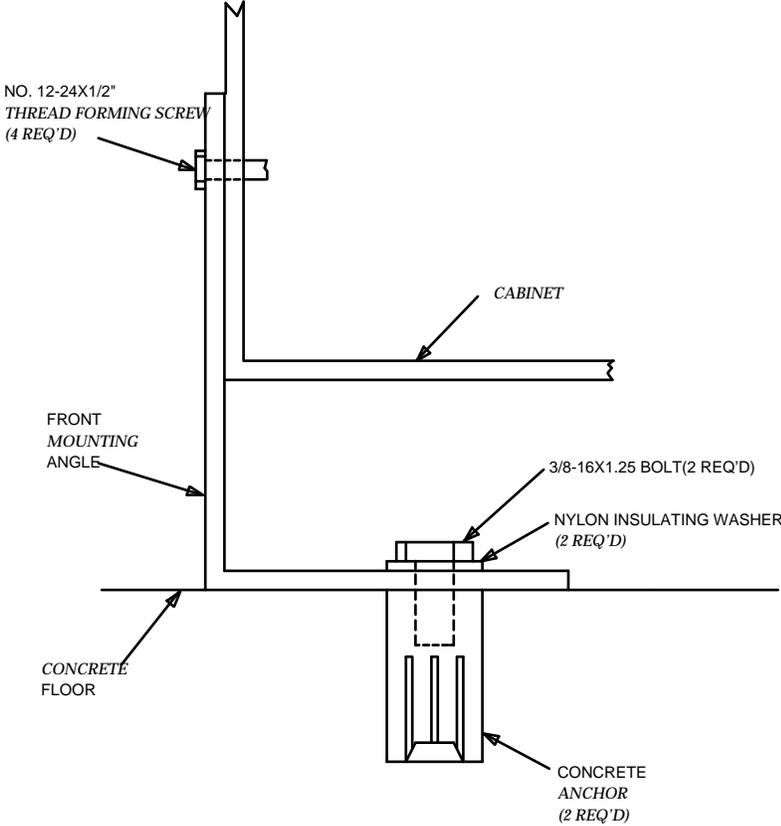
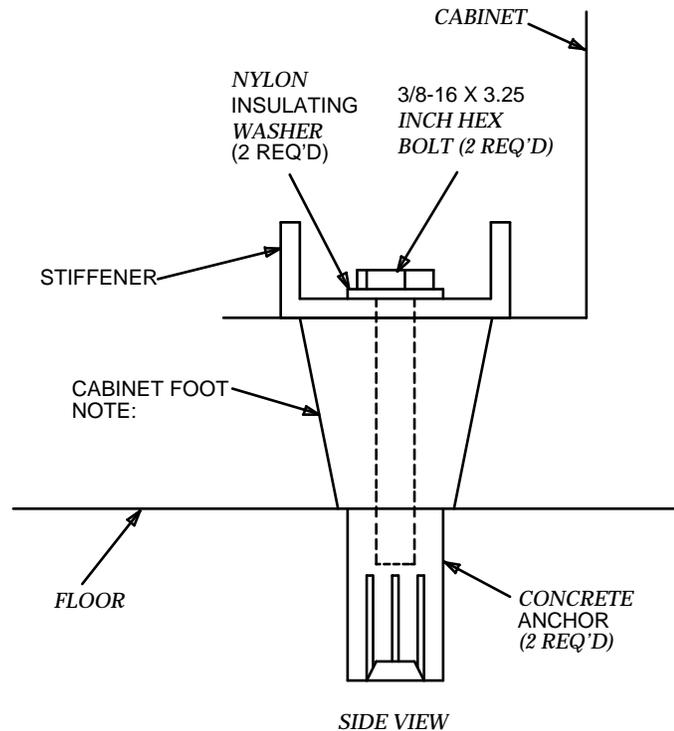


FIGURE 3-11. Front Mounting Angle—Concrete Floor



NOTE: BOLT DOES NOT RUN THROUGH CABINET FOOT

**FIGURE 3-12. Cabinet Earthquake Mounting—Concrete Floor**

2. See WARNING. Place control cabinet “B” (J58890M) on top of control cabinet “A.”

**WARNING:** The cabinet may weigh as much as 130 pounds and requires two handlers. Use extreme caution.

#### ***Install Port Cabinet***

If the original system was a 4-cabinet configuration, the “D” cabinet will become part of an EPN. Refer to *DEFINITY® Communications System Generic 1 and Generic 3i—Installation and Test, 555-230-104*, for the installation instructions.

1. See WARNING. Place the port cabinets into position (see Figure 3-13).

**WARNING:** The cabinet may weigh as much as 130 pounds and requires two handlers. Use extreme caution.

2. Install the new labels on the front and rear of the port cables.

***Install Circuit Packs***

1. See WARNING. Using the label and upgrade configuration document, provided with the equipment, install the circuit packs in both new control carriers.

**WARNING:** A wrist strap must always be worn, and the clip must be grounded to the cabinet frame being worked on before inserting and removing any circuit pack.

2. See preceding WARNING and the following Note. Install the port circuit packs previously removed into the “A” and “B” carrier carriers using the decal and upgrade configuration document, provided with the equipment, as a guide. Do not reinstall TN741 from the old cabinet “B” if present.

**Note:** Because of differences in the number of port slots available in the new cabinet, some port circuits may require moving. If this was not performed before the upgrade, install the circuit packs now. The port circuits will have to be retranslated after the system is rebooted with the G1 tape.

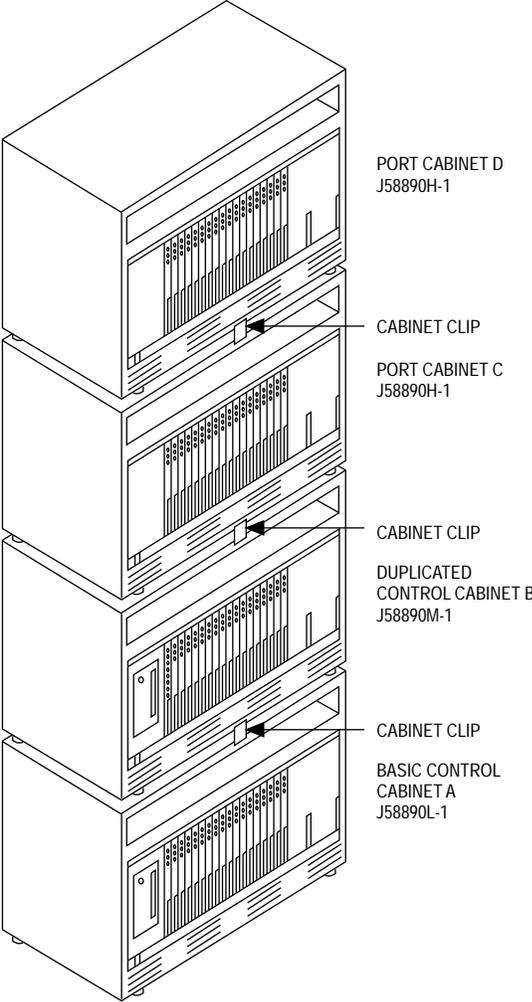
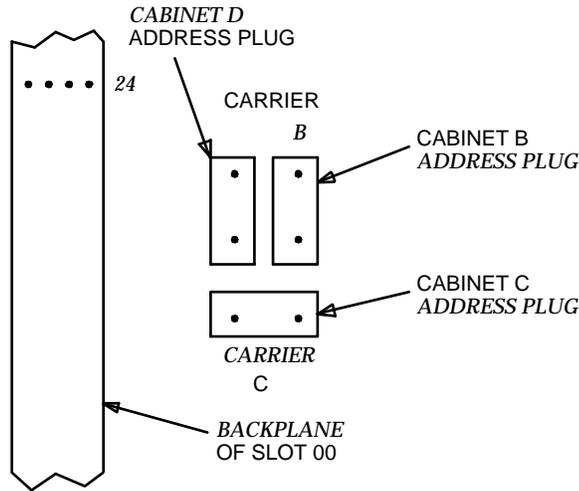


FIGURE 3-13. G1 4-Cabinet System—Front View, Doors Removed

**Change Cabinet Address Plugs**

The port cabinets will occupy different positions because the second control cabinet has been added in position “B.” The port cabinet address must be changed to reflect the new location (see Figure 3-14).



**FIGURE 3-14. Cabinet Address Plug Location**

### ***Install TDM Bus Terminators***

The G1 requires different TDM bus terminators. The new TDM bus terminators come attached to the new J58890L control carrier.

If the system being upgraded is a multi-cabinet system, perform the following procedures:

1. See Note. Remove the AHF110 TDM Bus terminator that is installed on the left side looking from the back of the cabinet (see Figure 3-15).
2. See Note. Remove the existing TDM Bus Terminator on the top port cabinet, and replace it with the new AHF110 TDM Bus terminator (see Figure 3-16).

**Note:** Note the position of the cable adapters and terminators before disconnecting the TDM adapters or terminators.

### ***Connect TDM/LAN Bus and ICCs***

1. Route and connect the new WP91716L-3 TDM/LAN bus cables (see Figure 3-16). Use the following steps to route the cables between the R1V3 port cabinets being reused. The new bus cable is not run through the existing slot in the rear shelf.
  - a. Loosen two left (as viewed from the rear) connector panel screws, then remove the other two connector panel screws.
  - b. Attach the TDM/LAN cable to the backplane, and slide the cable between the connector panel and the rear shelf (not through the existing hole in the shelf). Route the cable along the bottom of the cabinet.
  - c. Replace and tighten the connector panel screws
2. See Note. Connect ICC cables as shown in Table 3-C and Figures 3-17 and 3-18.

**Note:** The ICC cables are installed by the factory in the J58890M cabinet and are stored in the bottom of the cabinet.

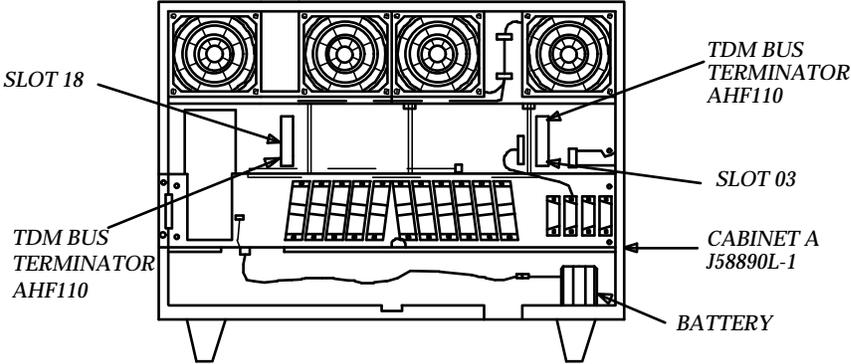


FIGURE 3-15. G1 Control Cabinet TDM Bus Terminator Locations

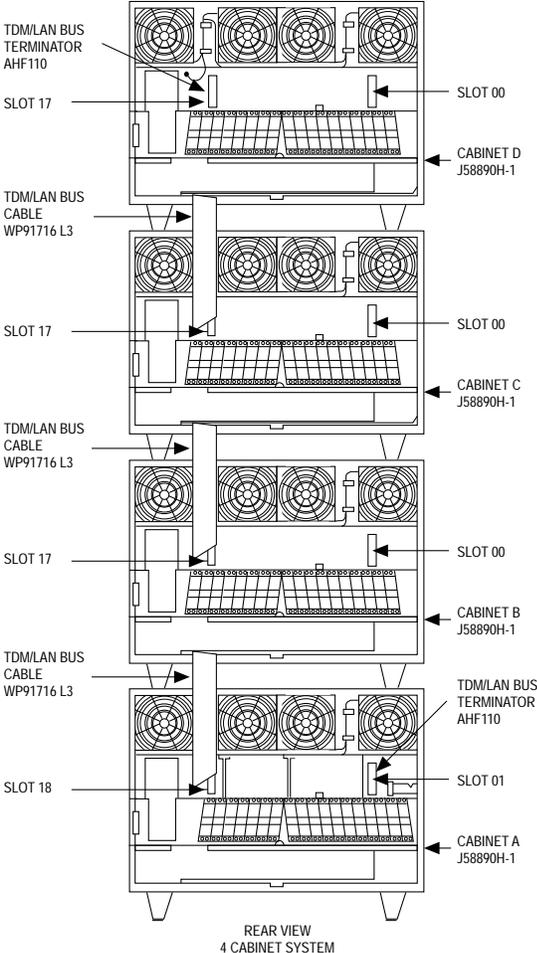


FIGURE 3-16. G1 TDM/LAN Bus Connections

TABLE 3-C. Intercabinet Cable Connections

Connect ICC Cables				
	From		To	
	Carrier	CONN	Carrier	CONN
PPN	J58890L	ICCA ICCB ICCC	J58890M	ICCA ICCB ICCC

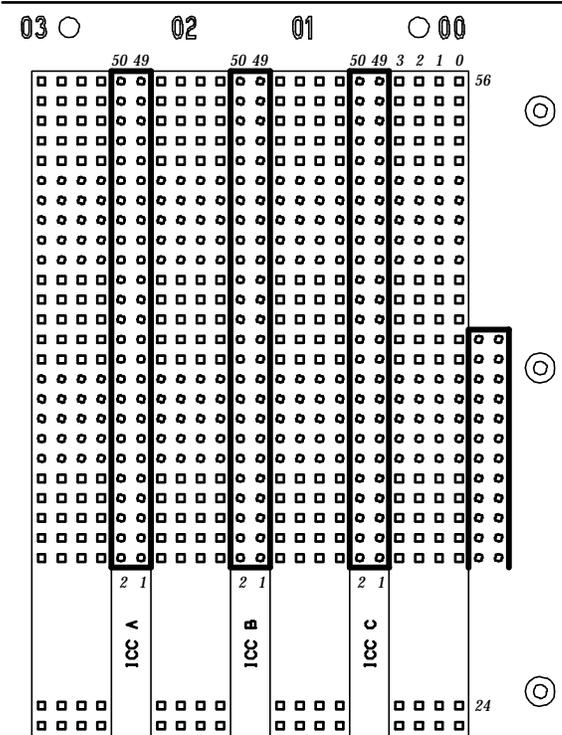


FIGURE 3-17. ICC Pin Block Location on J58890L

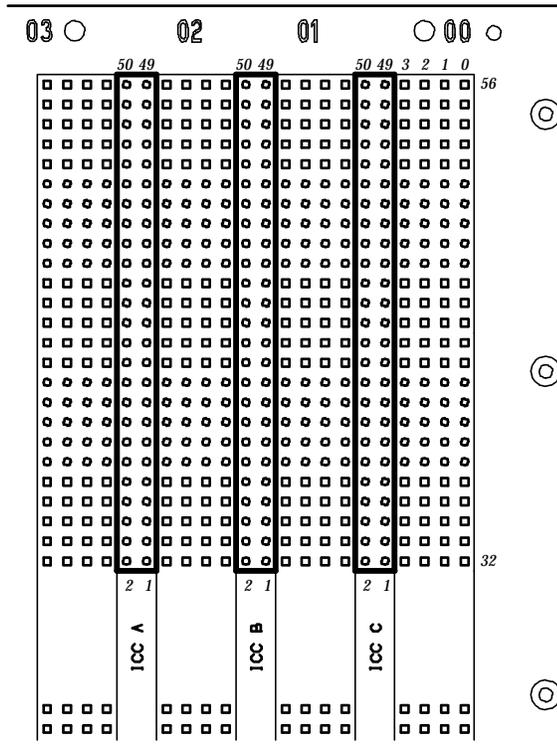


FIGURE 3-18. ICC Pin Block Location on J58890M

### ***Install Ground Plate(s)***

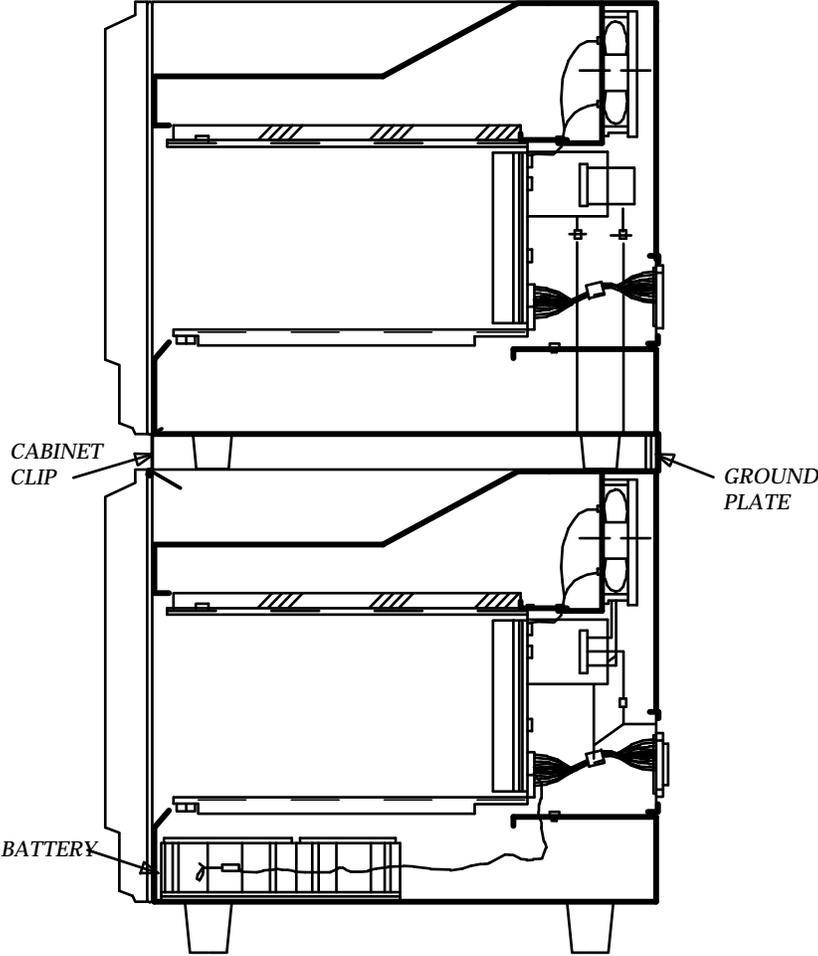
**Note:** If the system being upgraded is mounted with earthquake protection, do not install the ground plates at this time.

A ground plate is required between each cabinet (see Figure 3-19). The ground plate not only provides the ground connection between cabinets, it also stabilizes the cabinets.

1. See Note. At the rear of the cabinets, replace the upper and lower panels (leave the screws loose).

**Note:** The rear covers on the new control carriers are different. The bottom rear cover for the port cabinet in position “C” must be replaced with a new version cover so that the TDM/LAN cables and ground plates can be installed properly.

2. Place the ground plate over the lower rear panel of the upper cabinet so that the four screws that attach the lower rear panel go through the four ground plate keyhole slots.
3. Slide the ground plate down over the upper rear panel of the lower cabinet so that the four screws that attach the upper rear panel go through the four lower ground plate slots.
4. Ensure that the exposed portion of the TDM/LAN bus cable that is between the cabinets does not get pinched.
5. Tighten all screws.



SIDE VIEW  
2 CABINET SYSTEM

FIGURE 3-19. Ground Plate, Cabinet Clip, and Battery Locations

### ***Install Cabinet Clip(s)***

**Note:** This procedure is only used on systems without earthquake protection.

A cabinet clip, used to stabilize the cabinets, is required between each cabinet.

At the front of the cabinets, install a cabinet clip between the cabinets by hooking the clip into the slot of the upper cabinet, and snapping the straight leg of the clip into the slot on the lower cabinet (see Figures 3-13 and 3-19).

### ***Connect Power and Grounding***

1. Reconnect the 6-AWG cabinet ground wire from the ground bar in the cabinet.

**Note:** A screwdriver is required to loosen and tighten the bolts that secure the ground wire to the ground bar.

2. Reconnect the coupled bonding conductor.
3. Reconnect the cabinet power cords at the rear of each cabinet.

### ***Complete System Upgrade***

Return to the “System Upgrades” section of this chapter, and complete the system upgrade.

### **Upgrade System 75 XE R1V3 to G1 EPN With or Without Duplication**

The System 75 XE R1V3 is upgraded to the G1 EPN With or Without Duplication by:

- Removing the control cabinet in position “A”
- Installing the J58890N-1 control cabinet in position “A”
- Adding the G1 circuit packs
- Restructuring the port circuits as required
- Adding G1 Duplication packs to the “B” cabinet if required

### ***Prerequisite Hardware***

The equipment in the following table (Table 3-D) **MUST** be on-site before the upgrade is started. Ensure that the tape is the G1 tape.

TABLE 3-D. Required Hardware

Equipment	Description	Quantity
J58890N1-L1	Control Cabinet	1
TN775	Maintenance	1
TN776	Expansion Interface	1 (Note 1)
TN748B	Tone Detector	1
TN768	Tone-Clock	2 (Note 2)
WP91716L-3	TDM Cable	(Note 3)
FL2P-P-20	Fiber Cable	1 (Note 4)
9823-Type	Lightwave Transceiver	2 (Note 5)
AHF110	TDM Bus terminators	2
J58890TD,L1	Tape Cartridge	2 (Note 1)
846307841	“C” Port Label	1
846307958	“D” Port Label	1
846307817	Lower Rear Cover	1 (Note 6)
846307809	Ground Plate	1 (Note 6)
H600-248G1	ICC Cables	2 (Note 6)
Label	DEFINITY	1 per cabinet
846408268	Earthquake Front Panel	1 (Note 7)
846408386	Earthquake Ground Plate	1 (Note 7)
846408250	Stiffener	1 (Note 7)
846408243	Earthquake Front Angle Bkt	1 (Note 7)

**Note:**

1. Two are required without duplication, four with duplication. If two are shipped with the system, install one in the PPN, the other in the EPN. If four are shipped, install two in the PPN and two in the EPN.
2. One without duplication, two with duplication.
3. This number can be 0 to 3 depending on the number of port cabinets.
4. Two cables are required if system is equipped with the duplication option.
5. Four transceivers are required if system is equipped with the duplication option.

6. Required when system is equipped with the duplication option.
7. Required if earthquake protection is provided.

### **Required Tools**

The following tools and items may be required during the upgrade:

- Flashlight or high-intensity AC drop light
- Power screwdriver (optional)
- 1/4-inch flat screwdriver
- 1/4-inch socket with ratchet (optional)
- Pliers
- Static-proof box or original circuit pack packaging for transporting circuit packs
- Labels for labeling the cables attached to the rear of cabinets and port circuit pack
- Receptacle for holding screws
- Twelve #8 self-tapping screws
- New air filter (optional)
- Backplane pin repair kit (KS-22876-L2 or equivalent)
- One copy of each of the following manuals:
  - *DEFINITY® Communications System Generic 1 and Generic 3i—Maintenance, 555-204-105*
  - *DEFINITY® Communications System Generic 1 and System 75—Administration and Measurement Reports, 555-200-500*
  - *DEFINITY® Communications System Generic 1—Implementation, 555-204-655*

### **Label Cables**

1. To make reconnecting the cables easier and to ensure they are properly reconnected, label all the connector cables associated with the system (if not already labeled).

### **Power Down System**

1. At the rear of each cabinet on the back of the power supply, set the circuit breaker to OFF.

### **Disconnect Power and Grounding**

1. Disconnect the cabinet power cords from the rear of the each cabinet.
2. Disconnect the coupled bonding conductor.

3. Disconnect the 6-AWG cabinet ground wire from the ground bar in the cabinet.

**Note:** A screwdriver is required to loosen and tighten the bolts that secure the ground wire to the ground bar.

#### ***Install Power Failure Transfer Ground Strap***

**CAUTION:** The ground strap must not be connected while the system is powered up.

1. Connect a lead to pin 49 of the CAP or to pin 49 of the connecting block associated with the power failure transfer panel.
2. Route the lead to an approved ground source.
3. Connect the lead to the approved ground source.

#### ***Remove Door and Panels and Disconnect Cables***

1. Remove the front door from all the cabinets.
2. Disconnect all the previously labeled connector cables.
3. Disconnect the Manager I terminal from the TERM connector.
4. Remove the ground plate(s) between all the cabinets.
5. Remove the top and bottom rear panels from all the cabinets.

#### ***Remove Circuit Packs***

1. Label all port circuit packs in the control cabinet.
2. See WARNING. Remove all circuit packs and power units from the control cabinet. Store the circuit packs in the static-proof box.
3. See WARNING. Remove the TN741 from the port cabinet in position "B."

**WARNING:** A wrist strap must always be worn, and the clip must be grounded to the cabinet frame being worked on before inserting and removing any circuit pack.

#### ***Disconnect TDM Cables***

1. See Note. Remove all the TDM cables and AHF103 TDM Bus cable adapters. They will not be reused.

**Note:** Note the position of the cable adapters before disconnecting the TDM adapters.

### ***Remove the Existing Control Cabinet***

Since the control cabinet is located at the bottom of the network, the system will have to be completely dismantled. At this point in the upgrade, all the power, grounding, TDM, and connector cables should be disconnected. Before you proceed, ensure that there is adequate space available to place each cabinet in an out-of-the-way location as the network is dismantled.

1. Remove the cabinet clip between each cabinet.
2. See WARNING. Remove the port cabinet(s), and place in a safe place.

**WARNING: Port cabinets may weigh as much as 125 pounds each and require two handlers to unstack the cabinets. If a fourth cabinet is to be removed, remove the front door, power supply, and circuit packs from the fourth cabinet to lighten the load. Make sure the two handlers are capable (size and strength) of lifting the cabinet from the fourth position.**

3. If the control cabinet is earthquake mounted, remove the hardware securing the cabinet to the floor.
4. Move the existing control cabinet out of its present location. It will not be reused, so it can be removed at this time.

### ***Unpack and Inspect New Control Cabinet for Damage***

1. See WARNING. Unpack cabinet.

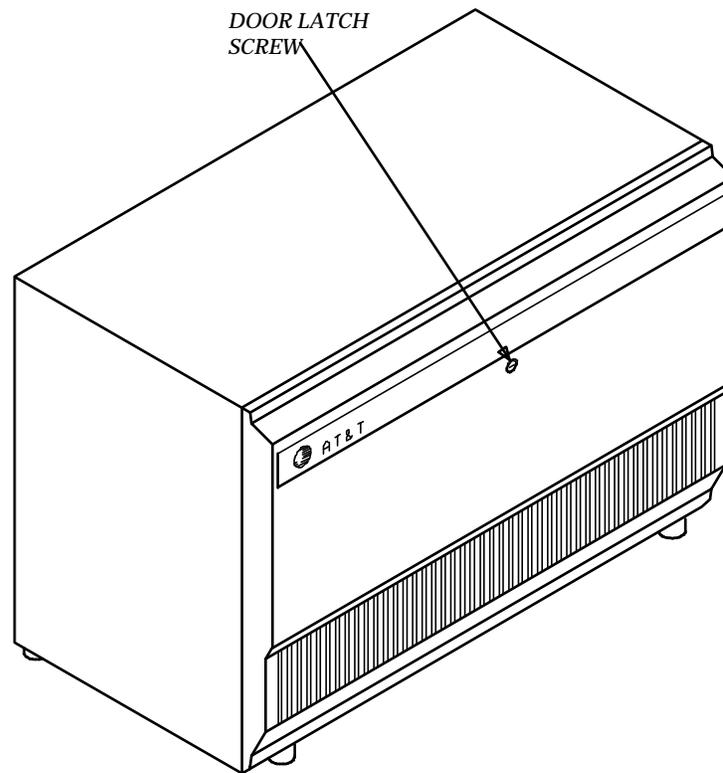
**WARNING: Care must be taken to avoid injury while cutting and removing bands.**

2. Visually inspect cabinet for any physical damage caused during shipping. Report any damage for appropriate action per local procedures.

### ***Remove Front Door***

Remove the front door of control cabinet.

1. Use a screwdriver, and turn door latch screw counterclockwise one quarter turn to release door (see Figure 3-20).
2. Lift door from lower slots and remove from cabinet.



**FIGURE 3-20. G1 Cabinet Door Latch Screw Location**

***Install Control Cabinet***

1. See WARNING. Position the control cabinet at the desired location.

**WARNING:** The cabinet may weigh as much as 130 pounds and requires two handlers. Use extreme caution.

2. If earthquake protection is not required, install hole plugs (provided with cabinet) in the holes previously occupied by the two carriage bolts at the bottom rear of the cabinet.

***Add Earthquake Protection***

1. If earthquake protection is required:
  - a. Place the Front Mounting Angle at the location selected for the front of the control cabinet.
  - b. Using the angle as the template, mark the location of the mounting bolts.
  - c. Drill two holes, 1/2 inch in diameter and 1-1/2 inches deep, at the spot marked in Step b.
  - d. Mount the Front Mounting Angle to the floor (Figure 3-21).
  - e. Move the cabinet back into place, and attach the cabinet to the angle with two No. 12-24 by 1/2-inch thread-forming screws.
  - f. Insert a pencil or marker through holes previously occupied with the carriage bolts in the bottom rear of the cabinet, and mark the floor directly beneath each hole.
  - g. Remove the screws installed in Step e and move the cabinet out of the way.
  - h. Drill two holes, 1/2 inch in diameter and 1-1/2 inches deep, at the spot marked in Step f.
  - i. Move the cabinet back into place.
  - j. Attach the cabinet to the front mounting angle using four No. 12-24 by 1/2-inch thread forming screws.
  - k. In the rear of the cabinet, lay the stiffener on the bottom of the cabinet, aligning the stiffener with the holes in the bottom of the cabinet.
  - l. Fasten the cabinet to the floor (Figure 3-22).

**Note:** This procedure is only a portion of the complete earthquake protection package. Instructions for adding the earthquake front plate and earthquake ground plate will be given at the appropriate location in this chapter to follow the logical installation sequence.

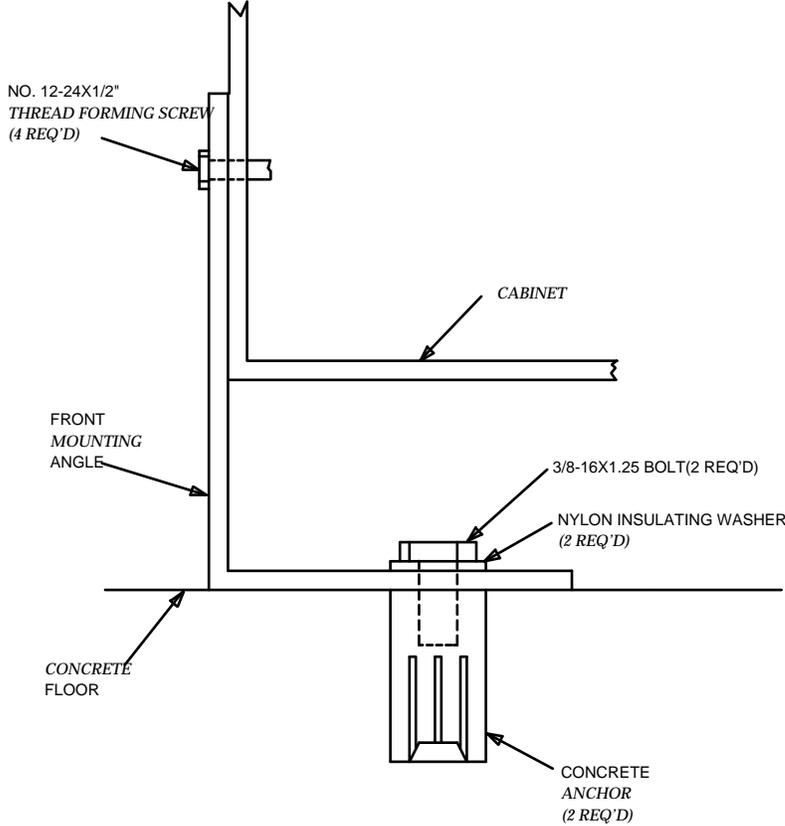
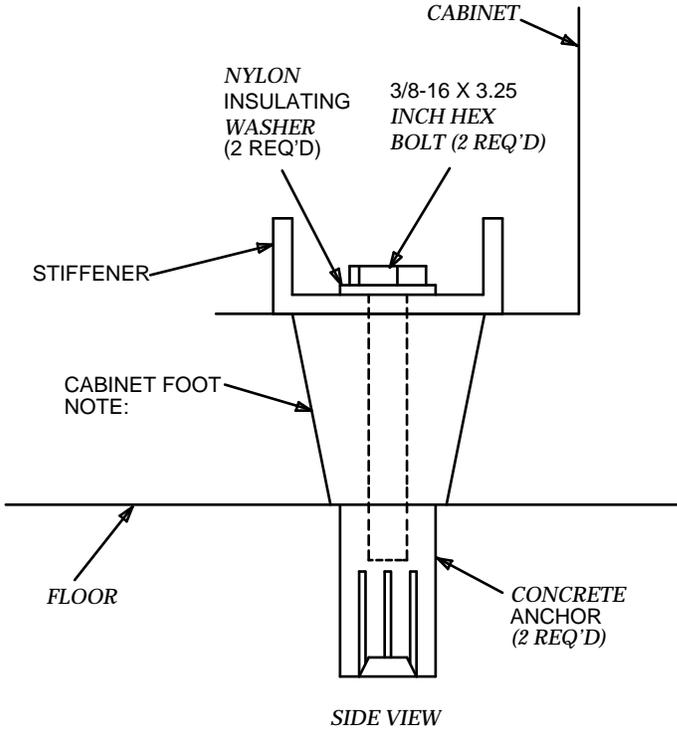


FIGURE 3-21. Front Mounting Angle—Concrete Floor



NOTE: BOLT DOES NOT RUN THROUGH CABINET FOOT

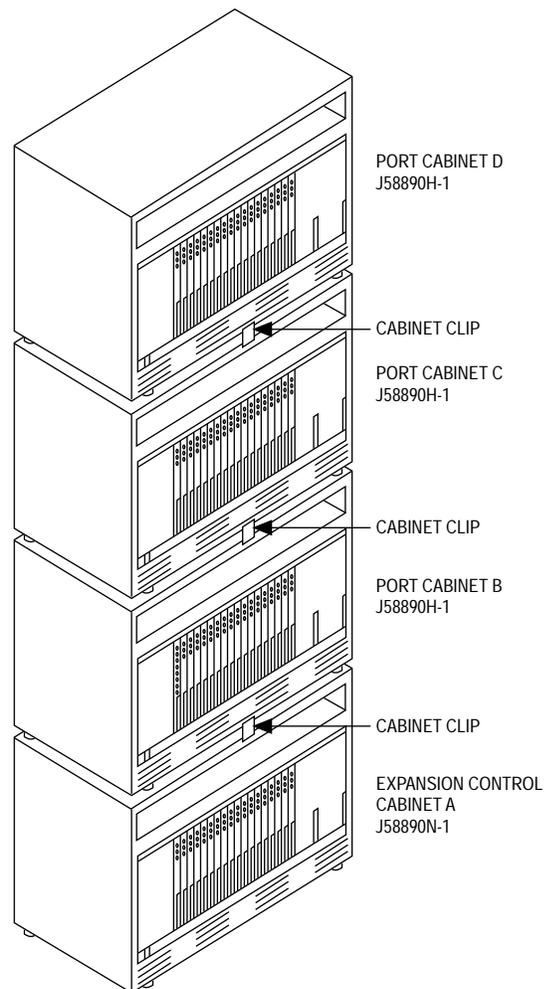
**FIGURE 3-22. Cabinet Earthquake Mounting—Concrete Floor**

**Install Port Cabinets**

1. See WARNING. Place the port cabinets into the position they were previously removed from (see Figure 3-23).

**WARNING:** The cabinet may weigh as much as 130 pounds and requires two handlers. Use extreme caution.

2. Install the new labels on the front and rear of the port cabinets.



**FIGURE 3-23. G1 4-Cabinet System—Front View, Doors Removed**

### ***Install Circuit Packs***

1. See WARNING. Replace the circuit packs and power supply in port cabinet “D” if they were previously removed.

**WARNING:** A wrist strap must always be worn, and the clip must be grounded to the cabinet frame being worked on before inserting and removing any circuit pack.

2. See preceding WARNING. Using the label and upgrade configuration document provided with the equipment, install the G1 circuit packs in the new control cabinet.
3. See preceding WARNING and the following Note. Install the circuit packs previously removed into the “A” carrier using the decal and upgrade configuration document, provided with the equipment, as a guide.

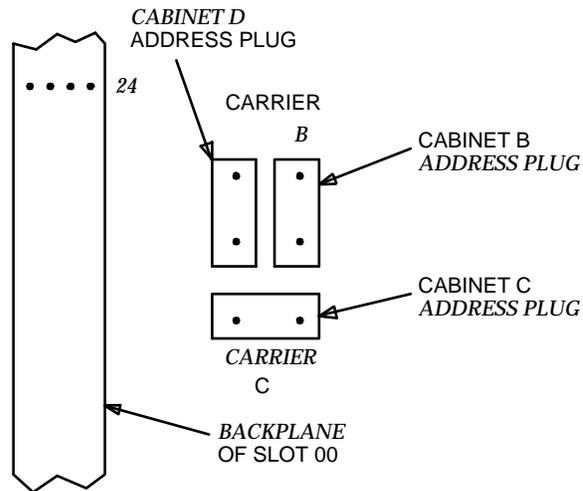
**Note:** Because of differences in the number of port slots available in the new cabinet, some port circuits may require moving. If this was not performed before the upgrade, install the circuit packs now. The port circuits will have to be retranslated after the system is rebooted with the G1 tape.

4. See preceding WARNING and the following Note. Install the TN776 EI and TN768 Tone-Clock in port cabinet “B.” Do not reinsert the TN741 into port cabinet “B.”

**Note:** Installing these circuit packs may require some port circuit packs to be moved. If this was not performed before the upgrade, install the circuit packs now. The port circuits will have to be retranslated after the system is rebooted with the G1 tape.

### Change Cabinet Address Plugs

The port cabinets may occupy different positions if the control cabinet has been added in position “B” and did not replace a port cabinet. The port cabinet address must be changed to reflect the new location (see Figure 3-24).



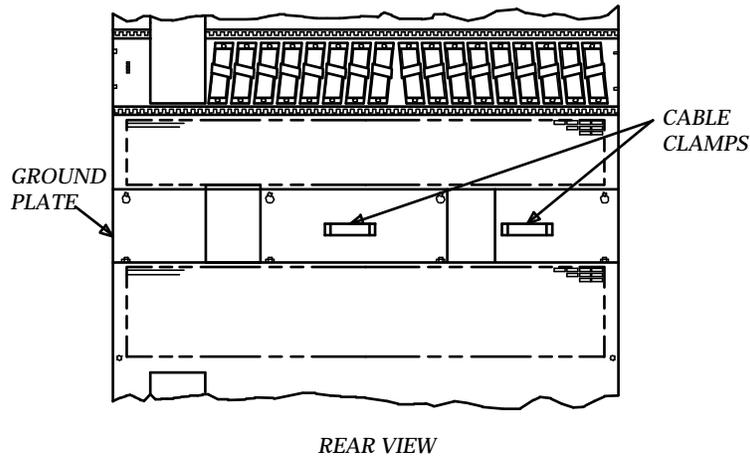
**FIGURE 3-24. Cabinet Address Plug Location**

### Install TDM Bus Terminators

1. If the system is a single-cabinet system, verify that the two AHF110 TDM Bus terminators are located per Figure 3-25.
2. If the system is a multi-cabinet system, perform the following procedures:
  - a. Verify that the AHF110 TDM Bus terminator is installed on the right side of the control cabinet looking from the back of the cabinet as shown in Figure 3-25.
  - b. On the top port cabinet, remove the existing TDM terminator (AHF1) and replace it with a AHF110 TDM Bus terminator (see Figure 3-25).

### Connect TDM/LAN Bus Cables and ICC Cables

1. Route and connect the new WP91716L-3 TDM/LAN bus cables (see Figure 3-26). Use the following steps to route the cables between the R1V3 port cabinets being reused. The new bus cable is not run through the existing slot in the rear shelf.
  - a. Loosen two left (as viewed from the rear) connector panel screws, then remove the other two connector panel screws.
  - b. Attach the TDM/LAN cable to the backplane, and slide the cable between the connector panel and the rear shelf (not through the existing hole in the shelf). Route the cable along the bottom of the cabinet.
  - c. Replace and tighten the connector panel screws.
2. Connect the ICC cables as shown in Table 3-E and Figures 3-27 and 3-28.



**FIGURE 3-25. G1 Control Cabinet TDM/LAN Bus Terminator Location**

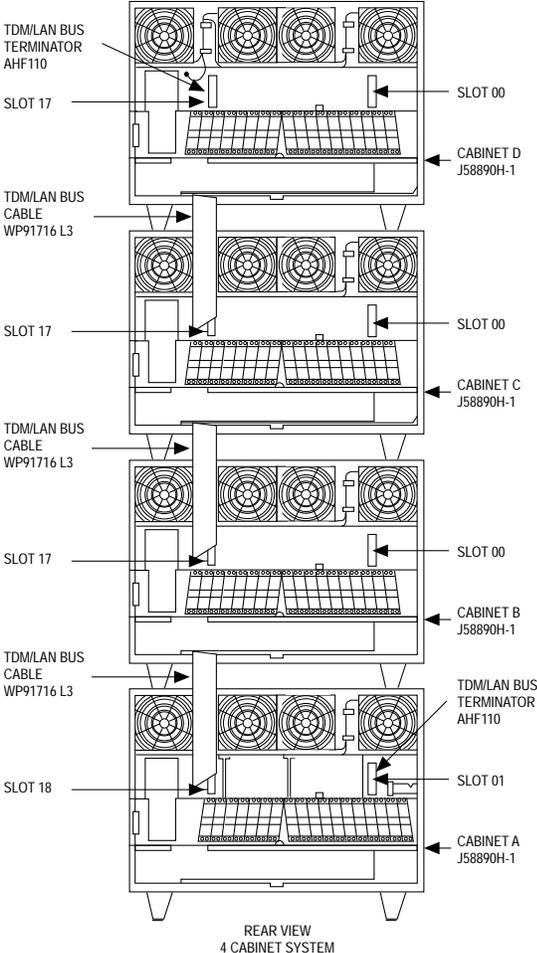


FIGURE 3-26. G1 TDM Bus Connections

TABLE 3-E. Intercabinet Cable Connections

Connect ICC Cables				
	FROM		TO	
	CARRIER	CONN	CARRIER	CONN
EPN	J58890N	ICCA ICCB	J58890H	ICCA ICCB

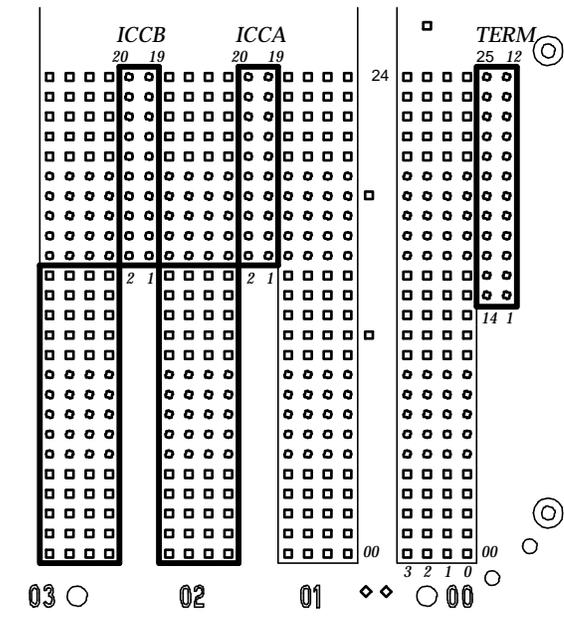


FIGURE 3-27. ICC Pin Blocks on J58890N Cabinet

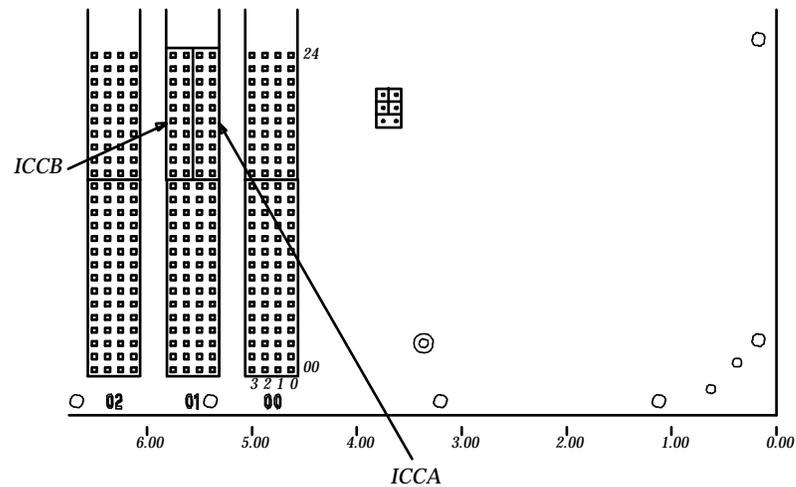


FIGURE 3-28. ICC Pin Blocks on J58890H Cabinet

### **Connect Fiber-Optic Cables**

#### *Without Duplication Option*

When the EPN and PPN cabinets are located side-by-side, one FL2P-P-20 fiber-optic cable and two 9823-type lightwave transceivers are required.

When the EPN cabinet is installed remotely from the PPN cabinet, two FL2P-P-20 fiber-optic cables, two 9823-type lightwave transceivers, and two lightwave interface units (provided by the PSC) are required.

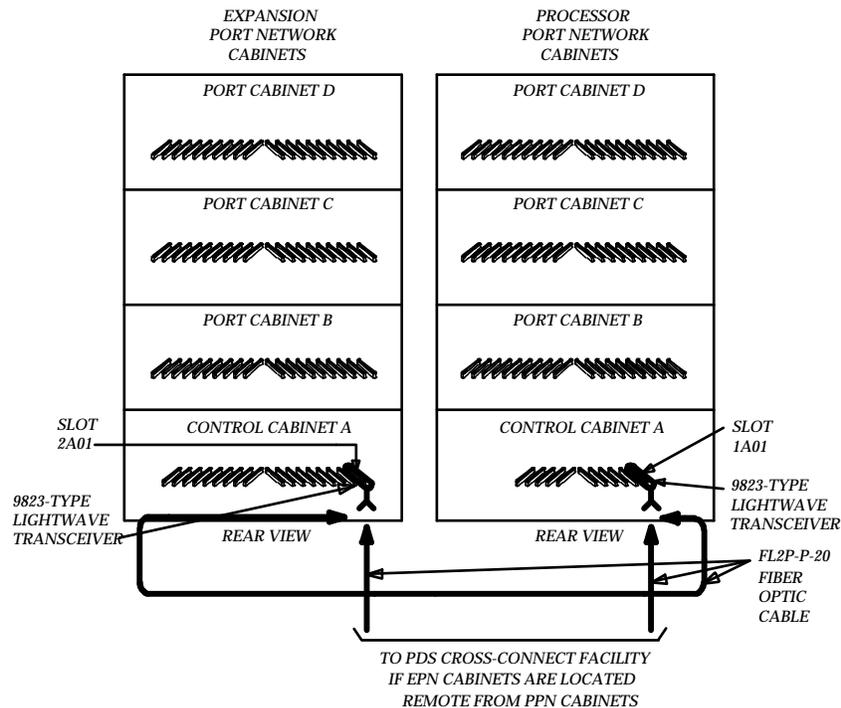
#### *With Duplication Option*

When the EPN and PPN cabinets are located side-by-side, two FL2P-P-20 fiber-optic cables, four 9823-type lightwave transceivers, and two lightwave interface units (provided by the PSC) are required.

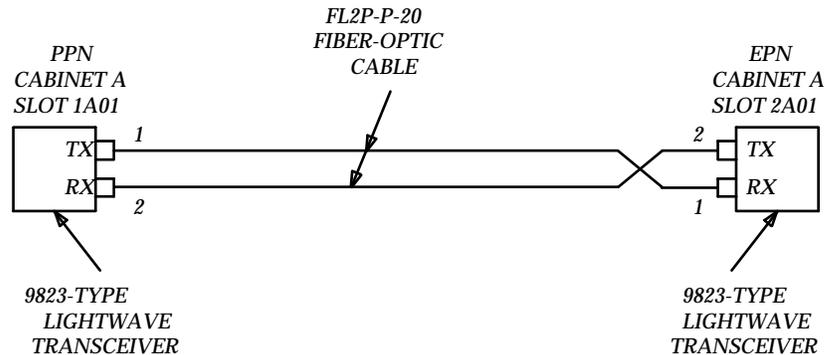
When the EPN cabinet is installed remotely from the PPN cabinet, four FL2P-P-20 fiber-optic cables and four 9823-type lightwave transceivers are required.

*Connections Without Duplication Option (Adjacent Cabinets)*

1. At the rear of the PPN, control cabinet A (see Figures 3-29 and 3-30):
  - Install a 9823-type lightwave transceiver on the connector at slot 1A01.
  - Connect one end of the fiber-optic cable to the 9823-type lightwave transceiver at slot 1A01.
  - Route the fiber-optic cable from the 9823-type lightwave transceiver to the cabinet cable tray and out of the cabinet. Then route the cable into the cable tray of the EPN cabinet.
2. At rear of the EPN, control cabinet A:
  - Install a 9823-type lightwave transceiver on the connector at slot 2A01.
  - Connect the other end of the fiber-optic cable coming from the PPN to the 9823-type lightwave transceiver at slot 2A01.
3. Secure the fiber-optic cable (with cable ties) against the cable tray walls at the cable tie positions built into the trays.
4. At top of cabinet, coil up the surplus length of fiber-optic cable. Secure the cable against the cable tray wall with cable ties.



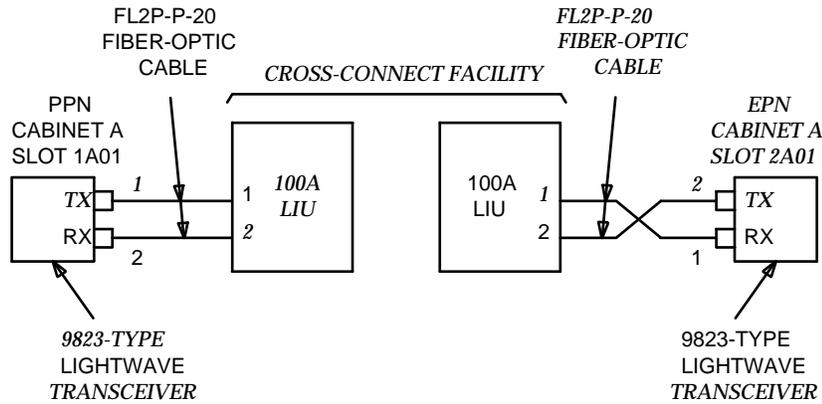
**FIGURE 3-29. EPN Fiber-Optic Cable Connections for G1 Single-Carrier Cabinet Without Duplication Option**



**FIGURE 3-30. Fiber-Optic Cable Connections for Adjacent Cabinets Without Duplication Option**

*Connections Without Duplication Option (Remote Cabinets)*

1. At the rear of the PPN, control cabinet A (Figures 3-29 and 3-31):
  - Install a 9823-type lightwave transceiver on the connector at slot 1A01.
  - Connect one end of the fiber-optic cable to the 9823-type lightwave transceiver at slot 1A01.
  - Route the fiber-optic cable from the 9823-type lightwave transceiver to the cabinet cable tray and out of the cabinet through the cable manager to the PDS cross-connect facility.
2. At the PDS cross-connect facility, connect the fiber-optic cable to the lightwave interface unit provided. Secure the fiber-optic cable (with cable ties) against the cable tray wall at the cable tie positions built into the tray.
3. At rear of the EPN, control cabinet A:
  - Install a 9823-type lightwave transceiver on the connector at slot 2A01.
  - Connect the fiber-optic cable to the 9823-type lightwave transceiver at slot 2A01.
  - Route the fiber-optic cable from the 9823-type lightwave transceiver to the cabinet cable tray and out of the cabinet through the cable manager to the PDS cross-connect facility.
4. At the PDS cross-connect facility, connect the fiber-optic cable to the lightwave interface unit provided.
5. Secure the fiber-optic cable (with cable ties) against the cable tray walls at the cable tie positions built into the trays.

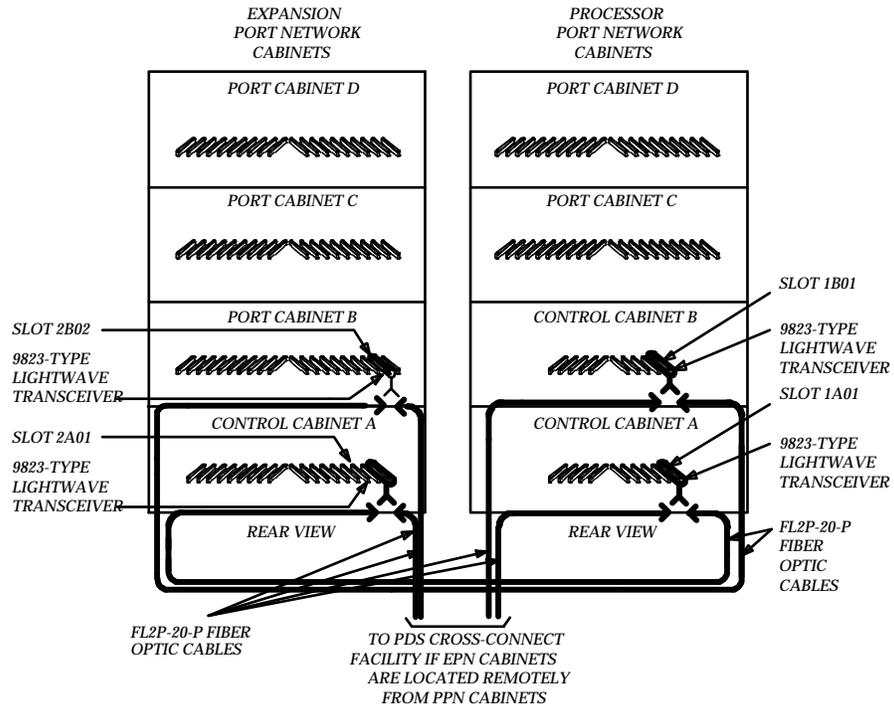


**FIGURE 3-31. Connections for Fiber-Optic Cable for Remote Cabinets Without Duplication Option**

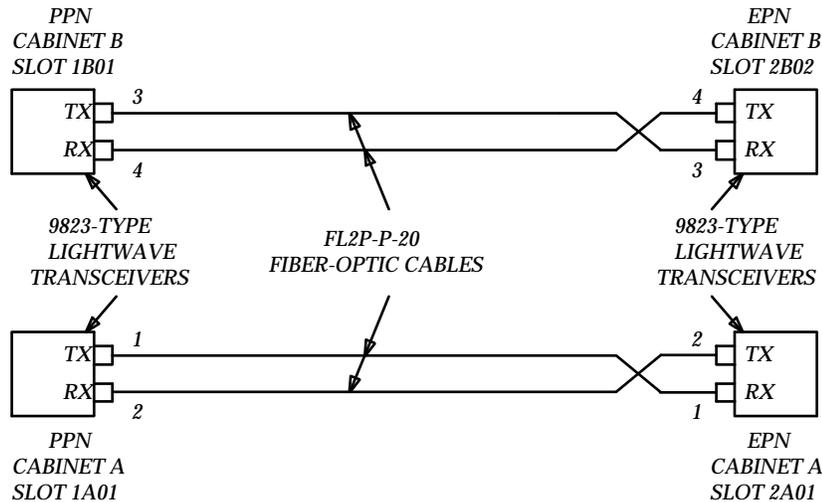
*Connections With Duplication Option (Adjacent Cabinets)*

1. At the rear of the PPN, control cabinet A (see Figures 3-32 and 3-33):
  - Install a 9823-type lightwave transceiver on the connector at slot 1A01.
  - Connect one end of a fiber-optic cable to the 9823-type lightwave transceiver at slot 1A01.
  - Route the fiber-optic cable from the 9823-type lightwave transceiver to the cabinet cable tray and out of the cabinet. Then route the cable into the cable tray of the EPN cabinet.
2. At the rear of the PPN, control cabinet B:
  - Install a 9823-type lightwave transceiver on the connector at slot 1B01.
  - Connect one end of a fiber-optic cable to the 9823-type lightwave transceiver at slot 1B01.
  - Route the fiber-optic cable from the 9823-type lightwave transceiver to the cabinet cable tray and out of the cabinet. Then route the cable into the cable tray of the EPN cabinet.
3. At the rear of the EPN, control cabinet A:
  - Install a 9823-type lightwave transceiver on the connector at slot 2A01.
  - Connect the fiber-optic cable, coming from the PPN cabinet, control carrier A, to the 9823-type lightwave transceiver at slot 2A01.
4. At the rear of the EPN, port carrier B:
  - Install a 9823-type lightwave transceiver on the connector at slot 2B02.
  - Connect the fiber-optic cable, coming from the PPN, control cabinet B, to the 9823-type lightwave transceiver at slot 2B02.

5. Secure the fiber-optic cables (with cable ties) against the cabinets cable tray walls at the cable tie positions built into the trays.
6. At the top of cabinet, coil up the surplus length of each fiber-optic cable, and secure each cable against the cable tray wall with cable ties.



**FIGURE 3-32. EPN Fiber-Optic Cable Connections for G1 Single-Carrier Cabinet With Duplication Option**

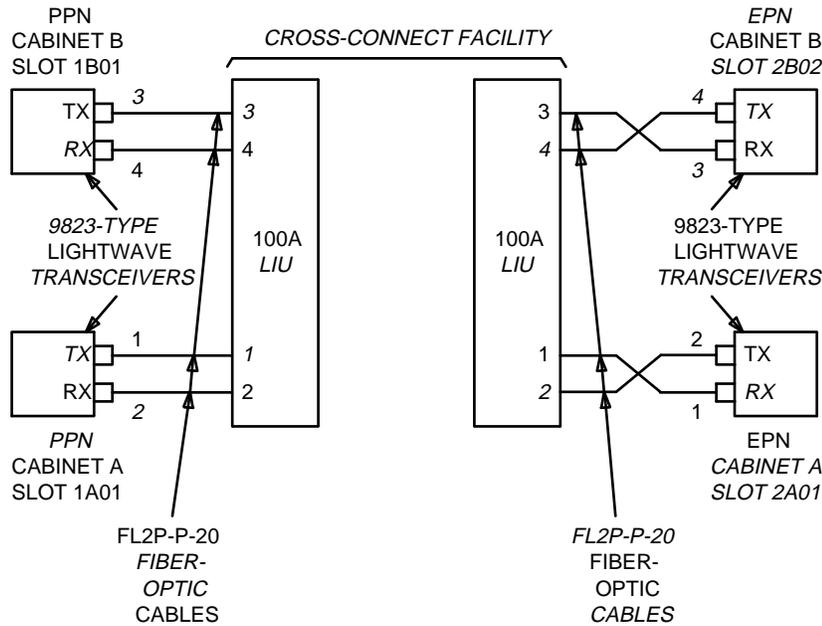


**FIGURE 3-33. Fiber-Optic Cable Connections for Adjacent Cabinets With Duplication Option**

*Connections With Duplication Option (Remote Cabinets)*

1. At the rear of the PPN, control cabinet A (see Figures 3-32 and 3-34):
  - Install a 9823-type lightwave transceiver on the connector at slot 1A01.
  - Connect one end of a fiber-optic cable to the 9823-type lightwave transceiver at slot 1A01.
  - Route the fiber-optic cable from the 9823-type lightwave transceiver to the cabinet cable tray and out of the cabinet through the cable manager to the PDS cross-connect facility.
  - At the PDS cross-connect facility, connect the fiber-optic cable to the lightwave interface unit provided.
  - Secure the fiber-optic cable (with cable ties) against the cable tray walls at the cable tie positions built into the trays.
2. At the rear of the PPN, control cabinet B:
  - Install a 9823-type lightwave transceiver on the connector at slot 1B01.
  - Connect one end of a fiber-optic cable to the 9823-type lightwave transceiver at slot 1B01.
  - Route the fiber-optic cable from the 9823-type lightwave transceiver to the cabinet cable tray and out of the cabinet through the cable manager to the PDS cross-connect facility.
  - At the PDS cross-connect facility, connect the fiber-optic cable to the lightwave interface unit provided.

- Secure the fiber-optic cable (with cable ties) against the cable tray walls at the cable tie positions built into the trays.
3. At the rear of the EPN, control cabinet A:
    - Install a 9823-type lightwave transceiver on the connector at slot 2A01.
    - Connect the fiber-optic cable, coming from the PPN, control cabinet A, to the 9823-type lightwave transceiver at slot 2A01.
    - Route the fiber-optic cable from the 9823-type lightwave transceiver to the cabinet cable tray and out of the cabinet through the cable manager to the PDS cross-connect facility.
  4. At the PDS cross-connect facility, connect the fiber-optic cable to the lightwave interface unit provided.
  5. Secure the fiber-optic cable (with cable ties) against the cable tray walls at the cable tie positions built into the trays.
  6. At the rear of the EPN, control cabinet B:
    - Install a 9823-type lightwave transceiver on the connector at slot 2B02.
    - Connect the fiber-optic cable, coming from the PPN, control cabinet B, to the 9823-type lightwave transceiver at slot 2B02.
    - Route the fiber-optic cable from the 9823-type lightwave transceiver to the cabinet cable tray and out of the cabinet through the cable manager to the PDS cross-connect facility.
  7. At the PDS cross-connect facility, connect the fiber-optic cable to the lightwave interface unit provided.
  8. Secure the fiber-optic cable (with cable ties) against the cable tray walls at the cable tie positions built into the trays.



**FIGURE 3-34. Fiber-Optic Cable Connections for Remote Cabinets With Duplication Option**

**Install Ground Plate(s)**

**Note:** If the system being upgraded is mounted with earthquake protection, do not install the ground plates at this time.

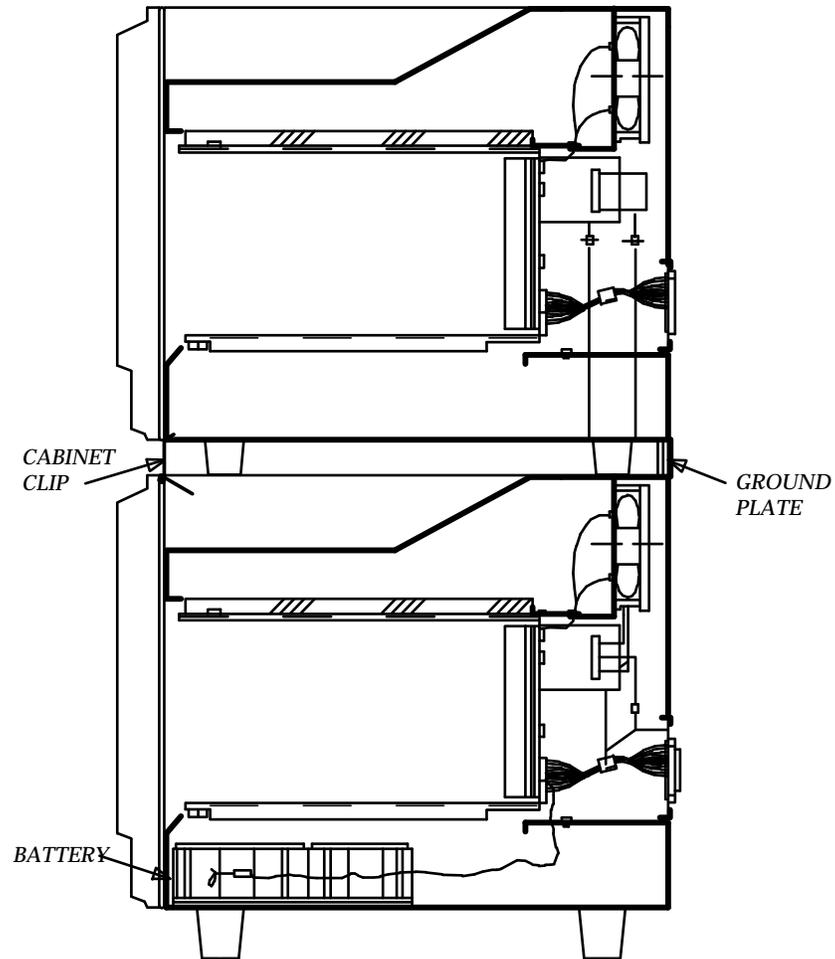
A ground plate is required between each cabinet (see Figure 3-35). The ground plate not only provides the ground connection between cabinets, it also stabilizes the cabinets.

1. See Note. At the rear of the cabinets, replace the upper and lower panels (leave the screws loose).

**Note:** The rear covers on the new control carriers are different. The bottom rear cover for the port cabinet in position “C” must be replaced with a new version cover so that the TDM/LAN cables and ground plates can be installed properly.

2. Place the ground plate over the lower rear panel of the upper cabinet so that the four screws that attach the lower rear panel go through the four ground plate keyhole slots.

3. Slide the ground plate down over the upper rear panel of the lower cabinet so that the four screws that attach the upper rear panel go through the four lower ground plate slots.
4. Ensure that the exposed portion of the TDM/LAN bus cable that is between the cabinets does not get pinched.
5. Tighten all screws.



*SIDE VIEW  
2 CABINET SYSTEM*

**FIGURE 3-35. Ground Plate, Cabinet Clip, and Battery Locations**

### ***Install Cabinet Clip(s)***

**Note:** This procedure is used only on systems without earthquake protection.

A cabinet clip, used to stabilize the cabinets, is required between each cabinet.

At the front of the cabinets, install the cabinet clip between the cabinets by hooking the clip into the slot of the upper cabinet and snapping the straight leg of the clip into the slot on the lower cabinet (see Figures 3-19 and 3-35).

### ***Connect Power and Grounding***

1. Reconnect the 6-AWG cabinet ground wire from the ground bar in the cabinet.

**Note:** A screwdriver is required to loosen and tighten the bolts that secure the ground wire to the ground bar.

2. Reconnect the coupled bonding conductor.
3. Reconnect the cabinet power cords at the rear of each cabinet.

### ***Complete System Upgrade***

Return to the “System Upgrades” section in Chapter 2, and complete the system upgrade.

## CHAPTER 4. UPGRADE PROCESS MULTI-CARRIER SMALL CABINET

This chapter provides the information necessary to upgrade the System 75 small cabinet from a Release 1 Version 3 (R1V3) system to a DEFINITY G1 system with or without the duplication option. The hardware and software involved in the upgrades and the upgrade procedures are also provided.

G1 systems will ship from the factory in new multi-carrier or single-carrier cabinets. The upgraded PPN will be in a new G1 Multi-Carrier Cabinet, while the upgraded EPN will be in the old style small cabinets. Therefore, the PPN and the upgraded EPN will look different but they will function together properly.

The following processes are required for a Version 3 to G1 upgrade:

- Hardware upgrades that involve replacing cabinets, adding cabinets, changing carriers, and replacing and adding circuit packs.
- Replacing the software tape.
- Software upgrades that involve saving, loading, and reentering system translations.
- Testing the upgraded system to verify proper operation.

G1 features and functions are listed in *DEFINITY® Communications System Generic 1 and Generic 3i—Feature Description, 555-230-201*. *DEFINITY® Communications System Generic 1—Implementation, 555-204-654*, provides the procedures and forms required to implement the G1 features. *DEFINITY® Communications System Generic 1 and System 75—Administration and Measurement Reports, 555-200-500*, provides the commands and procedures required to initialize and administer the G1.

## Considerations

### Service Interruption

The upgrade process requires a service interruption of approximately five to 15 hours. This service interruption must be closely coordinated with the customer and the local account team.

### Communication Between Equipment Rooms

If the upgrade consists of equipment that is in a remote location, the upgrade activity will be much easier if temporary communications are established between the equipment rooms.

### Contact Network Craft

The network craft must be contacted before the upgrade is started. It is possible that if the network craft is not involved in the upgrade that the links will be busied out.

### Relocation of Port Circuit Packs

There will be a gain of 6 to 10 port slots in the new control carrier depending on the type carrier being replaced and the vintage power unit being used. For the duplication option upgrade, port slots 1 and 2 of carrier “B” will be required for the TN776 and TN748 (B or C). If the system is being upgraded to a PPN with duplication, the Port Carrier in position “B” will be replaced with the Duplicated Control Carrier. This will require some port circuits to be moved. Those port circuit packs requiring relocation should be moved before the upgrade.

### Power

If an existing AC-powered small R1V3 cabinet is being replaced with a new G1 Multi-Carrier Cabinet, ensure that the AC-power source meets the power requirements of the new cabinet. Because of its increased capacity, it may require more current than was provided for the R1V3 small cabinet.

If a new cabinet is being added, it may be either AC- or DC-powered. If the existing cabinet is AC-powered and the new cabinet is to be DC powered, the existing cabinet does not have to be converted to DC power.

If a new AC-powered cabinet is to be added, a separate AC receptacle is provided to support the new cabinet. This AC receptacle must not be shared with any other equipment or be under the control of a wall switch. It should not be located under the cross-connect field.

If a new DC-powered cabinet is to be added, refer to *DEFINITY® Communications System Generic 1 and Generic 3i—Installation and Test, 555-230-104*, for DC-power requirements.

**Isolator**

All peripherals connected to a DC-powered system via the asynchronous EIA-232 interface on the PPN A or PPN B or the EPN Maintenance board require a 116A isolator. The isolator is inserted between the peripheral and the interface connector.

**Power Failure Stations**

The ground for the power failure stations is derived from the system Aux cable. During the upgrade it will be disconnected, causing the power failure stations not to work. A ground strap will have to be run to the power failure transfer panel. This strap should be added before the power is removed and then removed before the system is powered up.

**Software**

The G1 system software and translations will be saved on the TN774 Tape Drive circuit pack. This tape format is not compatible with either the HCMR or RMSS formatted tapes.

The translations in the R1V3 system must be copied onto a new tape and sent to the TSC or NTSO to be copied onto a G1 tape. This process takes a minimum of two weeks. The G1 tape must be back before the upgrade can be started. Two tapes (one system tape and one backup tape) must always be retained on site with the R1V3 system.

**Alarm Connections**

The AUXILIARY Connector on System 75 R1V3 systems had appearances for Alarm Monitors 1M, 1m, 2M, 2m, 3M, 3m, and 3W. The AUXILIARY Connector on DEFINITY G1 systems only has appearances for 1M and 1m. If the system being upgraded had alarms connected to the other alarm monitor connections, they will have to be dropped.

## Hardware Description

### Circuit Packs

Only four circuit packs are required for the basic G1 PPN upgrade. If the upgrade is a R1V3 small to G1 EPN, four different circuit packs are required. The other seven will be provided on an optional basis for G1 features, as required by the customer.

The four required circuit packs for a PPN are:

- TN773  
The Processor circuit pack manages the control of the entire system. It also executes the stored programs to perform call processing activity and MTP functions.
- TN770  
The TN770 Memory circuit pack provides the memory required by G1. It provides 6 megabytes of memory.
- TN777  
The TN777 Network Control circuit pack continuously monitors the port circuit packs for activity. It contains four data channels that transfer this information to the Processor circuit pack. It also connects equipment such as Data Services facilities, SMDR devices, on-premises pooled modem or administration terminal, or an off-premises administration terminal.
- TN774  
The TN774 Tape Unit stores the software information for the system. It contains a tape drive that provides 32 megabytes of storage space and a -48 volt to +12 volt DC converter used by the tape drive. It also provides LEDs that reflect the activity of the tape drive.

The three required circuit packs for an EPN are:

- TN768  
The TN768 Tone-Clock circuit pack is required for the duplication option. It allows the system to control which of the two tone clocks provides the system clocking, and which TDM bus is used for tones. The TN768 has a ring generator detection circuit and provides a clock with tighter tolerances.
- TN775  
The Maintenance circuit in the EPC is the TN775. It provides monitoring and control of the environment and power signals. It provides two serial links to communicate with the EI circuit packs. The TN775 provides the connection for the Manager I terminal.
- TN776  
The TN776 EI is used to provide the interconnect between the PPN and EPN. It packages the TDM control channel for transmission over the fiber link between cabinets. The TN776 provides the time interchange between cabinets and communicates with the maintenance circuit pack in the expansion carrier. Message waiting requires this power circuit pack.

The seven optional new circuit packs are:

- TN765

The TN765 PI provides four data links to the TDM bus and a link through the memory bus to the processor. This circuit pack has four ports that provide interfaces to the 3B2 MSA, DCS, CMS, and AUDIX.

- TN767

The TN767 DS1 Interface allows the ISDN PRI 1.451 signaling to be carried transparently on any of the 24 ports of the trunk between the TDM bus and the DS1 facility. It also performs robbed-bit signaling using CO, TIE, DID, or OPS signaling protocol in any remaining ports on a per port basis.

- TN768

The TN768 Tone-Clock circuit pack allows the system to control which of the two tone clocks provides the system clocking, and which TDM bus is used for tones. The TN768 has a ring generator detection circuit and provides a clock with tighter tolerances.

- TN772

The TN772 DI is required with the duplication option. It selects the active processing element in a duplicated system and coordinates the interchange of processing elements.

- TN775

The Maintenance circuit in the EPC is the TN775. It provides monitoring and control of the environment and power signals. It provides two serial links to communicate with the EI circuit packs. The TN775 provides the connection for the Manager I terminal in the EPN.

- TN776

The TN776 EI is used to provide the interconnect between the PPN and EPN. It packages the TDM control channel for transmission over the fiber link between cabinets. The TN776 provides the time interchange between cabinets and communicates with the maintenance circuit pack in the expansion carrier.

- TN755B

The TN755B Power Unit circuit pack provides 150-volt DC for neon message waiting. It should be used in conjunction with the Analog Line circuit pack that support neon message waiting (TN746 and TN769). Each carrier that contains analog circuit pack for neon message waiting requires the TN755B.

- TN736/TN752

The TN736 Power Unit provides -5 volt DC on the backplanes of all carriers for the port circuit packs. It is required in a G1 upgrade if the system is equipped with a 631BR1 or 631WB1 power unit.

## **Cabinets**

The G1 consists of a standard (PPN) cabinet and an optional second (EPN) cabinet. An existing small cabinet can be upgraded to a PPN by removing the existing cabinet and replacing it with a new G1 cabinet. An existing small cabinet can be upgraded to a G1 EPN by removing the control carrier and adding a new G1 ECC.

## **Carriers**

The new DEFINITY PPN cabinet must be equipped with a J58890AH-1 Control Carrier in position "A." If the system is duplicated, a J58890AJ-1 Duplicated Control Carrier must be located in position "B." A J58890BB Port Carrier can be located in position "B" in a system without duplication. Port carriers can be located in positions C, D, and E.

The J58890AF-1 Expansion Control Carrier is required in position "A" of the EPN cabinet when the system is equipped with two cabinets.

## Software Translation Upgrade

The G1 system software and translations will be saved on the TN774 Tape Drive circuit pack. This tape format is not compatible with either the HCMR or RMSS formatted tapes.

When upgrading from an R1V3 to G1, the R1V3 translations must be copied onto a G1 tape. This is done at the TSC or the NTSO. To ensure that the existing R1V3 translations are copied onto the G1 tape, the system tape must be replaced with a new R1V3 tape. The existing R1V3 translations in the system are copied onto the tape and sent to the TSC or NTSO. The original system tape is then put back into the system. The new R1V3 tape cartridges can be secured from the TSC prior to beginning the upgrade process.

There should be a freeze on any new translations when the new tape is sent to the TSC. If that is not possible, detailed records of any translation changes made during that interval must be kept because those changes will have to be input again on the G1 tape after the system is upgraded.

The new G1 tape with the translations must be received before the upgrade is started.

### Save Translations

1. Login at the Manager I terminal.
2. Enter `save translations`. Press `Return`. This command instructs the system to take all translation information in memory and write it onto the tape.
3. If the system is equipped with a TN750B Announcement circuit pack, the recorded announcements can be saved using the save announcement commands. Enter `save announcements`, and press `Return`.
4. Remove the system tape, and install the backup tape.
5. Enter `save translations`. Press `Return`.
6. Enter `save announcements`. Press `Return`.

### Make the Upgrade Tape

A new R1V3 tape must be secured from the TSC prior to performing the next steps. There must always be two system tapes on site with the System 75. Do not send the system or backup tape to the TSC.

After the preceding procedures have been performed, the translations in memory should be copied onto the tape that is to be used to make the G1 tape. Perform the following procedures:

1. Remove the backup tape, and install the tape to be used to make the G1 tape.
2. Enter `save translations`. Press `Return`. This command instructs the system to take all translation information in memory and write it onto the tape.
3. If the system is equipped with a TN750B Announcement circuit pack, the recorded announcements can be saved using the `save announcements` commands. Enter `save announcements`, and press `Return`.
4. Remove the tape.
5. Insert the system tape.

The tape removed in Step 3 should be sent to the TSC or NTSO for use in making the G1 tape.

## System Upgrades

### Upgrade R1V3 Small to G1 PPN With or Without Duplication

The R1V3 small cabinet system is upgraded to a G1 Multi-Carrier Cabinet PPN by removing the small cabinet and replacing it with a new G1 cabinet. The new cabinet will come equipped with both control carriers if the system is duplicated. If the system is not duplicated, the new cabinet will come equipped with the control carrier and one port carrier.

The System 75 Small is upgraded to a G1 PPN With or Without Duplication by:

- Removing existing small cabinet
- Removing port circuit packs from carriers “A” and “B”
- Removing port carrier from position “B”
- Installing new G1 Cabinet
- Installing port carrier (if required)
- Adding G1 circuit packs
- Restructuring port circuit packs as required

**Prerequisite Hardware**

The equipment in the following table (Table 4-A) **MUST** be on-site before the upgrade is started. Ensure that the tape is the G1 tape.

**TABLE 4-A. Required Hardware**

<b>Equipment</b>	<b>Description</b>	<b>Quantity</b>
J58890A-1,L22	Cabinet	1
J58890A-1,L23	Req'd with AC-power	1
J58890A-1,L24	Req'd with DC-power	1
TN773	Processor	1
TN768	Tone-Clock	1
TN777	Network Control	1
TN770	Memory	1
TN774	Tape Drive	1
TN765 (Note 1)	PI	max 2 (opt)
J58890TD-1	Tape Cartridge	2
982LS	Current Limiter	1
ZAHF4	Bus Terminator	2
WP91716L6	TDM/LAN Cables	max 3
WP91716L7	TDM/LAN Cables	1 (Note 2)

- Note:**
1. Replaces TN716, TN719, and TN738 if present in the system.
  2. Required only if carrier D is present.

### ***Required Tools***

The following tools and items may be required during the upgrade:

- High-intensity AC drop light or flashlight
- 3/8-inch flat screwdriver with a 10-inch shank (minimum)
- 5/16-inch and 1/4-inch sockets with a ratchet and 10-inch extension
- Power screwdriver (optional)
- Pliers
- Static-proof box or original circuit pack packaging (pink poly) for transporting circuit packs
- Labels for labeling the cables attached to the rear of cabinets and port circuit pack
- Receptacle for holding approximately 100 self-tapping screws
- Twelve spare #12 and #10 self-tapping screws
- Four spare carrier grounding straps
- Authorized wrist grounding strap
- Backplane pin repair kit (KS-22876-L2 or equivalent)
- One copy of each of the following manuals:
  - *DEFINITY® Communications System Generic 1 and Generic 3i—Maintenance, 555-204-105*
  - *DEFINITY® Communications System Generic 1 and System 75—Administration and Measurement Reports, 555-200-500*
  - *DEFINITY® Communications System Generic 1—Implementation, 555-204-655*

### ***Label Cables***

1. To make reconnecting the cables easier and to ensure they are properly reconnected, label both ends of all the connector cables (if not already labeled).

### ***Power Down System***

1. See CAUTION. At the power distribution unit, set the main AC circuit breaker to OFF.

**CAUTION:** The power failure ground strap must not be connected while the system is powered up.

### ***Install Power Failure Transfer Ground Strap***

1. Connect a lead to pin 49 of the CAP or to pin 49 of the connecting block associated with the power failure transfer panel.
2. Route the lead to an approved ground source.
3. Connect the lead to the approved ground source.

***Remove Door and Panels and Disconnect Cables***

1. Remove the front door from the cabinet, if desired.
2. With the cable retainer in front of you and the part number visible (4B or 4C), locate the slot that is almost vertical. This slot is adjacent to the part number. Insert a flat blade screwdriver with a wide blade (1/4-inch recommended) into the slot. Twist the screwdriver while the blade is in the slot. The retainer will snap open easily, and the cable can be removed.
3. At the cabinet, disconnect all the previously labeled cables.
4. At the rear of the cabinet, remove all the rear panels. There are two types of screws holding the back panels to the cabinet. The #10 screws can be removed with a screwdriver or a 1/4-inch socket. The #12 screws can be removed with a screwdriver or a 5/16-inch socket.

***Remove Circuit Packs From Carriers "A" and "B"***

1. To ensure the circuit packs and power units are properly reinstalled, label all port circuit packs and power units in both carriers.
2. See WARNING. Remove all circuit packs and power units from both carriers. Store the circuit packs in the static-proof box.

**WARNING:** A wrist strap must always be worn, and the clip must be grounded to the cabinet frame being worked on before inserting and removing any circuit pack.

3. Remove circuit pack blanks from the slots that do not contain circuit packs.
4. Remove the front trim plate from both carriers by pulling straight off.

***Remove the Port Carrier***

This procedure is required if the port carrier is to be reused in the new cabinet. If the port carrier is not to be reused, the carrier does not need to be removed at this time.

1. See CAUTION and Note. Disconnect the TDM bus between the "A" and "B" carriers from the "A" and "B" carriers (see Figure 4-1). Remove the AHF3 cable adapters and the cable from the cabinet. They will not be reused.

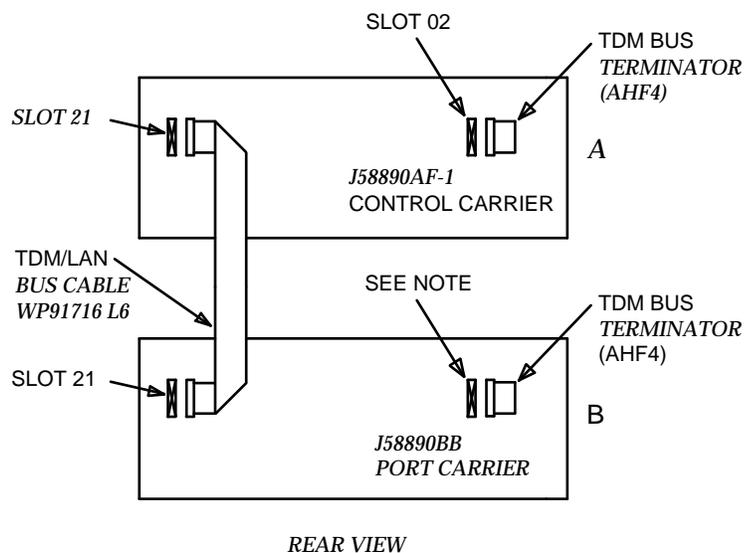
**CAUTION:** When removing the TDM adapters, care should be taken to ensure that none of the short pieces of shrink tubing on the four corner pins of the connector come off.

**Note:** Note the position of the cable adapters before disconnecting the TDM adapters and cables.

2. Disconnect the eight ground straps between the “A” and “B” carriers from the “A” carrier (see Figure 4-2).
3. Slide the latch up, and disconnect the “P1” (small 9 pin) connector and the “P2” (large 37 pin) connector from the “B” carrier.
4. Remove the fan trim plate by pulling straight off.
5. Remove the four screws (top two first) holding the “B” carrier to the cabinet frame. Use a long handle screwdriver or 5/16-inch socket with a 10-inch extension.
6. See CAUTION. Slide the carrier forward 1 to 2 inches; then from the back, check that no cables or wire harnesses are caught on any cabinet/carrier framework in such a manner that they could be damaged.

**CAUTION:** Cables and wiring harnesses can be damaged if they catch on framework and too much pressure is used in removing the carrier.

7. Remove the carrier by sliding it out the front of the cabinet.



*NOTE: ON PORT CARRIER J58890BB-1, CONNECT THE TDM TERMINATOR TO SLOT 02. ON PORT CARRIERS J58890BB-2 AND J58890BB-3, CONNECT THE TDM TERMINATOR TO SLOT 01. IF THE PORT CARRIER HAS BOTH J58890BB-1 AND J58890BB-2 STENCILLED ON IT, TREAT IT AS A J58890BB-1*

**FIGURE 4-1. TDM/LAN Bus Wiring Diagram—Rear View**

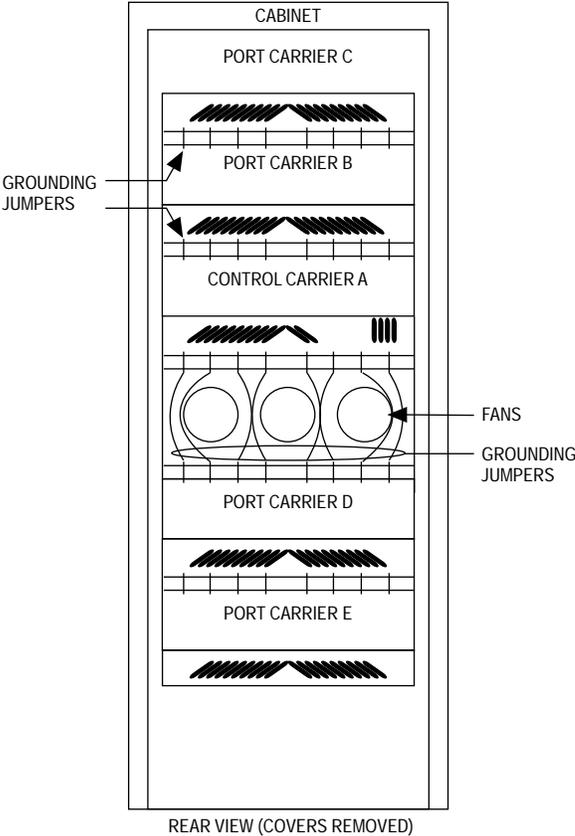


FIGURE 4-2. Grounding Jumper Locations

### ***Remove R1V3 Small Cabinet***

1. Disconnect all power and grounding cables from cabinet.
2. If the cabinet is earthquake mounted, remove the bolts holding cabinet to the floor.
3. Slide the cabinet to an out of the way position.

### ***Install New DEFINITY Cabinet***

See WARNING. The cabinet is shipped in a polyethylene bag packed in a cardboard container. The cabinet is fastened to a wood/Styrofoam pallet by four carriage bolts. The cardboard container is strapped to the pallet by two metal bands.

**WARNING: The cabinet may weigh as much as 800 pounds and may be top heavy. Use extreme caution.**

To install the cabinet, do the following:

#### ***Unpack and Inspect Cabinet for Damage***

1. Check the status of the SHOCKWATCH and/or TILTWATCH indicators on the cardboard container. The SHOCKWATCH and TILTWATCH indicators are normally white. If the container has been jarred or tilted beyond specifications, the indicator will be red, indicating potential damage.
2. See WARNING. Cut and remove bands.

**WARNING: Take care to avoid injury while cutting and removing bands.**

3. Determine which cabinet contains the ramp, and open it first. The carton containing the ramp will have a "ramp enclosed" label on it.
4. See CAUTION. Cut the tape holding the cardboard container together.

**CAUTION: Deep knife penetration may damage the cabinet.**

5. Remove all cardboard, tape, and plastic from cabinet.

- 6. To open the cabinet doors, use a screwdriver to turn the screws located on the front and rear doors to release the door latches (Figures 4-3 and 4-4).
- 7. Remove front and rear doors.

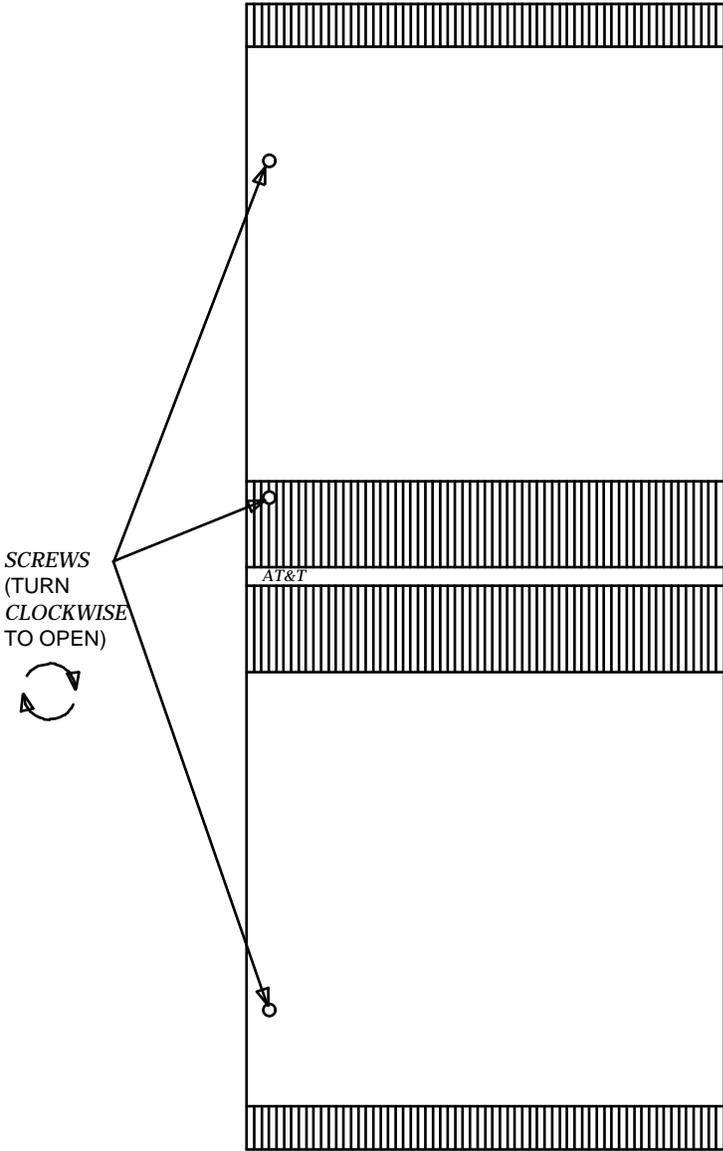
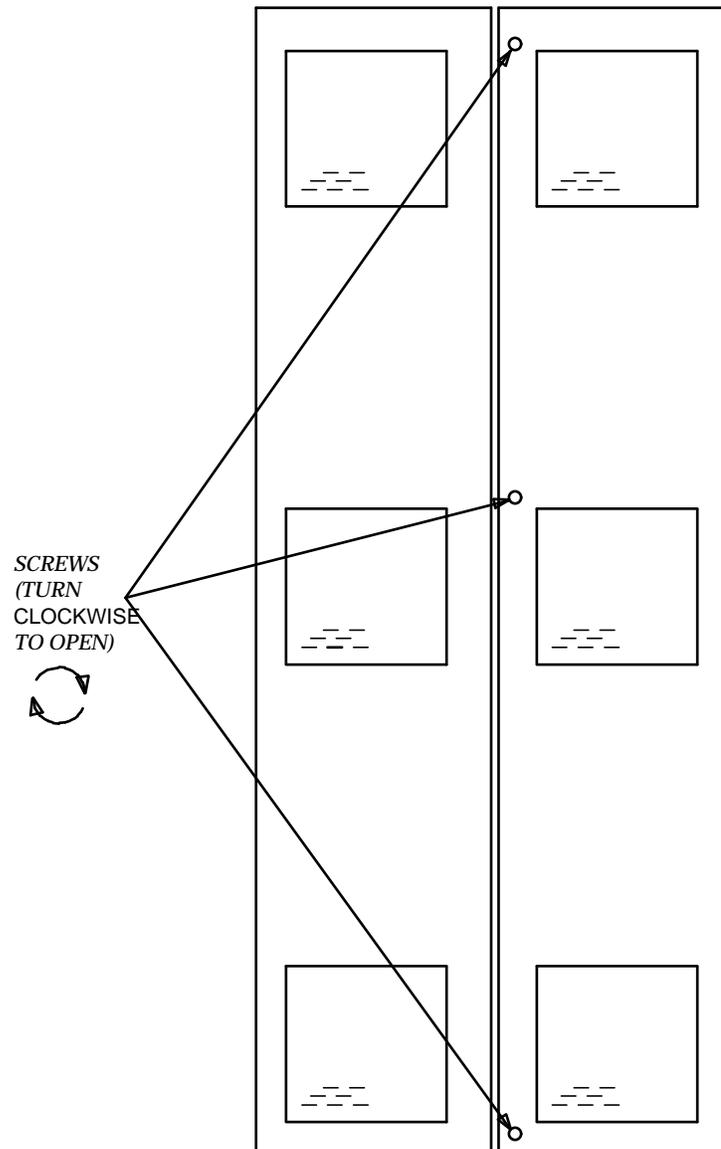


FIGURE 4-3. Location of Cabinet Door Latches (Front)



**FIGURE 4-4. Location of Cabinet Door Latches (Rear)**

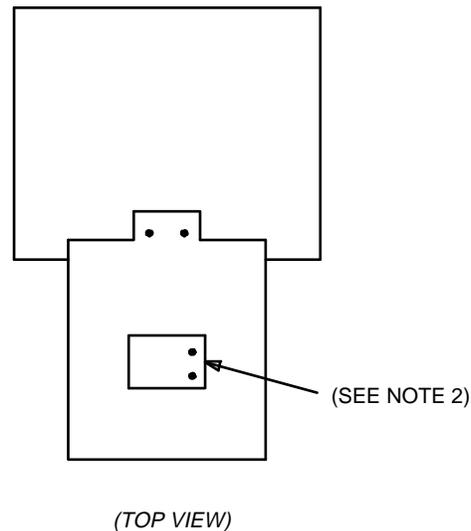
8. Remove all packing material from inside cabinet.
9. Inspect cabinet for any damage caused during shipping. Report any damages per local instructions.
10. Use an adjustable wrench to remove the carriage bolt nuts located at each bottom corner of the cabinet.

11. Drive the carriage bolts downward until they clear the cabinet.
12. Remove the ramp from the side of the cabinet carton.
13. Remove the power cord stored under the cabinet, and lay it over the top of cabinet.
14. Remove the supporting block of wood by raising the rear corner of the cabinet using a pry bar. Repeat for the other rear corner of the cabinet.

15. Screw the cabinet stabilizing bolts all the way up to provide clearance between the cabinet and the pallet when the cabinet is rolled down the ramp.
16. Place the ramp as shown in Figure 4-5. Bolt into position using the bolts provided in the plastic bag attached to the ramp.
17. Hold both sides of the rear of the cabinet (it is recommended that another technician assist in moving the cabinet).
18. Roll the cabinet off the ramp and onto the floor.

#### *Check Circuit Pack Configuration*

19. Verify that all circuit packs are fully seated in proper slots according to the Customer Service Document (CSD) and Port Assignment Worksheet. Report any discrepancies in circuit pack type or quantity.



#### NOTES:

1. THE RAMP IS STORED IN THE SIDE OF THE SHIPPING CONTAINER OF ONE OF THE CABINETS. DETERMINE WHICH CABINET CONTAINS THE RAMP AND UNPACK IT FIRST.
2. THIS BAG CONTAINS THE RAMP MOUNTING HARDWARE (TWO BOLTS) AND FILLER BLOCKS.

**FIGURE 4-5. Ramps Installed on Pallet**

*Position Cabinet*

20. Roll cabinet into position at designated location. See Note.

**Note:** Check location of the AC-power receptacle. The receptacle must be on a separately fused circuit that is not controlled by a wall switch. It must be located within 10 feet of the cabinet and should be located outside the cross-connect field area.

*Add Earthquake Protection (If Provided)*

21. If earthquake protection is required on concrete floor:

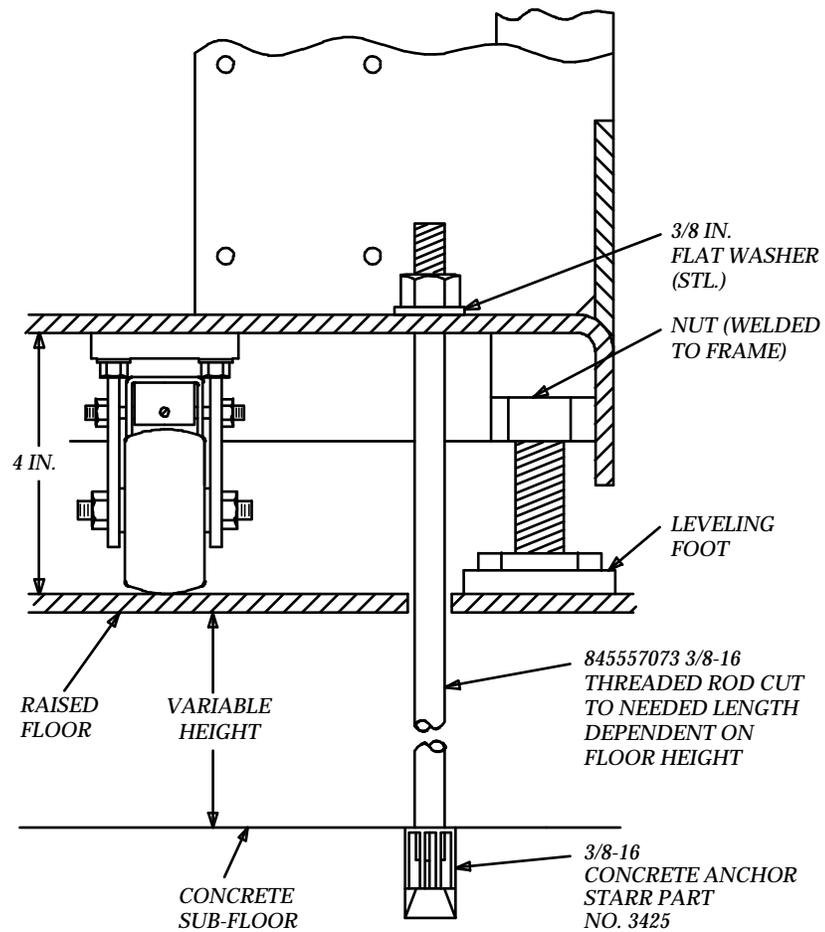
- a. Insert a pencil or marker through the holes previously occupied by the carriage bolts (front and rear) in the bottom of the cabinet, and mark the floor directly beneath each hole.
- b. Roll the cabinet out of the way, and drill four 1/2-inch diameter holes (about 1-1/2 inches deep) at the spots marked in the previous step.
- c. Insert anchors in the holes.
- d. Roll the cabinet back into place, and align the cabinet holes over the holes in the floor.
- e. Secure the cabinet to the floor with a 3/8-16 × 1.25 bolt and flat washer.

22. If earthquake protection is required on a raised computer floor over a concrete subfloor:

- a. Insert a pencil or marker through the holes previously occupied by the carriage bolts (front and rear) in the bottom of the cabinet(s), and mark the floor directly beneath each hole.
- b. See CAUTION. Drill four holes, 5/8-inch in diameter, through the floor panels marked in Step a.

**CAUTION:** Take care while drilling the holes through the raised floor that the drill bit doesn't penetrate any cables beneath the raised floor that would cause damage to the cable or injury to the installer.

- c. Insert a long punch through the whole drilled in Step b, and mark the concrete floor beneath the raised floor.
- d. Remove the raised floor panel(s) in which the holes were drilled in Step b.
- e. Drill two holes, 1/2-inch in diameter and 1-1/2 inches deep, at the spot marked in Step c.
- f. Insert the anchors in the holes.
- g. Replace the floor panel(s) removed in Step d.
- h. Fasten the cabinet to the floor (see Figure 4-6).



**FIGURE 4-6. Earthquake Mounting—Computer Raised Floor**

*Complete Cabinet Installation—Earthquake Protection NOT Provided*

23. Adjust and lock the cabinet stabilizing bolts to keep the cabinet from moving.
24. At the bottom of the cabinet, install hole plugs (provided with cabinet) in the holes previously occupied by the four carriage bolts.

***Install the Port Carrier (If Required)***

The port carrier removed from the R1V3 small cabinet and up to two new port carriers may require installation into the new cabinet, depending on the configuration and number of port slots required. Perform the following steps for each port carrier being installed.

1. Visually inspect the carrier for any damage. Verify the backplane pins are not bent.
2. At the rear connector panel of the new carrier, determine which connector will have cables connected; remove the red plastic covers, and install the 4B cable retainers on those connectors.
3. Install the J58890BB-3 port carrier into the desired position by lining up the plastic alignment tip on the top rear of the carrier with the screw holes in the cabinet. These alignment tips will support the carrier while the screws are being installed. Ensure that the power cords are properly placed in the slots in the sides of the carrier.
4. See CAUTION. Fasten the carrier into position with four self-tapping screws saved from the removal of the old carrier.

**CAUTION:** Carefully realign the threads on the self-tapping screws by turning them clockwise a turn or two before tightening them to avoid stripping the threads out of the framework.

5. Connect the “P2” and “P1” (large and small) connectors to the “A” carrier. To get enough slack in the cables, cut the tie wrap holding the intercabinet cable to the upright in the area of the carrier being installed. Snap the connector lock into place to ensure the connection is properly made (see Figure 4-7).
6. Connect the ground straps to the carrier being installed and the appropriate carrier (see Figure 4-2).
7. Repeat Steps 1 through 6 for other port carriers that require installation.
8. Install the front trim plates on the port carriers that were installed and the fans.

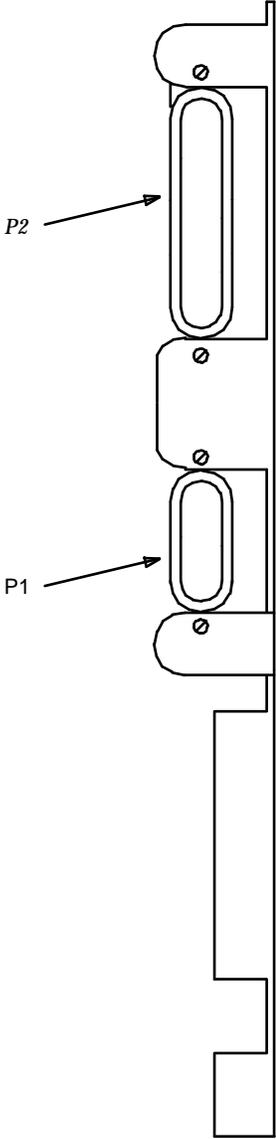


FIGURE 4-7. P1 and P2 Cable Locations

**Install TDM/LAN and ICC Cables**

1. Connect the TDM/LAN bus cables between the carriers using the new TDM/LAN cables (see Figure 4-1 and Table 4-B).

**TABLE 4-B. TDM/LAN Cable Connections**

“J” Number	Carrier Type	LHS Slot	RHS Slot
J58890BB-1	Port	21	02
J58890BB-2	Port	21	01
J58890BB-3	Port	21	01
J58890AH-1	PPN Control “A”	20	03
J58890AJ-1	PPN Control “B”	20	03

2. Verify the existing TDM bus terminators are the new ZAHF4 bus terminators (see Figure 4-1 and Table 4-B).
3. See CAUTION. If the system is duplicated, install the ICC cables (H600-182 Gr1) between carriers “A” and “B” by connecting to the “ICC” blocks on both carriers (see Table 4-C and Figure 4-8). The cable is installed so that the dark (red, blue, or purple depending on supplier) stripe is on the bottom at both ends.

**CAUTION:** The ICC cable connectors can be installed so that the backplane pins can be bent. Use extreme caution to ensure the pins are not bent. Double check all connections to verify pins aren’t bent.

**TABLE 4-C. Intercabinet Cable Connections**

Connect ICC Cables				
	From		To	
	Carrier	CONN	Carrier	CONN
PPN	J58890AH-1	ICCA ICCB	J58890AJ-1	ICCA ICCB

***Install Power Units and Current Limiter (CURL)***

1. See Note. Install the 631-type power units (removed from R1V3) into the port carrier. There are three different pairs of power units available. They are the 631AR1 and 631BR1, the 631WA1 and 631WB1, and the 631DA1 and 631DB1. Do not interchange the units. The 631AR1, 631WA1, or 631DA1 are installed in the left side, while the 631BR1, 631WB1, or 631DB1 are installed in the right side (see Figure 4-9).

**Note:** Use the power units removed from the old system in the carrier being reused. Use new power units in any new port carriers that were added.

2. If the system is equipped with the 631BR1 or 631WB1, install the TN736 power unit on the right side of the carrier, adjacent to the 631BR1 or the 631WB1. If the system is equipped for neon message waiting, a TN752 or TN755 power unit must be used.

**Note:** The TN736 is not required when the 631DB1 power unit is used in the J58890AH-1 control carrier or the J58890BB-2 or J58890BB-3 port carriers. It is required in the J58890BB-1 port carrier regardless of which 631 power unit is provided. Use the TN752 or TN755 if the system is equipped with neon message waiting.

3. Install the 982LS current limiter (CURL) on the "A" carrier to the block marked "CURL." The CURL is inserted with the components on the left as viewed from the rear of the cabinet.
4. Connect the power cords to the power units. The power cords are the white cables equipped with plugs that are run through the slots in the front of each carrier (see Figure 4-10).

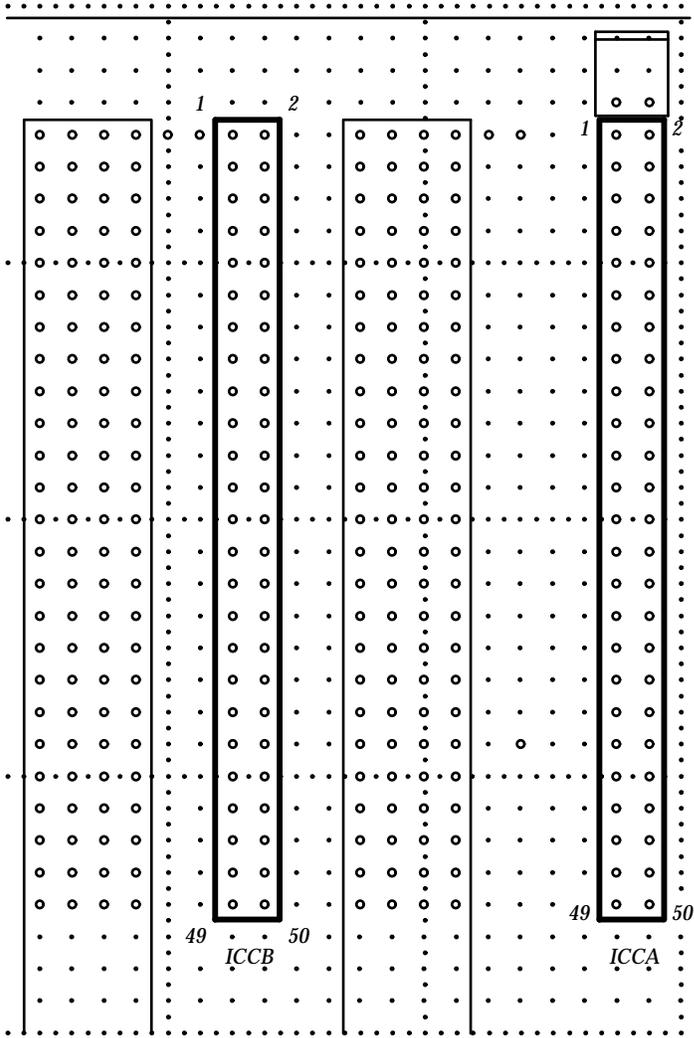


FIGURE 4-8. ICC Block on J58890AH-1 and J58890AJ-1 Carriers

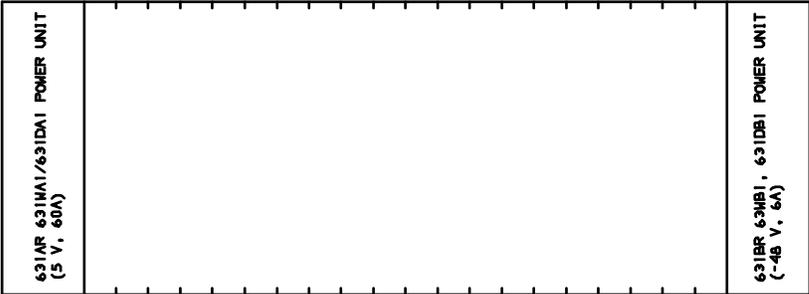


FIGURE 4-9. Power Unit Locations

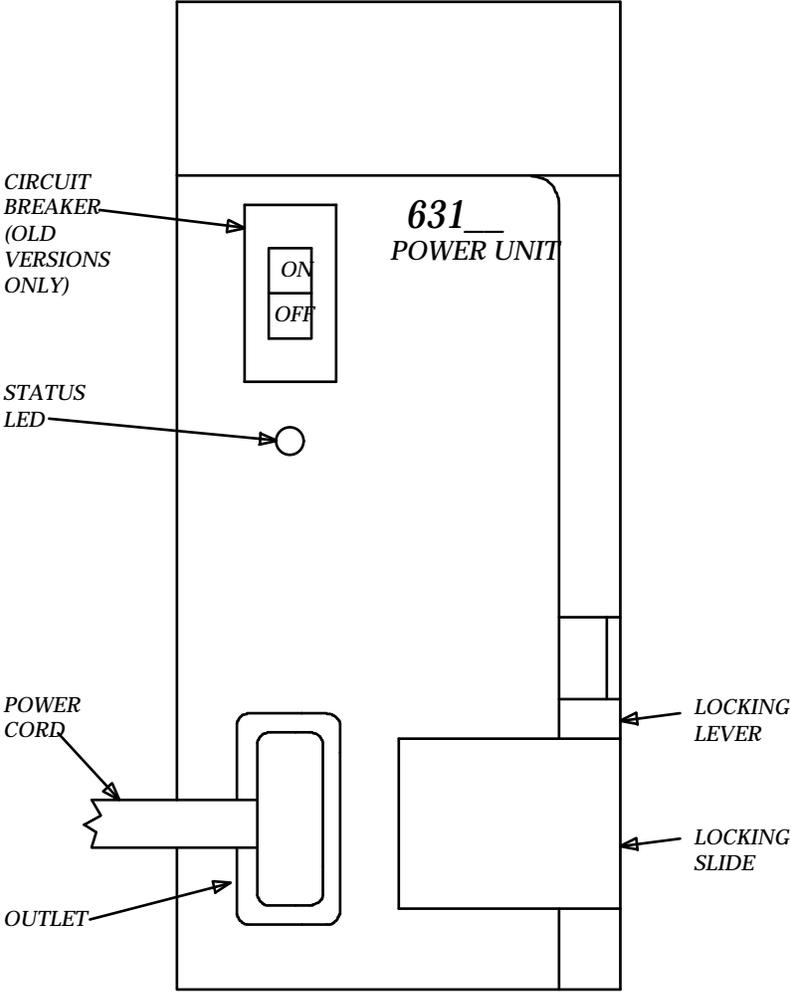


FIGURE 4-10. 631-Type Power Unit

**Test the CURL**

1. Plug the cabinet power cord into the appropriate AC receptacle.
2. At the power distribution unit, set the main circuit breaker to ON.
3. Unplug the power cord from power unit “B” (right-hand side) in the “A” carrier.
4. Verify that the fans continue running. If they are not running, check the installation of the CURL.
5. Reconnect the power cord to the power unit in the “A” carrier, then unplug the power cord from power unit “B” (right-hand side) in the “B” carrier.
6. Verify that the fans continue running. If they are not running, check the installation of the CURL.
7. Reconnect the power cord to the power unit in the “B” carrier.
8. At the power distribution unit, set the main circuit breaker to OFF.

**Install Circuit Packs**

1. See WARNING. Install the new G1 circuit packs into control carrier(s) “A” and “B” as required. Use the new decal and upgrade configuration document, provided with the equipment, as a guide.

**WARNING:** A wrist strap must always be worn, and the clip must be grounded to the cabinet frame being worked on before inserting and removing any circuit pack.

2. See preceding WARNING and the following Note. Install the port circuit packs previously removed and any new port circuits required into the proper carrier(s) using the decal and upgrade configuration document, provided with the equipment, as a guide.

**Note:** Because of differences in the number of port slots available in the new carrier, some port circuits may require moving. If this was not performed before the upgrade, install the circuit packs now. The port circuits will have to be translated after the system is rebooted with the G1 tape.

3. Install circuit pack blanks in slots not equipped with circuit packs.

**Connect Fiber Optic Cables (If Equipped With EPN)**

If the upgraded PPN is associated with an EPN, fiber optic cables must be connected between the two cabinets. The instructions for installing these cables are included in the coverage of the EPN. If the EPN is a new cabinet, these instructions are in the *DEFINITY® Communications System Generic 1 and Generic 3i—Installation and Test, 555-230-104*. If the EPN is an upgraded cabinet, these instructions are in the appropriate chapter of this document.

### **Remove Power Failure Ground Strap**

1. Remove the ground strap from the power failure transfer unit.

### **Reboot the System**

1. Connect the Manager I terminal to the connector labeled "TERMINAL" on the rear of the "A" carrier in the PPN cabinet.
2. Insert the new G1 system tape in the PPN cabinet.
3. At the EPN power distribution unit, set the main circuit breaker to ON.
4. At the PPN power distribution unit, set the main circuit breaker to ON.
5. The system now goes through the rebooting process, loading the system translations from the tape. Rebooting requires 15 to 20 minutes. Refer to the "System Reboot Indications" section in *DEFINITY® Communications System Generic 1 and Generic 3i—Maintenance, 555-204-105*, for circuit pack LED indications and Manager I terminal displays that occur during system reboot.
6. Login at the `login:` prompt on the Manager I terminal, and set the time to ensure that the system is booted properly.

### **Close Up Cabinet and Reconnect Cables**

1. At the PPN power distribution unit, set the main circuit breaker to OFF.
2. At the EPN power distribution unit, set the main circuit breaker to OFF.
3. Label and disconnect the fiber cables.
4. Replace all back panels previously removed.
5. At the cabinet, reconnect the connector cables associated with the carrier being replaced.
6. Install the front door on the cabinet if previously removed.

### **Power Up the System**

1. At the EPN power distribution unit, set the main circuit breaker to ON.
2. At the PPN power distribution unit, set the main circuit breaker to ON.
3. The system now goes through the rebooting process, loading the system translations on the tape. Rebooting requires 15 to 20 minutes. Refer to the "System Reboot Indications" section in *DEFINITY® Communications System Generic 1 and Generic 3i—Maintenance, 555-204-105*, for circuit pack LED indications and Manager I terminal displays that occur during the system reboot.
4. After the system reboot is finished and all trouble is cleared, verify that the EMERGENCY TRANSFER CONTROL switch is set to AUTO. This restores the system to the normal mode.

### ***Retranslate Port Circuits***

If port circuit packs had to be moved because of slot limitations in the new carrier, and they were not moved and retranslated before original tape was updated and sent to the TSC/NTSO, they must be retranslated now. Refer to *DEFINITY® Communications System Generic 1 and System 75—Administration and Measurement Reports, 555-200-500*, for instructions on performing the retranslations.

### ***Run Acceptance Tests***

Refer to Chapter 8, “Tests,” and perform the appropriate tests.

### **R1V3 Small to G1 EPN Without Duplication**

The System 75 small R1V3 is upgraded to G1 EPN Without Duplication by:

- Removing the tape drive unit
- Removing the control carrier in position “A”
- Installing the J58890AF-1, L15 control carrier in position “A”
- Adding the G1 circuit packs
- Restructuring the port circuits as required

**Prerequisite Hardware**

The equipment in the following table (Table 4-D) **MUST** be on-site before the upgrade is started. Ensure that the tape is the G1 tape.

**TABLE 4-D. Required Hardware**

Equipment	Description	Quantity
J58890AF-1,L15	Control Carrier	1
TN775	Maintenance	1
TN768	Tone-Clock	1
TN776	Expansion Interface	2 (Note 1)
J58890TB	Tape Cartridge	2
CFY1	Current Limiter	1
FL2P-P-20	Fiber Cable	1 (Note 2)
9823-Type	Lightwave transceiver	2 (Note 3)
WP91716L6	TDM/LAN Cable	1 (Note 4)
176A	Apparatus Blank	1
ZAHF4	TDM Bus Terminator	2
Label	DEFINITY	1

- Note:**
1. A TN776 is required for the PPN and EPN.
  2. Two are required if PPN and EPN are remote.
  3. Two are shipped with the EPN. One is used in the PPN.
  4. Comes attached to the J58890AF-1 carrier.

**Required Tools**

The following tools and items may be required during the upgrade:

- High-intensity AC drop light or flashlight
- 3/8-inch flat screwdriver with a 10-inch shank (minimum)
- 5/16-inch and 1/4-inch sockets with a ratchet and 10-inch extension
- Power screwdriver (optional)
- Pliers
- Static-proof box or original circuit pack packaging for transporting circuit packs
- Labels for labeling the cables attached to the rear of cabinets and port circuit pack
- Receptacle for holding approximately 100 self-tapping screws
- Twelve spare #12 and #10 self-tapping screws
- Four spare carrier grounding straps
- Authorized wrist grounding strap
- Cabinet air filter (may be required)
- Backplane pin repair kit (KS-22876-L2 or equivalent)
- One copy of each of the following manuals:
  - *DEFINITY® Communications System Generic 1 and Generic 3i—Maintenance, 555-204-105*
  - *DEFINITY® Communications System Generic 1 and System 75—Administration and Measurement Reports, 555-200-500*
  - *DEFINITY® Communications System Generic 1—Implementation, 555-204-655*

**Label Cables**

1. To make reconnecting the cables easier and to ensure they are properly reconnected, label both ends of the connector cables associated with the carrier to be removed (if not already labeled).

***Power Down System***

1. At the power distribution unit, set the main circuit breaker to OFF.

***Install Power Failure Transfer Ground Strap***

**CAUTION:** The ground strap must not be connected while the system is powered up.

1. Connect a lead to pin 49 of the CAP or to pin 49 of the connecting block associated with the power failure transfer panel.
2. Route the lead to an approved ground source.
3. Connect the lead to the approved ground source.

***Remove Door and Panels and Disconnect Cables***

1. Remove the front door from the cabinet (if desired).
2. With the cable retainer in front of you and the part number visible (4B or 4C), locate the slot that is almost vertical. This slot is adjacent to the part number. Insert a flat blade screwdriver with a wide blade (1/4-inch recommended) into the slot. Twist the screwdriver while the blade is in the slot. The retainer will snap open easily, and the cable can be removed.
3. At the cabinet, disconnect previously labeled cables associated with the carrier to be removed.
4. At the rear of the cabinet, remove the top three panels (positions A, B, and C) and the bottom panel. There are two types of screws holding the back panels to the cabinet. The #10 screws can be removed with a screwdriver or a 1/4-inch socket. The #12 screws can be removed with a screwdriver or a 5/16-inch socket.

***Remove Circuit Packs From Carrier "A"***

1. To ensure circuit packs and power units are properly replaced, label all port circuit packs and power units in the "A" carrier.
2. See WARNING. Remove all circuit packs and power units from carrier "A." Store the circuit packs in the static-proof box.

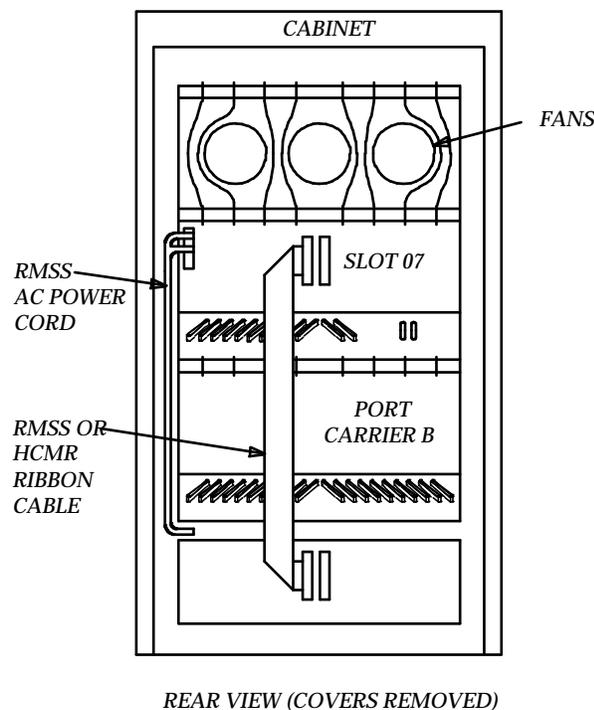
**WARNING:** A wrist strap must always be worn, and the clip must be grounded to the cabinet frame being worked on before inserting and removing any circuit pack.

3. Remove circuit pack blanks from slots not equipped with circuit packs.
4. Remove the front trim plate from the "A" carrier by pulling straight off.

### Remove Tape Drive

**Note:** The removal of the tape drive does not have to be performed at this time. It can be disconnected at this time, then removed at a later date when time is not as critical.

1. Remove tape.
2. Disconnect the AHF4 cable adapter from the rear of the “A” carrier (see Figure 4-11).
3. Open the snap connectors, and remove the cable from the adapter. Route the cable back to the tape drive, and remove it. There are two cable clamps on the cabinet side panel. Use a screwdriver to unsnap them. Neither the cable nor the adapter will be used in the upgraded cabinet.
  - On the HCMR tape drive, disconnect the power supply from the front of the unit, then remove the screws at the rear of the unit that attach the drive to the chassis and slide the tape drive out the front of the cabinet.
  - On the RMSS tape drive, disconnect the red and black wire. Remove the faceplate, then remove the screws that hold the unit to the chassis. Slide the drive out the front of the cabinet.
4. Coil the red and black wire in a out-of-the-way position in the cabinet.
5. Install the 176A apparatus blank over the empty space left by the removal of the tape drive.



**FIGURE 4-11. R1V3 System Cabinet—Rear View, Covers Removed**

**Remove the "A" Carrier**

1. See CAUTION and Note. Disconnect the TDM bus between the "A" and "B" carriers from the "A" and "B" carriers (see Figure 4-12). Remove the AHF3 cable adapters and the cable from the cabinet. They will not be reused.

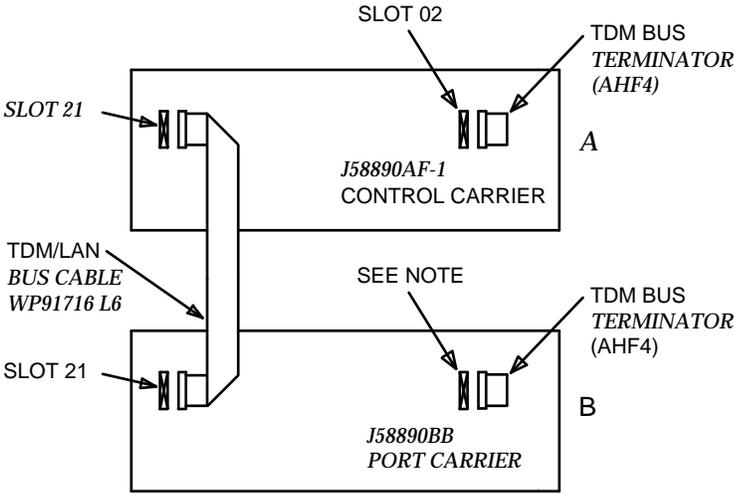
**CAUTION:** When removing the TDM adapters, care should be taken to ensure that none of the short pieces of shrink tubing on the four corner pins of the connector come off.

**Note:** Note the position of the cable adapters and terminators before disconnecting the TDM adapters or terminators.

2. Disconnect the eight ground straps between the "A" and "B" carriers from the "A" carrier (see Figure 4-13). These straps will be reconnected to the new "A" carrier.
3. Slide the latch up, and disconnect the "P1" (small 9 pin) connector and the "P2" (large 37 pin) connector from the "A" carrier. Move the cables into a position where they will not interfere with removing the carrier.
4. Remove the fan trim plate by pulling straight off.
5. Clean or replace the air filter if necessary.
6. Remove the four screws (top two first) holding the "A" carrier to the cabinet frame. Use a long handle screwdriver or 5/16-inch socket with a 10-inch extension.
7. See CAUTION. Slide the carrier forward 1 to 2 inches; then from the back, check that no cables or wire harnesses are caught on any cabinet/carrier framework in such a manner that they could be damaged.

**CAUTION:** Cables and wiring harnesses can be damaged if they catch on framework and too much pressure is used in removing the carrier.

8. Remove the carrier by sliding it out the front of the cabinet.



REAR VIEW

*NOTE: ON PORT CARRIER J58890BB-1, CONNECT THE TDM TERMINATOR TO SLOT 02. ON PORT CARRIERS J58890BB-2 AND J58890BB-3, CONNECT THE TDM TERMINATOR TO SLOT 01. IF THE PORT CARRIER HAS BOTH J58890BB-1 AND J58890BB-2 STENCILED ON IT, TREAT IT AS A J58890BB-1*

**FIGURE 4-12. TDM/LAN Bus Wiring Diagram—Rear View**

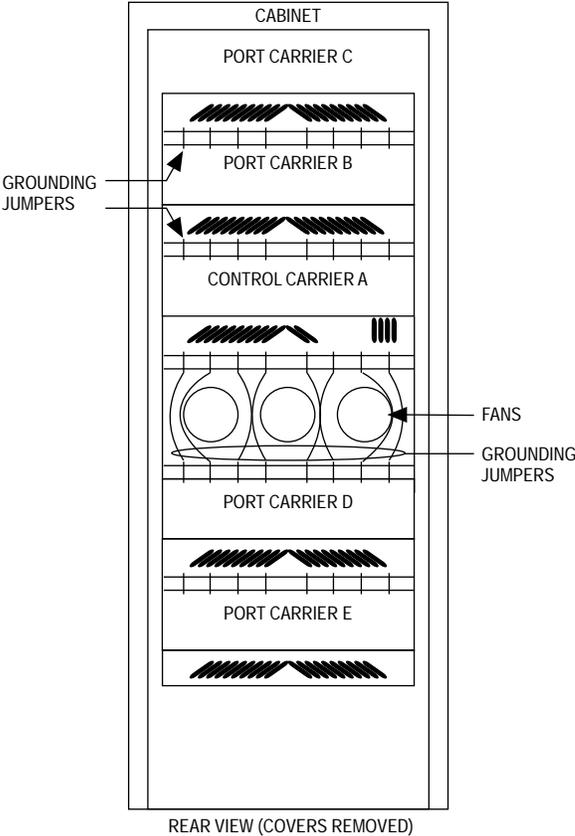


FIGURE 4-13. Grounding Jumper Locations

**Install the New "A" Position Carrier**

1. Visually inspect the carrier for any damage. Verify the backplane pins are not bent.
2. At the rear connector panel, determine which connectors will have connector cables connected, and install the 4B cable retainers on these connectors.
3. Install the J58890AF-1 control carrier in position "A" by lining up the plastic alignment tips on the top rear of the carrier with the screw holes in the cabinet. These alignment tips will support the carrier while the screws are being replaced. Ensure that the power cords are properly placed in the slots in the sides of the carrier.
4. See CAUTION. Fasten the carrier into position with four self-tapping screws saved from the removal of the old carrier.

**CAUTION:** Carefully realign the threads on the self-tapping screws by turning them clockwise a turn or two before tightening them to avoid stripping the threads out of the framework.

5. Connect the "P2" and "P1" (large and small) connectors to the "A" carrier (see Figure 4-14). To get enough slack in the cables, cut the tie wrap holding the intercabinet cable to the upright in the area of the carrier being installed. Snap the connector lock into place to ensure the connection is properly made.
6. Connect the ground straps from the "B" carrier to the new "A" carrier (see Figure 4-13). These straps were left connected to the "B" carrier when the old "A" carrier was removed.
7. Connect the TDM/LAN bus between the "A" and "B" carriers using the new WP91716L6 TDM/LAN cable. The cable is connected to the "TDM" block on the left side of both carriers. (See Figure 4-12 and Table 4-E.)

**TABLE 4-E. TDM/LAN Cable Connections**

"J" Number	Carrier Type	LHS Slot	RHS Slot
J58890BB-1	Port	21	02
J58890BB-2	Port	21	01
J58890BB-3	Port	21	01
J58890AF-1	EPN Control "A"	21	02

8. Install the ZAHF4 TDM bus terminator on carrier "A" at the location marked "TDM." (See Figure 4-12 and Table 4-E.)
9. Install the ZAHF4 TDM bus terminator on carrier "B" at the location marked "TDM." (See Figure 4-12 and Table 4-E.)
10. Install the front trim plates on the "A" carrier. Install the fan trim plate.

11. Peel the old decal strip from the trim plates, then install the new decal strip at the bottom of the trim panel. Install the new connector panel decal on the rear connector panel.
12. Install the 631-type power units (removed from R1V3) into both the “A” and “B” carriers. There are three different pairs of power units available. They are the 631AR1 and 631BR1, the 631WA1 and 631WB1, and the 631DA1 and 631DB1. Do not interchange the units. The 631AR1, 631WA1, or 631DA1 are installed in the left side, while the 631BR1, 631WB1, or 631DB1 are installed in the right side (see Figure 4-15).
13. If the system is equipped with the 631BR1 or 631WB1, install the TN736 power unit on the right side of the carrier adjacent to the 631BR1 or the 631WB1. If the system is equipped with neon message waiting lamps, a TN755B or TN752 power unit is required.

**Note:** The TN736 is not required when the 631DB1 power unit is used in the J58890AF-1 control carrier or the J58890BB-2 or J58890BB-3 port carriers. It is required in the J58890BB-1 port carrier regardless of which 631 power unit is provided. Use the TN752 or TN755B if the system is equipped with neon message waiting.

14. Connect the power cords to the power units. The power leads are the white cables equipped with plugs that are run through the slots in the front of each carrier (see Figure 4-16).
15. Install the CFY1 current limiter (CURL) on the “A” carrier to the block marked CURL. The CURL is inserted with the components on the left side as viewed from the rear.

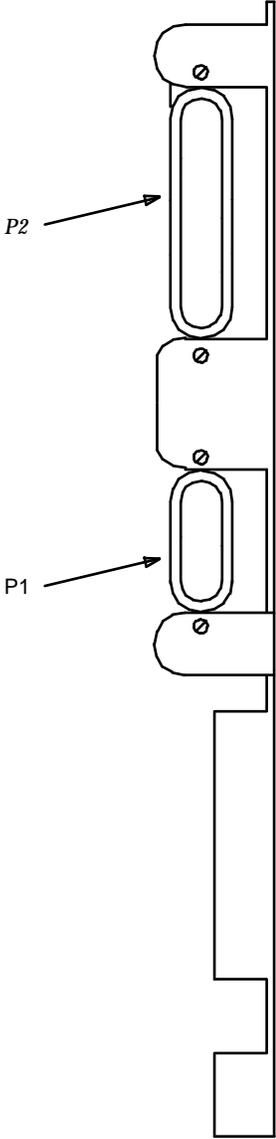


FIGURE 4-14. P1 and P2 Cable Locations

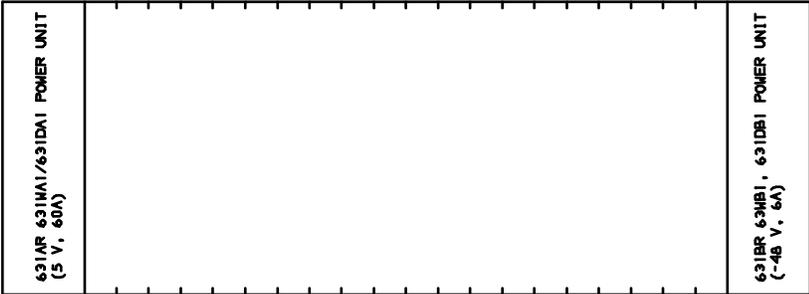


FIGURE 4-15. Power Unit Locations

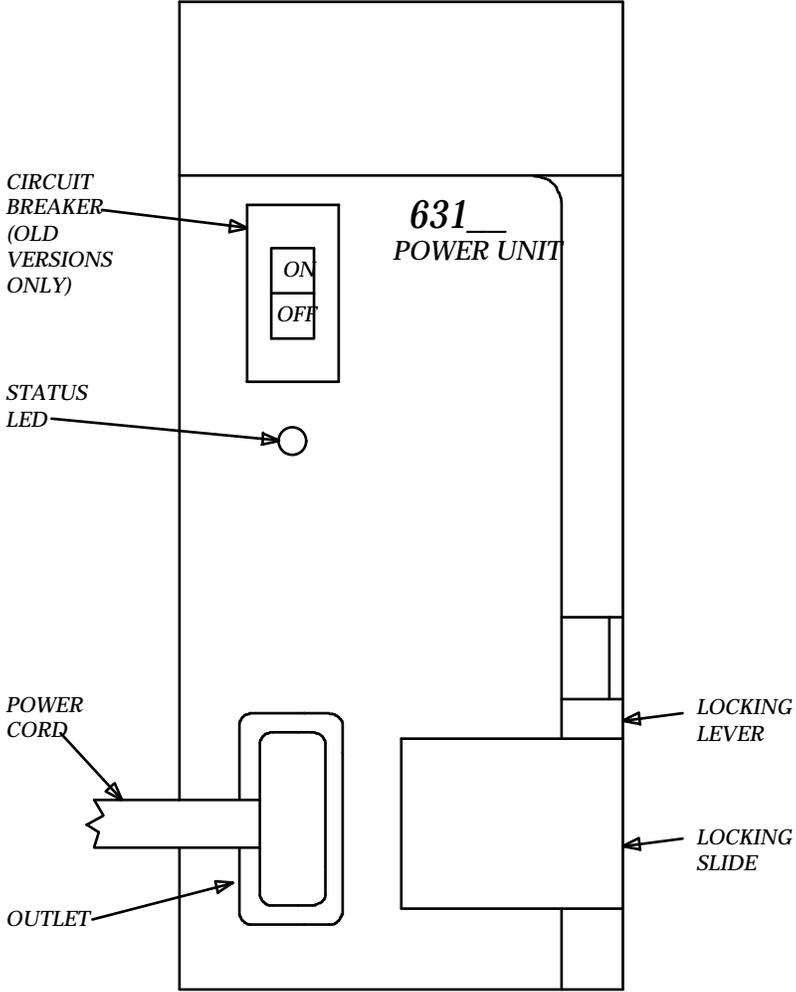


FIGURE 4-16. 631-Type Power Unit

### ***Install Circuit Packs***

1. See WARNING. Install the new G1 circuit packs into carrier “A.” Use the new decal and upgrade configuration document as a guide.

**WARNING:** A wrist strap must always be worn, and the clip must be grounded to the cabinet frame being worked on before inserting and removing any circuit pack.

2. See preceding WARNING and the following Note. Install the port circuit packs previously removed into the “A” carrier using the decal and upgrade configuration document, provided with the equipment, as a guide.

**Note:** Because of differences in the number of port slots available in the new carrier, one port circuit may require moving. If this was not performed before the upgrade, install the circuit pack now. The port circuit will have to be translated after the system is rebooted with the G1 tape.

3. Install circuit pack blanks in slots not equipped with circuit packs.
4. Ensure that the PPN associated with this EPN is equipped with a TN776.

### ***Connect Fiber-Optic Cable***

One fiber-optic cable (FL2P-P-20) and two lightwave transceivers (9823-type) are required for EPN connections without the Duplication Option if the EPN and PPN are collocated.

When the EPN cabinet is installed remotely from the PPN cabinet, two fiber-optic cables (FL2P-P-20), two lightwave transceivers (9823-type), and two lightwave interface units (provided by the PSC) are required.

If the cabinets are collocated, the fiber-optic cable should be routed directly from the PPN to the EPN cabinet. The preferred routing is to run the cables up the cable tray and out the top of the cabinet. The cable is then run to the other cabinet, through the top of the cabinet and down the cable tray to the desired carrier level.

If the cabinets are remote, the cables should be routed down the cable tray and out the bottom of the cabinet to the cross-connect field where the lightwave interface unit is located.

Secure the cables with cable ties against the cable tray walls at the cable tie positions built into the trays.

*Collocated*

1. At the rear of the PPN cabinet control carrier (see Figures 4-17 and 4-18):
  - Install a 9823-type lightwave transceiver on the cable connector at slot 1A01.
  - Connect one end of the fiber-optic cable to the 9823-type lightwave transceiver, previously installed, at slot 1A01.
  - Secure the fiber-optic cable (with cable ties) against the cable tray wall at the cable tie positions built into the tray.
  - At the top of the cabinet, coil the surplus length of fiber-optic cable. Secure the cable against the cable tray wall with cable ties.
2. At rear of the EPN cabinet control carrier:
  - Install a 9823-type lightwave transceiver on the cable connector at slot 2A01.
  - Connect the other end of fiber-optic cable to the 9823-type lightwave transceiver, previously installed at slot 2A01.
  - Secure the fiber-optic cable (with cable ties) against the cable tray wall at the cable tie positions built into the tray.
  - At the top of the cabinet, coil the surplus length of fiber-optic cable. Secure the cable against the cable tray wall with cable ties.

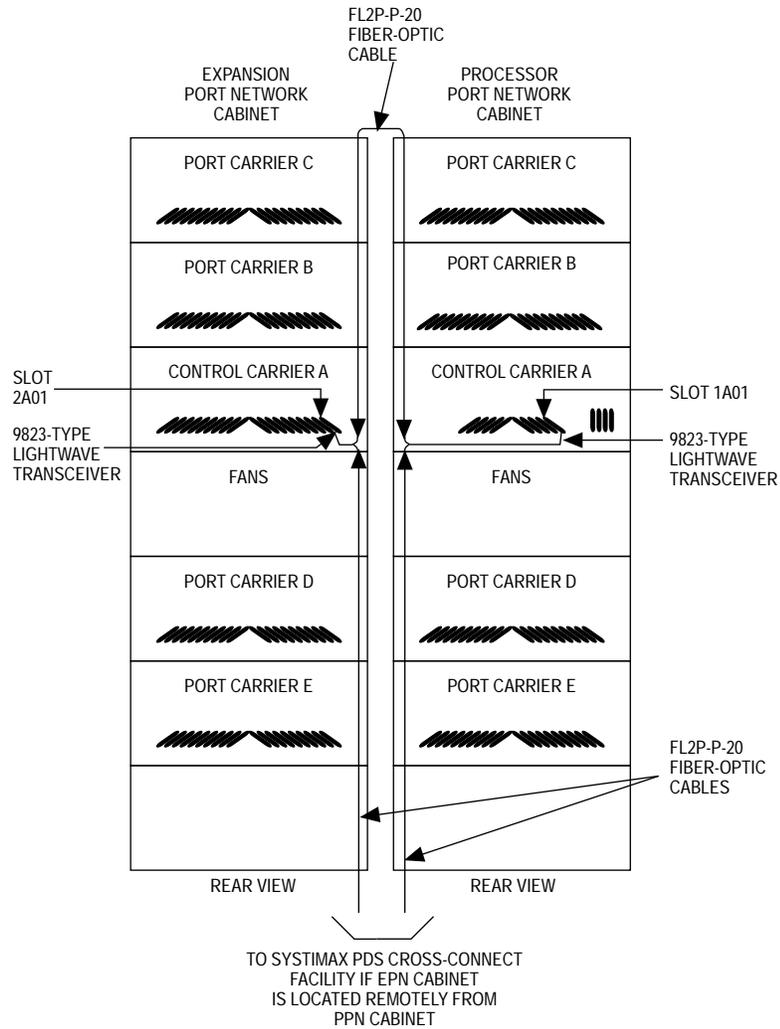
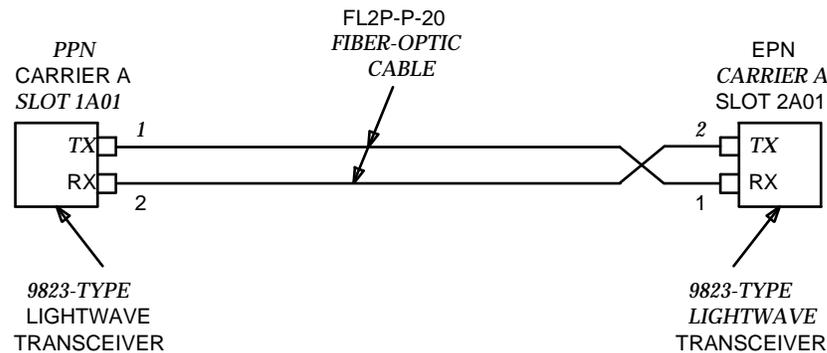


FIGURE 4-17. G1 EPN Cabinet Connections Without Duplication Option



**FIGURE 4-18. Fiber-Optic Connections—Cabinets Collocated**

#### *Remote Cabinets*

1. At the rear of the PPN cabinet, control carrier A (see Figures 4-17 and 4-19):
  - Install a 9823-type lightwave transceiver on the connector at slot 1A01.
  - Connect one end of the fiber-optic cable to the 9823-type lightwave transceiver at slot 1A01.
  - Route the fiber-optic cable from the 9823-type lightwave transceiver to the cabinet cable tray and downward out of the cabinet through the cable manager to the PDS cross-connect facility.
2. At the PDS cross-connect facility, connect the fiber-optic cable to the lightwave interface unit provided.
3. Secure the fiber-optic cable (with cable ties) against the cable tray wall at the cable tie positions built into the tray.
4. At rear of the EPN cabinet, control carrier A:
  - Install a 9823-type lightwave transceiver on the connector at slot 2A01.
  - Connect the fiber-optic cable to the 9823-type lightwave transceiver slot 2A01.
  - Route the fiber-optic cable from the 9823-type lightwave transceiver to the cabinet cable tray and downward out of the cabinet through the cable manager to the PDS cross-connect facility.

5. At the PDS cross-connect facility, connect the fiber-optic cable to the lightwave interface unit provided.
6. Secure the fiber-optic cable (with cable ties) against the cable tray wall at the cable tie positions built into the tray.
7. At the top of the cabinet, coil the surplus length of fiber-optic cable, and secure the cable against the cable wall with cable ties.

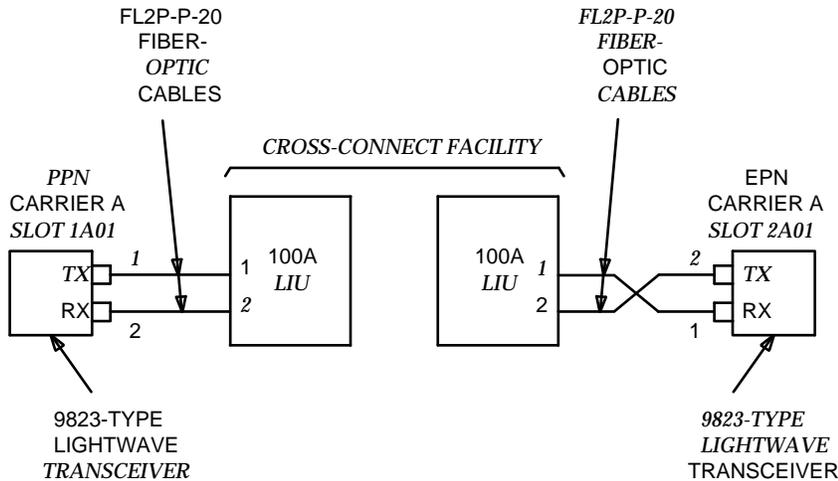


FIGURE 4-19. Fiber-Optic Connection—Cabinets Remote

**Remove Power Failure Ground Strap**

1. Remove the ground strap from the power failure transfer unit.

**Reboot the System**

1. Connect the Manager I terminal to the connector labeled “TERMINAL” on the rear of the “A” carrier in the PPN cabinet.
2. Insert the new G1 system tape in the PPN cabinet.
3. At the EPN power distribution unit, set the main circuit breaker to ON.
4. At the PPN power distribution unit, set the main circuit breaker to ON.
5. The system now goes through the rebooting process, loading the system translations from the tape. Rebooting requires 15 to 20 minutes. Refer to the “System Reboot Indications” section in *DEFINITY® Communications System Generic 1 and Generic 3i—Maintenance, 555-204-105*, for circuit pack LED indications and Manager I terminal displays that occur during system reboot.
6. Login at the `login:` prompt on the Manager I terminal, and set the time to ensure that the system is booted properly.

### ***Close Up Cabinet and Reconnect Cables***

1. At the PPN power distribution unit, set the main circuit breaker to OFF.
2. At the EPN power distribution unit, set the main circuit breaker to OFF.
3. Label and disconnect the lightwave transceivers and fiber cables.
4. Replace all back panels previously removed.
5. At the cabinet, reconnect the lightwave transceivers and fiber cables and the connector cables associated with the carrier being replaced.
6. Install the front door on the cabinet if previously removed.
7. Install the DEFINITY label on the cabinet.

### ***Power Up the System***

1. At the EPN power distribution unit, set the main circuit breaker to ON.
2. At the PPN power distribution unit, set the main circuit breaker to ON.
3. The system now goes through the rebooting process, loading the system translations on the tape. Rebooting requires 15 to 20 minutes. Refer to the “System Reboot Indications” section in *DEFINITY® Communications System Generic 1 and Generic 3i—Maintenance, 555-204-105*, for circuit pack LED indications and Manager I terminal displays that occur during the system reboot.
4. After the system reboot is finished and all trouble is cleared, verify that the EMERGENCY TRANSFER CONTROL switch is set to AUTO. This restores the system to the normal mode.

### ***Retranslate Port Circuits***

If port circuit packs had to be moved because of slot limitations in the new carrier, and they were not moved and retranslated before the original tape was updated and sent to the TSC/NTSO, they must be retranslated now. Refer to *DEFINITY® Communications System Generic 1 and System 75—Administration and Measurement Reports, 555-200-500*, for instructions on performing the retranslations.

### ***Run Acceptance Tests***

Refer to Chapter 8, “Tests,” and perform the appropriate tests.

## **R1V3 Small to G1 EPN With Duplication**

### ***Cabinet Upgrade***

If the PPN cabinet associated with this cabinet is a new cabinet, refer to *DEFINITY® Communications System Generic 1 and Generic 3i—Installation and Test, 555-230-104*, for the installation procedures.

If the PPN cabinet associated with this cabinet is being upgraded, refer to Chapter 2 of this manual for the upgrade instructions.

The System 75 small R1V3 is upgraded to the G1 EPN With Duplication by:

- Removing the tape drive unit
- Removing the control carrier in position “A”
- Installing the J58890AF-1 control carrier in position “A”
- Adding the G1 circuit packs
- Restructuring the port circuits as required

**Prerequisite Hardware**

The equipment in the following table (Table 4-F) **MUST** be on-site before the upgrade is started.

**TABLE 4-F. Required Hardware**

<b>Equipment</b>	<b>Description</b>	<b>Quantity</b>
J58890AF-1	Control Carrier	1
TN775	Maintenance	1
TN768	Tone-Clock	2
TN776	Expansion Interface	4 (Note 1)
CFY1	Current Limiter	1
H-600-204 G1	Inter Carrier Cable A	1
H-600-204 G1	Inter Carrier Cable B	1
FL2P-P-20	Fiber Cable	1/2 (Note 2)
WP-91716 L6	TDM/LAN cable	1 (Note 3)
ZAHF4	TDM Bus terminators	2
9823-Type	Lightwave Transceiver	4 (Note 1)
176A	Apparatus Blank	1
Label	DEFINITY	1

- Note:**
1. Four are shipped with EPN; two should be used with the PPN.
  2. Comes attached to the J58890AF-1 carrier.
  3. Two are required if EPN is remotely located.

### **Required Tools**

The following tools and items may be required during the upgrade:

- High-intensity AC drop light or flashlight
- 3/8-inch flat screwdriver with a 10-inch shank (minimum)
- 5/16-inch and 1/4-inch sockets with a ratchet and 10-inch extension
- Power screwdriver (optional)
- Pliers
- Static-proof box or original circuit pack packaging for transporting circuit packs
- Labels for labeling the cables attached to the rear of cabinets and port circuit pack
- Receptacle for holding approximately 100 self-tapping screws
- Twelve spare #12 and #10 self-tapping screws
- Four spare carrier grounding straps
- Authorized wrist grounding strap
- Cabinet air filter (may be required)
- Backplane pin repair kit (KS-22876-L2 or equivalent)
- One copy of each of the following manuals:
  - *DEFINITY® Communications System Generic 1 and Generic 3i—Maintenance, 555-204-105*
  - *DEFINITY® Communications System Generic 1 and System 75—Administration and Measurement Reports, 555-200-500*
  - *DEFINITY® Communications System Generic 1—Implementation, 555-204-655*

### **Label Cables**

1. To make reconnecting the cables easier and to ensure they are properly reconnected, label both ends of the connector cables associated with the carrier to be removed (if not already labeled).

### ***Power Down System***

1. At the power distribution unit, set the main circuit breaker to OFF.

### ***Install Power Failure Transfer Ground Strap***

**CAUTION:** The ground strap must not be connected while the system is powered up.

1. Connect a lead to pin 49 of the CAP or to pin 49 of the connecting block associated with the power failure transfer panel.
2. Route the lead to an approved ground source.
3. Connect the lead to the approved ground source.

### ***Remove Door and Panels and Disconnect Cables***

1. Remove the front door from the cabinet (if desired).
2. With the cable retainer in front of you and the part number visible (4B or 4C), locate the slot that is almost vertical. This slot is adjacent to the part number. Insert a flat blade screwdriver with a wide blade (1/4-inch is recommended) into the slot. Twist the screwdriver while the blade is in the slot. The retainer will snap open easily, and the cable can be removed.
3. Disconnect previously labeled cables associated with the carrier to be removed.
4. At the rear of the cabinet, remove the top three panels (positions A, B, and C) and the bottom panel. There are two types of screws holding the back panels to the cabinet. The #10 screws can be removed with a screwdriver or a 1/4-inch socket. The #12 screws can be removed with a screwdriver or a 5/16-inch socket.

### ***Remove Circuit Packs From Carriers "A" and "B"***

1. To ensure the circuit packs and power units are properly replaced, label all port circuit packs and power units in the "A" and "B" carriers.
2. See WARNING. Remove all circuit packs and power units from carrier "A." Store the circuit packs in the static-proof box.
3. See WARNING. Remove circuit packs from slots B01 and B02 in carrier "B." Store the circuit packs in the static-proof box.

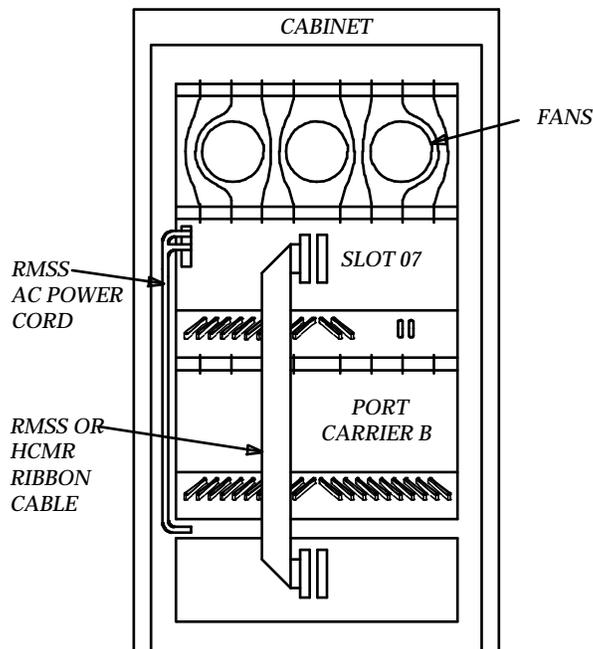
**WARNING:** A wrist strap must always be worn, and the clip must be grounded to the cabinet frame being worked on before inserting and removing any circuit pack.

4. Disconnect the power leads from the "B" carrier.
5. Remove the circuit pack blanks from the slots that are not equipped with circuit packs from carrier "A."
6. Remove the front trim plate from the "B" carrier by pulling straight off. Then remove front trim plate from the "A" carrier.

**Remove Tape Drive**

**Note:** The removal of the tape drive does not have to be performed at this time. It can be disconnected at this time, then removed at a later date when time is not as critical.

1. Remove tape.
2. Disconnect the AHF4 cable adapter from the rear of the “A” carrier (see Figure 4-20).
3. Open the snap connectors, and remove the cable from the adapter. Route the cable back to the tape drive, and remove it. There are two cable clamps mounted on the cabinet side panel. Use a screwdriver to unsnap the cable clamps. Neither the cable nor the adapter will be used in the upgraded cabinet.
  - On the HCMR tape drive, disconnect the power supply from the front of the unit, then remove the screws at the rear of the unit that attach the drive to the chassis and slide the tape drive out the front of the cabinet.
  - On the RMSS tape drive, disconnect the red and black wire. Remove the faceplate, then remove the screws which hold the unit to the chassis. Slide the drive out the front of the cabinet.
4. Coil the red and black wire in an out-of-the-way position in the cabinet.
5. Install the 176A apparatus blank over the empty space left by the removal of the tape drive.



REAR VIEW (COVERS REMOVED)

**FIGURE 4-20. R1V3 System Cabinet—Rear View, Covers Removed**

**Remove the "A" Carrier**

1. See CAUTION and the following Note. Disconnect the TDM bus from the "A" and "B" carriers (see Figure 4-21). Remove the AHF3 cable adapters and the cable from the cabinet. They will not be reused.

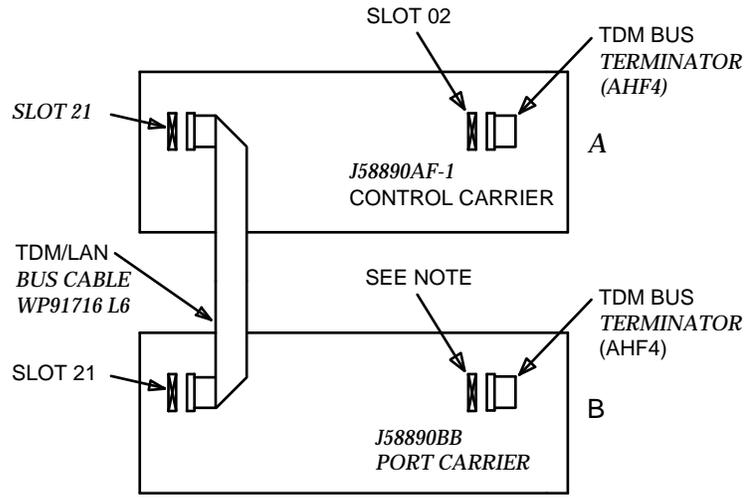
**CAUTION:** When removing the TDM adapters, care should be taken to ensure that none of the short pieces of shrink tubing on the four corner pins of the connector come off.

**Note:** Note the position of the cable adapters and terminators before disconnecting the TDM adapters or terminators.

2. Disconnect the ground straps between the "A" and "B" carriers from the "A" carrier (see Figure 4-22). These straps will be used to connect to the new "A" carrier.
3. Slide the latch up, and disconnect the "P1" (small 9 pin) connector and the "P2" (large 37 pin) connector from the "A" carrier. Move the cables into a position where they will not interfere with removing the carrier.
4. Remove the fan trim plate by pulling straight off.
5. Clean or replace the air filter if necessary.
6. Remove the four screws (top two first) holding the "A" carrier to the cabinet frame. Use a long handle screwdriver or 5/16-inch socket with a 10-inch extension.
7. See CAUTION. Slide the carrier forward 1 to 2 inches, then from the back check that no cables or wire harnesses are caught on any cabinet/carrier framework in such a manner that they could be damaged.

**CAUTION:** Cables and wiring harnesses can be damaged if they catch on framework and too much pressure is used in removing the carrier.

8. Remove the carrier by sliding it out the front of the cabinet.



REAR VIEW

*NOTE: ON PORT CARRIER J58890BB-1, CONNECT THE TDM TERMINATOR TO SLOT 02. ON PORT CARRIERS J58890BB-2 AND J58890BB-3, CONNECT THE TDM TERMINATOR TO SLOT 01. IF THE PORT CARRIER HAS BOTH J58890BB-1 AND J58890BB-2 STENCILLED ON IT, TREAT IT AS A J58890BB-1*

**FIGURE 4-21. TDM/LAN Bus Wiring Diagram—Rear View**

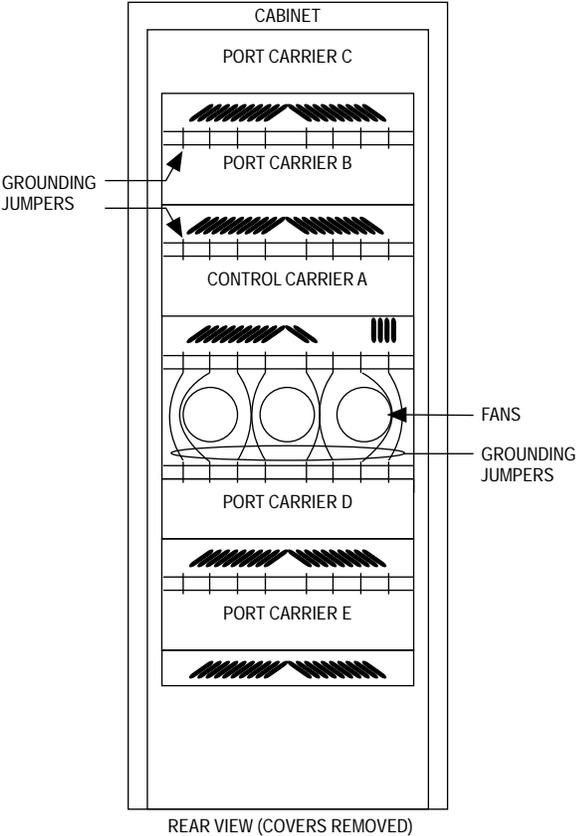


FIGURE 4-22. Grounding Jumper Locations

**Install the New "A" Position Carrier**

1. Visually inspect the carrier for any damage. Verify the backplane pins are not bent.
2. At the rear connector panel, determine which connectors will have connector cables connected, and install the 4B cable retainers on those connectors.
3. Install the J58890AF-1 control carrier in position "A" by lining up the plastic alignment tips on the top rear of the carrier with the screw holes in the cabinet. These alignment tips will support the carrier while the screws are being replaced. Ensure that the power cords are properly placed in the slots in the sides of the carrier.
4. See CAUTION. Fasten the carrier into position with four self-tapping screws saved from the removal of the old carrier.

**CAUTION:** Carefully realign the threads on the self-tapping screws by turning them clockwise a turn or two before tightening them to avoid stripping the threads out of the framework.

5. Connect the "P2" and "P1" (large and small) connectors to the "A" carrier. To get enough slack in the cables, cut the tie wrap holding the intercabinet cable to the upright in the area of the carrier being installed. Snap the connector lock into place to ensure the connection is properly made (see Figure 4-23).
6. Connect the ground straps from the "B" carrier to the new "A" carrier (see Figure 4-22). These straps were left connected to the "B" carrier when the old "A" carrier was removed.
7. Connect the TDM/LAN bus between the "A" and "B" carriers using the new WP91716L6 TDM/LAN cable. The cable is connected to the "TDM" block on the left side of both carriers. (See Figure 4-21.)
8. Install the ZAHF4 TDM bus terminator on carrier "A" at the location marked TDM. (See Figure 4-21 and Table 4-G.)

**TABLE 4-G. TDM/LAN Cable Connections**

"J" Number	Carrier Type	LHS Slot	RHS Slot
J58890BB-1	Port	21	02
J58890BB-2	Port	21	01
J58890BB-3	Port	21	01
J58890AF-1	EPN Control "A"	21	02

9. Install the ZAHF4 TDM bus terminator on carrier "B" at the location marked TDM. (See Figure 4-21 and Table 4-G.)

10. Install the front trim plates, first on the “A” carrier: then the “B” carrier.
11. Peel the old decal strip from both trim plates, then install the new decal strips at the bottom of each trim panel. Install the new connector panel decal to the rear connector panel.
12. Connect the ICC cables (H600-204 Gr1) to the “A” carrier using Table 4-H and Figure 4-24 at the pin block marked “ICC.” The cables should be connected so that the dark (red, blue, or purple depending on the supplier) stripe on the cable is on the bottom.
13. Connect the ICC cables (H600-204 Gr1) to the “B” carrier using Table 4-H and Figure 4-25. There is no marking on the “B” carrier for the pin block that is used. Use the pin block associated with slot 03. Orient the cables to coincide with the installation on the “A” carrier, the left half to the left half and the right half to the right half with the dark (red, blue, or purple depending on the supplier) stripe on the bottom.

**TABLE 4-H. Intercabinet Cable Connections**

Connect ICC Cables				
	From		To	
	Carrier	CONN	Carrier	CONN
PPN	J58890AH-1	ICCA ICCB	J58890AJ-1	ICCA ICCB

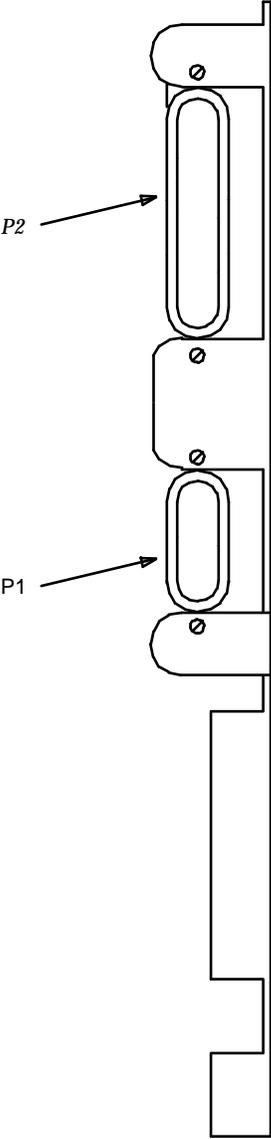


FIGURE 4-23. P1 and P2 Cable Locations

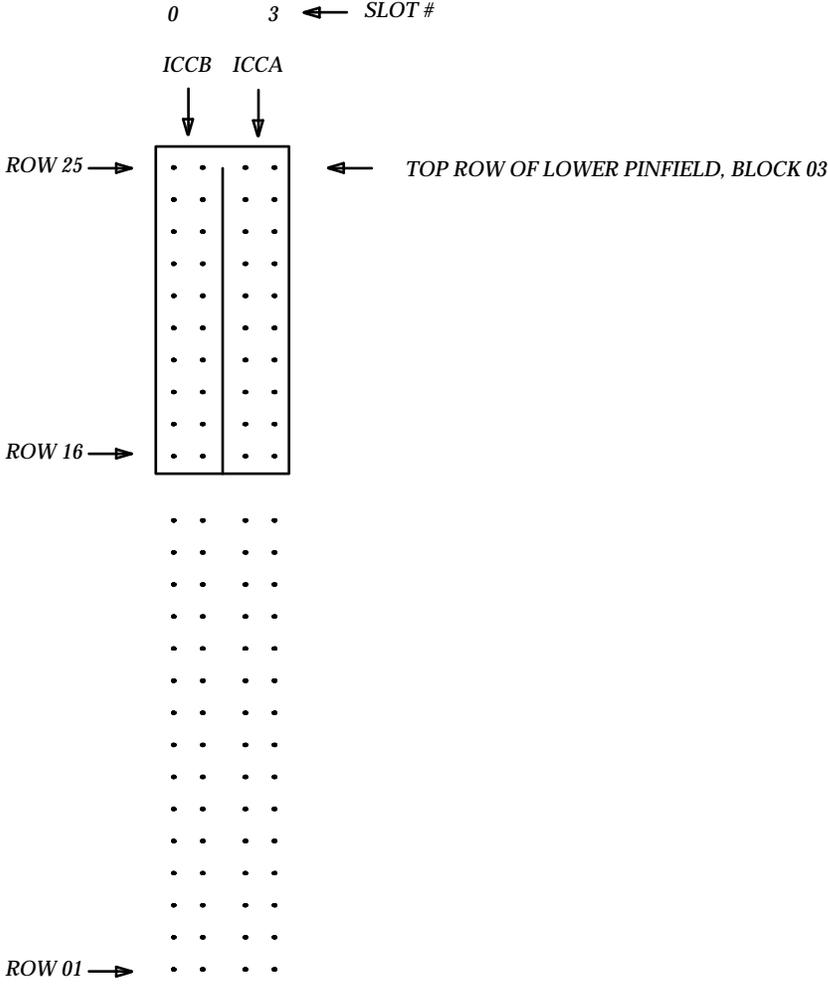


FIGURE 4-24. ICC Connectors J58890AF-1 Carrier

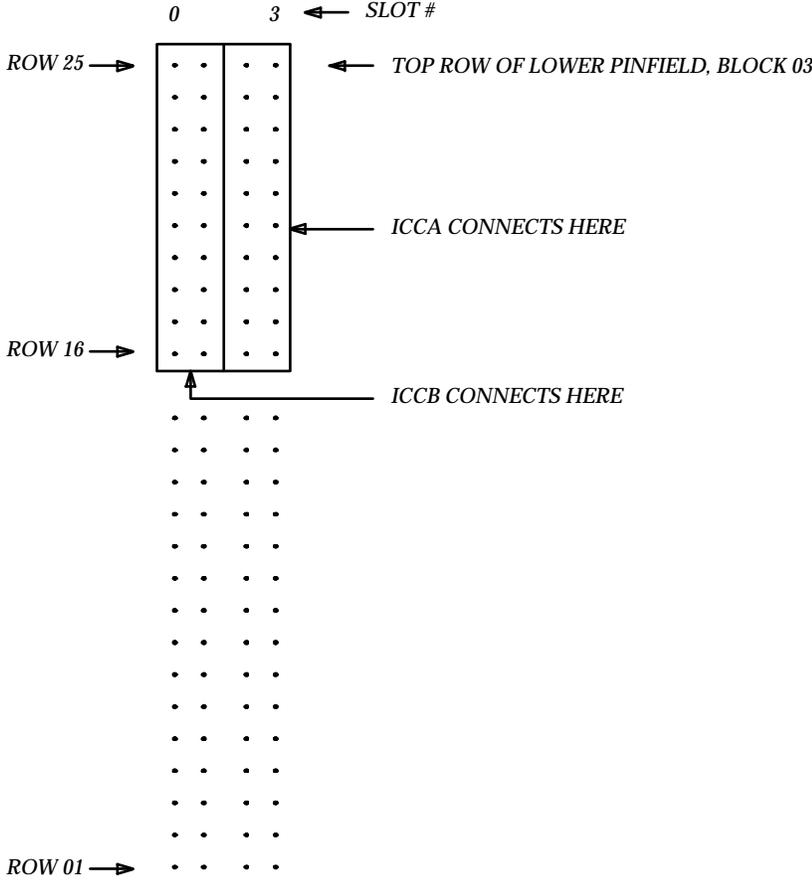


FIGURE 4-25. ICC Connectors "B" Carrier

14. Install the CFY1 current limiter (CURL) on the “A” carrier to the block marked “CURL.” The curl is inserted with the components on the left as viewed from the rear of the cabinet.
15. Install the 631-type power units (removed from R1V3) into both the “A” and “B” carriers. There are three different pairs of power units available. They are the 631AR1 and 631BR1, the 631WA1 and 631WB1, and the 631DA1 and 631DB1. Do not interchange the units. The 631AR1, 631WA1, or 631DA1 are installed in the left side, while the 631BR1, 631WB1, or 631DB1 are installed in the right side (see Figure 4-26).
16. If the system is equipped with the 631BR1 or 631WB1, install the TN736 power unit on the right side of the carrier, adjacent to the 631BR1 or the 631WB1. If the system is equipped for neon message waiting, a TN752 or TN755B power unit must be used.

**Note:** The TN736 is not required when the 631DB1 power unit is used in the J58890AF-1 control carrier or the J58890BB-2 or J58890BB-3 port carriers. It is required in the J58890BB-1 port carrier regardless of which 631 power unit is provided. Use the TN752 or TN755B if the system is equipped with neon message waiting.

17. Connect the power cords to the power units. The power cords are the white cables equipped with plugs that are run through the slots in the front of each carrier (see Figure 4-27).

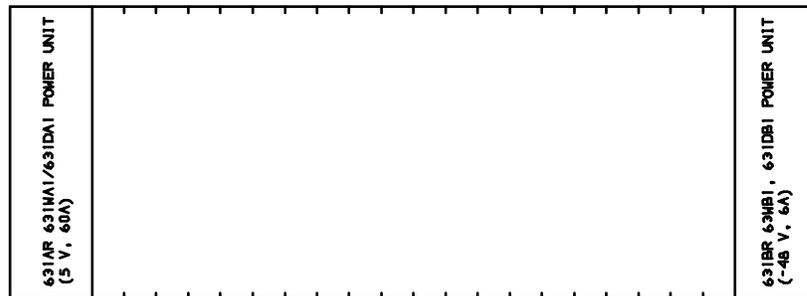


FIGURE 4-26. Power Unit Locations

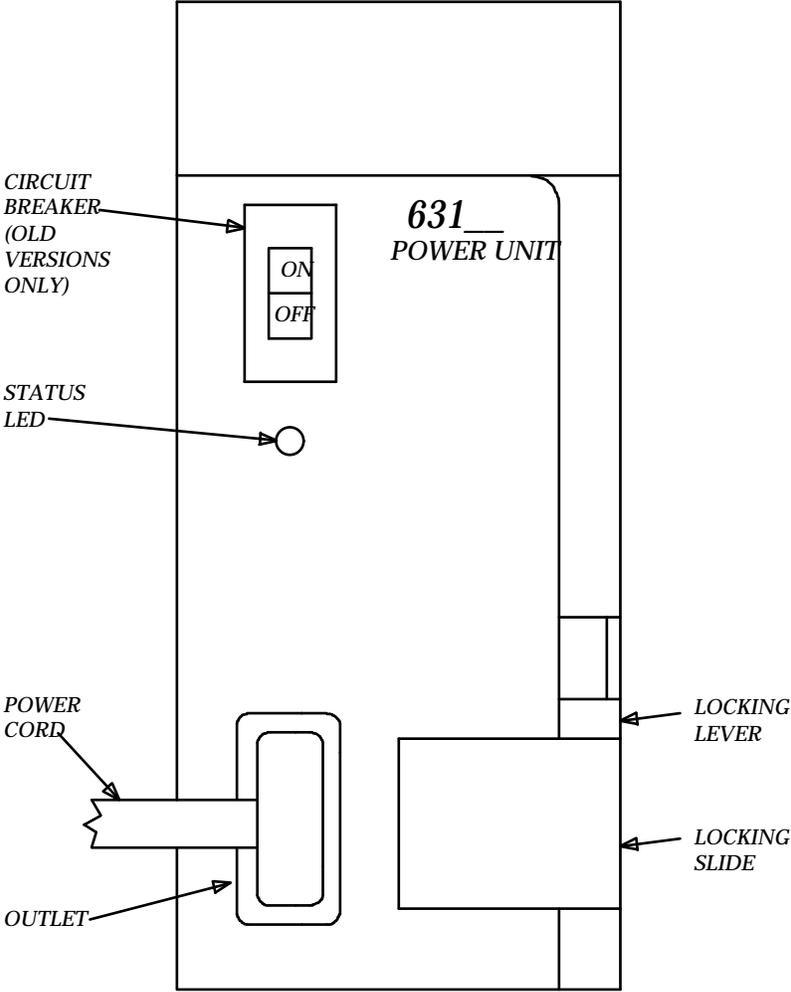


FIGURE 4-27. 631-Type Power Unit

***Test the CURL***

1. Plug the cabinet power cord into the appropriate receptacle.
2. At the power distribution unit, set the main circuit breaker to ON.
3. Unplug the power cord from the power unit “B” (right-hand side) in the “A” carrier.
4. Verify that the fans continue running. If they are not running, check the installation of the CURL.
5. Reconnect the power cord to the power unit in the “A” carrier, then unplug the power cord from power unit “B” (right-hand side) in the “B” carrier.
6. Verify that the fans continue running. If they are not running, check the installation of the CURL.
7. Reconnect the power cord to the power unit in the “B” carrier.
8. At the power distribution unit, set the main circuit breaker to OFF.

***Install Circuit Packs***

1. See WARNING. Install the new G1 circuit packs into carriers “A” and “B.” Use the new decal and upgrade configuration document, provided with the equipment, as a guide.

**WARNING:** A wrist strap must always be worn, and the clip must be grounded to the cabinet frame being worked on before inserting and removing any circuit pack.

2. See preceding WARNING and the following Note. Install the port circuit packs previously removed into the “A” carrier using the decal and upgrade configuration document as a guide.
3. See preceding WARNING and the following Note. Install the port circuit packs previously removed into the “B” carrier using the decal and the upgrade configuration document as a guide.

**Note:** Because of differences in the number of port slots available in the new carriers, some port circuits may require moving. If this was not performed before the upgrade, install the circuit packs now. The port circuits will have to be translated after the system is rebooted with the G1 tape.

4. Verify that the associated PPN is equipped with a TN776.

### ***Connect Fiber-Optic Cable***

Two FL2P-P-20 fiber-optic cables and four lightwave transceivers (9823-type) are required for EPN connections with the Duplication Option if the EPN and PPN are collocated.

When the EPN cabinet is installed remotely from the PPN cabinet, four FL2P-P-20 fiber-optic cables, four lightwave transceivers (9823-type), and two lightwave interface units (provided by the PSC) are required.

If the cabinets are collocated, the fiber-optic cable should be routed directly from the PPN to the EPN cabinet. The preferred routing is to run the cables up the cable tray and out the top of the cabinet. The cable is then run to the other cabinet, through the top of the cabinet and down the cable tray to the desired carrier level.

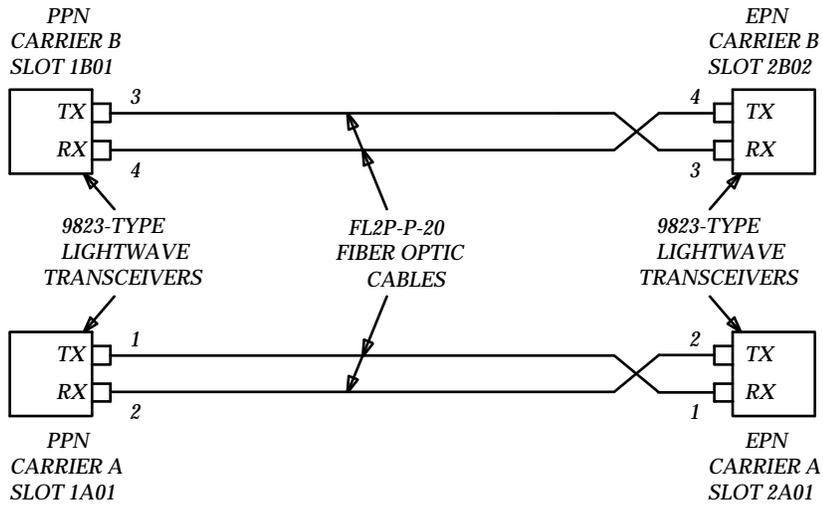
If the cabinets are remote, the cables should be routed down the cable tray and out the bottom of the cabinet to the cross-connect field where the lightwave interface unit is located.

Secure the cables with cable ties against the cable tray walls at the cable tie positions built into the trays.

### *Collocated*

1. At the rear of the PPN cabinet, control carrier A (see Figures 4-28 and 4-29):
  - Install a 9823-type lightwave transceiver on the connector at slot 1A01.
  - Connect one end of the fiber-optic cable to the 9823-type lightwave transceiver at slot 1A01.
  - Route the fiber-optic cable from the 9823-type lightwave transceiver to the cabinet cable tray and upward out of the cabinet. Then route the cable down into the cable tray of the EPN cabinet.
2. At the rear of the PPN cabinet control carrier B:
  - Install a 9823-type lightwave transceiver on the connector at slot 1B01.
  - Connect one end of a fiber-optic cable to the 9823-type lightwave transceiver at slot 1B01.
  - Route the fiber-optic cable from the 9823-type lightwave transceiver to the cabinet cable tray and upward out of the cabinet. Then, route the cable down into the cable tray of the EPN cabinet.
3. At the rear of the EPN cabinet control carrier A:
  - Install a 9823-type lightwave transceiver on the connector at slot 2A01.
  - Connect the fiber-optic cable, coming from the PPN cabinet, control carrier A, to the 9823-type lightwave transceiver at slot 2A01.

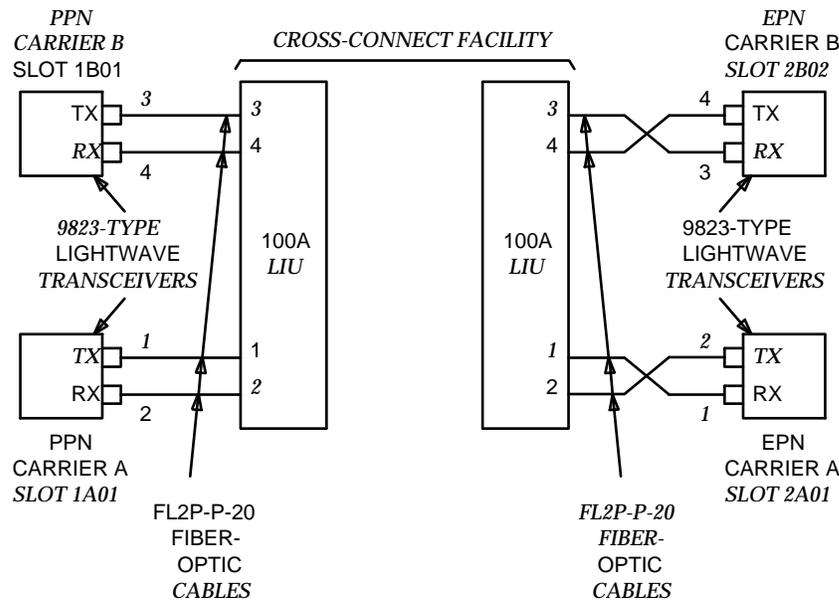




**FIGURE 4-29. Fiber-Optic Cable Connections for Adjacent Cabinet With Duplication Option**

## Remote

1. At the rear of the PPN cabinet, control carrier A (see Figures 4-28 and 4-30):
  - Install a 9823-type lightwave transceiver on the connector at slot 1A01.
  - Connect one end of the fiber-optic cable to the 9823-type lightwave transceiver at slot 1A01.
  - Route the fiber-optic cable from the 9823-type lightwave transceiver to the cabinet cable tray and downward out of the cabinet through the cable manager to the PDS cross-connect facility.



**FIGURE 4-30. Fiber-Optic Cable Connections for Remote Cabinet With Duplication Option**

2. At the PDS cross-connect facility, connect the fiber-optic cable to the lightwave interface unit provided.
3. Secure the fiber-optic cable (with cable ties) against the cable tray wall at the cable tie positions built into the tray.
4. At the rear of the PPN cabinet, control carrier B:
  - Install a 9823-type lightwave transceiver on the connector at slot 1B01.
  - Connect one end of a fiber-optic cable to the 9823-type lightwave transceiver at slot 1B01.
  - Route the fiber-optic cable from the 9823-type lightwave transceiver to the cabinet cable tray and downward out of the cabinet through the cable manager to the PDS cross-connect facility.

5. At the PDS cross-connect facility, connect the fiber-optic cable to the lightwave interface unit provided.
6. Secure the fiber-optic cable (with cable ties) against the cable tray wall at the cable tie positions built into the tray.
7. At the rear of the EPN cabinet, control carrier A:
  - Install a 9823-type lightwave transceiver on the connector at slot 2A01.
  - Connect one end of a fiber-optic cable to the 9823-type lightwave transceiver at slot 1B01.
  - Route the fiber-optic cable from the 9823-type lightwave transceiver to the cabinet cable tray and downward out of the cabinet through the cable manager to the PDS cross-connect facility.
8. At the PDS cross-connect facility, connect the fiber-optic cable to the lightwave interface unit provided.
9. Secure the fiber-optic cable (with cable ties) against the cable tray wall at the cable tie positions built into the tray.
10. At the rear of the EPN cabinet, port carrier B:
  - Install a 9823-type lightwave transceiver on the connector at slot 2B02.
  - Connect one end of a fiber-optic cable to the 9823-type lightwave transceiver at slot 2B02.
  - Route the fiber-optic cable from the 9823-type lightwave transceiver to the cabinet cable tray and downward out of the cabinet through the cable manager to the PDS cross-connect facility.
11. At the PDS cross-connect facility, connect the fiber-optic cable to the lightwave interface unit provided.
12. Secure the fiber-optic cable (with cable ties) against the cable tray wall at the cable tie positions built into the tray.

***Remove Power Failure Ground Strap***

1. Remove the ground strap from the power failure transfer unit.

**Reboot the System**

1. Connect the Manager I terminal to the connector labeled “TERMINAL” on the rear of the “A” carrier in the PPN cabinet.
2. Insert the new G1 system tape in the PPN cabinet.
3. At the EPN power distribution unit, set the main circuit breaker to ON.
4. At the PPN power distribution unit, set the main circuit breaker to ON.
5. The system now goes through the rebooting process, loading the system translations from the tape. Rebooting requires 15 to 20 minutes. Refer to the “System Reboot Indications” section in *DEFINITY® Communications System Generic 1 and Generic 3i—Maintenance, 555-204-105*, for circuit pack LED indications and Manager I terminal displays that occur during system reboot.
6. Login at the `login:` prompt on the Manager I terminal, and set the time to ensure that the system is booted properly.

**Close Up Cabinet and Reconnect Cables**

1. At the PPN power distribution unit, set the main circuit breaker to OFF.
2. At the EPN power distribution unit, set the main circuit breaker to OFF.
3. Label and disconnect the lightwave transceivers and fiber cables.
4. Replace all back panels previously removed.
5. At the cabinet, reconnect the lightwave transceivers and fiber cables and connector cables associated with the carrier being replaced.
6. Install the front door on the cabinet if previously removed.
7. Install the DEFINITY label on the cabinet.

**Power Up the System**

1. At the EPN power distribution unit, set the main circuit breaker to ON.
2. At the PPN power distribution unit, set the main circuit breaker to ON.
3. The system now goes through the rebooting process, loading the system translations on the tape. Rebooting requires 15 to 20 minutes. Refer to the “System Reboot Indications” section in *DEFINITY® Communications System Generic 1 and Generic 3i—Maintenance, 555-204-105*, for circuit pack LED indications and Manager I terminal displays that occur during the system reboot.
4. After the system reboot is finished and all trouble is cleared, verify that the EMERGENCY TRANSFER CONTROL switch is set to AUTO. This restores the system to the normal mode.

***Retranslate Port Circuits***

If port circuit packs had to be moved because of slot limitations in the new carrier, and they were not moved and retranslated before original tape was updated and sent to the TSC/NTSO, they must be retranslated now. Refer to *DEFINITY® Communications System Generic 1 and System 75—Administration and Measurement Reports, 555-200-500*, for instructions on performing the retranslations.

***Run Acceptance Tests***

Refer to Chapter 8, “Tests,” and perform the appropriate tests.

## CHAPTER 5. UPGRADE PROCESS G1 to G3i MULTI-CARRIER CABINET

This chapter provides the information necessary to upgrade a DEFINITY G1 system to a DEFINITY G3i system. The hardware and software involved in the upgrades and the upgrade procedures are also provided.

**WARNING:** When upgrading to BCMS, it is important to note that BCMS data is stored in volatile switch memory; it cannot be saved to or retrieved from tape. This data is preserved if a Reset System 1 (system Warm start), reset system 2 (system cold start), or Reset System Interchange (in a duplicated system) occurs. However, this data is lost if a cold start (power failure) occurs.

The following processes are required for a G1 to G3i upgrade:

- Hardware upgrades that involve adding circuit packs
- Replacing the software tape
- Software upgrades that involve saving, loading, and reentering system translations
- Testing the upgraded system to verify proper operation

G3i features and functions are listed in the *DEFINITY® Communications System System Generic 1 and Generic 3i—Feature Description, 555-230-201*. *DEFINITY® Communication System Generic 3i—Implementation, 555-230-650*, provides the procedures and forms required to implement the G3i features. *DEFINITY® Communications System Generic 1 and System 75—Administration and Measurement Reports, 555-200-500*, provides the commands and procedures required to initialize and administer the G3i.

## Considerations

### Service Interruption

The upgrade process requires a service interruption of approximately one to five hours. This service interruption must be closely coordinated with the customer and the local account team.

### Communication Between Equipment Rooms

If the upgrade consists of equipment that is in a remote location, the upgrade activity will be much easier if temporary communications are established between the equipment rooms.

### Contact Network Craft

The network craft must be contacted before the upgrade is started. It is possible that if the network craft is not involved in the upgrade that the links will be busied out.

### Relocation of Port Circuit Packs

It is recommended that the relocation of the port circuits and the retranslation be completed before the upgrade. This will lessen any service interruption that may occur at the time of the upgrade. If a third cabinet is required, it cannot be added until the time of the upgrade. G1 software will not support the third cabinet.

### Power

If a new cabinet (either a PPN or EPN) is added, it may be either AC- or DC-powered. If the cabinet being added is powered differently from the existing cabinet, the existing cabinet does not have to be converted as mixed power configurations are allowed.

If a new cabinet powered by AC is to be added, a separate AC receptacle is provided to support the new cabinet. This AC receptacle must not be shared with any other equipment or be under the control of a wall switch. It should not be located under the cross-connect field.

If a new DC-powered cabinet is to be added, refer to *DEFINITY® Communications System Generic 1 and Generic 3i—Installation and Tests, 555-230-104*, for DC power requirements.

### Isolator

All peripherals connected to a DC-powered system via the asynchronous EIA-232 interface on the PPN A or B carrier or the EPN Maintenance Board require a 116A isolator. The isolator is inserted at the EIA-232 interface between the peripheral and the interface connector.

**Software**

The G3i software and translations are saved on the TN774 Tape Drive circuit pack just as the G1 software and translations are. Although the G1 translations upgrades automatically to G3i, several features require special attention because of form changes or potential naming conflicts in the upgrade procedure. The following table contains a list of forms that are either changed or new for G3i. The System Implementation Coordinator should check these forms to ensure that after the upgrade is completed that the data is appropriate for the customer's needs. Refer to the *DEFINITY® Communications System Generic 3i—Implementation, 555-230-650* and the *DEFINITY® Communications System Generic 1 and System 75—Administration and Measurement Reports, 555-200-500*, for information to make any required changes.

**TABLE 5-A. G3i Changed/New Administration Forms**

<b>From G1</b>	<b>To G3i</b>
ARS fnpa	ARS Digit Analysis
ARS hnpa	ARS Digit Analysis
Allowed Call List	Toll Analysis
Code Restriction fnpa	Toll Analysis
Code Restriction hnpa	Toll Analysis
Permanent Switched Calls	Administered Connections
RNX Table	AAR Digit Analysis
Ten-Seven Digit Conversion	ARS/AAR Digit Conversion
None (Note 1)	Alias Station
None	Alphanumeric Dialing
None	Call Vector
None	Signaling Group
None	Access Endpoints
None	Vector Directory Number

**Note:** 1. None represents a new form for G3i.

## Hardware Description

### Circuit Packs

Only one circuit pack is required for the basic G3i system upgrades. The other seven will be provided on an optional basis for G3i features, as required by the customer.

The required circuit pack is:

- TN770

A second TN770 Memory circuit pack is required for G3i. It provides the increased memory required by G1. It provides an extra 6 Megabytes of memory.

**WARNING: When upgrading to a G3i system, all TN770 Memory circuit packs in the system must be of vintage 3 or greater.**

The seven optional new circuit packs are:

- TN556

The Integrated Services Digital Network (ISDN) Basic Rate Interface (BRI) circuit pack (TN556) has 12 ports and provides both circuit and packet connectivity for up to 12 BRI (2B+D) endpoints using the 4-wire S/T interface. It also supports up to 24 endpoints in a passive bus arrangement. The circuit pack supports the frame relaying of ISDN Packet Mode data in either the D-channel or one of the B-channels, but G3i software will support only circuit switching of Mode 3 in the B-channel.

The system must be equipped with a Packet Control (TN778) circuit in order to support this circuit pack.

- TN570

The EI circuit pack (TN570) provides the control channel connectivity and the time slot interchanging between the PPN and an EPN cabinet(s). The TN776 EI circuit packs used in G1 provide only TDM bus connectivity, while the TN570 also provides packet bus connectivity between port networks. G3i can continue to support the TN776 for upgrades from G1, while new shipments of G3i can use the TN570. The TN570 is required to connect EPNs and PPNs in an G3i system with packet switching or ISDN BRI.

The system must be equipped with a Packet Control (TN778) circuit in order to support this circuit pack.

- TN726B

The Data Line circuit pack (TN726B) provides eight ports with limited distance modem interfaces for circuit data switching. It supports asynchronous data endpoints and uses the Mode 2 or Mode 3 data transfer protocol.

- TN744

The Call Classifier circuit pack (TN744) provides eight detectors that can be used as either touch tone or call classifier tone detectors. In addition, it detects Special Information Tones (SIT) for network Information/intercept tone detection in the Outbound Call Management (OCM) application. This circuit pack will be optionally provided for OCM applications.

- TN771B

The Maintenance/Test circuit pack (TN771B) performs four maintenance functions: packet bus reconfiguration, Digital Communications Protocol (DCP) Mode 2 endpoint testing, digital trunk testing, and analog trunk testing. The packet bus reconfiguration function allows the Maintenance/Test to diagnose and correct recoverable packet bus failures before the Link Access Procedure D (LAPD) links, using the bus, fail. The digital trunk testing function can originate and terminate loopback tests on 56 and 64 kbps digital facilities and will be used in G3i for ISDN PRI trunk testing. The Maintenance/Test is required for the Duplication Option and for digital trunk testing. Without a Maintenance/Test circuit pack packet bus failures can be detected but automatic recovery is not possible.

- TN778

Direct access between the Switch Processing Element (SPE) and the packet bus is achieved by the Packet Control (TN778) circuit pack. Similar to the PI on the TDM bus, the Packet Control circuit pack provides a generalized protocol processing capability to interface the SPE to the packet bus.

The Packet Control circuit pack is required to support signaling for ISDN BRI, X.25, DDS/NIPM/Analog, and the remote concentrator, and for packet bus maintenance.

- TN780

The TN780 Tone-Clock circuit pack provides all the features and functions of the TN768 Tone-Clock circuit pack and in addition allows connection to an external Stratum 3 synchronizer via the tip/ring field.

## Cabinets

The G3i offers an optional third cabinet. This cabinet, the EPN, enables the system to add one control carrier and up to four more port carriers. This second EPN cabinet is the same cabinet as the first EPN cabinet that was available in a G1 system.

## Software Translation Upgrade

The G3i uses the same format and tape drive as the G1; therefore, it is a simple task to perform the software upgrade. The translations must be saved onto the existing G1 tape. The G1 tape should then be removed and the new G3i tape installed. The translations should then be saved onto the new G3i tape. After the hardware upgrade is completed, the system should be rebooted with the G3i tape. Backup tapes must then be made.

The instructions on how and when to do these operations are included in the "System Upgrades" section of Chapter 2.

## System Upgrades

There are many configurations of the DEFINITY G1 in the field. Each systems software and hardware is uniquely configured. The manner in which the system is upgraded will depend on the present configuration.

If a G1 PPN is being upgraded to a G3i PPN, hardware changes (circuit pack additions) are required. Upgrading a G1 EPN to a G3i EPN requires no hardware changes. If a G1 PPN is upgraded to a G3i EPN, hardware changes (carrier replacement) are required.

If the system upgrade involves adding a new cabinet, refer to *DEFINITY® Communications System Generic 1 and Generic 3i—Installation and Test, 555-230-104*, for the installation procedures.

### G1 PPN Without Duplication to G3i PPN Without Duplication

The G1 PPN Without Duplication is upgraded to the G3i PPN Without Duplication by:

- Adding the second TN770 Memory circuit pack to the control carrier.
- Installing the G3i tape and loading the existing translations onto it.

#### **Prerequisite Hardware**

The equipment in the following table (Table 5-B) **MUST** be on-site before the upgrade is started. Ensure that the tapes are G3i tapes.

**TABLE 5-B. Required Hardware**

Equipment	Description	Quantity
TN770	Memory	1*
J58890TE-1	Tape Cartridge	2

\* TN770 must be of vintage 3 or greater. If the G1 Memory circuit pack is not of vintage 3 or greater, it must be replaced, so you will need to bring 2 circuit packs.

**Required Tools**

The following tools and items may be required during the upgrade:

- Authorized wrist grounding strap
- One copy of each of the following manuals:
  - *DEFINITY® Communications System Generic 1 and Generic 3i—Maintenance, 555-204-105*
  - *DEFINITY® Communications System Generic 1 and System 75—Administration and Measurement Reports, 555-200-500*
  - *DEFINITY® Communications System Generic 3i—Implementation, 555-230-650*

**Save Translations**

1. Login at the G1 Manager I or G3-MT terminal.
2. Enter `save translations`. Press `Return`. This command instructs the system to take all translation information in memory and write it onto the tape.
3. If the system is equipped with a TN750B Announcement circuit pack, the recorded announcements can be saved using the save announcements command. Enter `save announcements`. Press `Return`.
4. Remove the G1 tape, and insert the G3i tape.
5. Enter `save translations`. Press `Return`.
6. Enter `save announcements`. Press `Return`.

**Power Down System**

**WARNING:** If the system being upgraded is a two cabinet system, The power must be turned off in the PPN first, then the EPN.

1. See WARNING. At the power distribution unit, set the main AC circuit breaker to OFF.

**Install Circuit Pack**

**WARNING:** If new features are being added to the system that require the addition of circuit packs, that information is located in the “Additions” section of this manual.

1. See WARNING. At the J58890AH-1 control carrier, install the second TN770 memory circuit pack in the spare slot on the right side of the existing TN770 Memory circuit pack (see Figure 5-1).

**WARNING:** A wrist strap must always be worn, and the clip must be grounded to the cabinet frame being worked on before inserting and removing any circuit pack.



9. Enter `save translations`. Press `Return`.

**Note:** Certain forms have changed for G3i. Data from the G1 may appear on a different form, and fields may be shifted or located in a new position and/or the name assigned to a particular field changed. Refer to Table 6-A and the *DEFINITY® Communications System Generic 1 and System 75—Administration and Measurement Reports, 555-200-500* book, and make the necessary changes.

10. If the system is equipped with a TN750B Announcement circuit pack, the recorded announcements can be saved by using the `save announcements` command. Enter `save announcements`, and press `Return`.

### ***Close Cabinet Doors***

1. Close the front door and secure with the three latches.

### ***Run Acceptance Tests***

Refer to Chapter 8, “Tests,” and perform the appropriate tests.

## **G1 PPN With Duplication to G3i PPN With Duplication**

The G1 PPN With Duplication is upgraded to the G3i PPN With Duplication by:

- Installing the G3i tape in both control carriers and loading the existing translations onto it
- Powering down the system
- Adding the second TN770 Memory circuit pack to the both control carrier A and control carrier B

**WARNING:** When upgrading to a G3i system, all TN770 Memory circuit packs in the system must be of vintage 3 or greater. Replace any TN770 Memory circuit packs that do not meet this requirement with TN770 Memory circuit packs of vintage 3 or greater.

- Powering up the system

### Prerequisite Hardware

The equipment in the following table (Table 5-C) **MUST** be on-site before the upgrade is started. Ensure that the tapes are G3i tapes.

**TABLE 5-C. Required Hardware**

Equipment	Description	Quantity
TN770	Memory	2*
J58890TE-1	Tape Cartridge	4

\* TN770 must be of vintage 3 or greater. If the G1 Memory circuit packs are not of vintage 3 or greater, they must be replaced, so you will need to bring four circuit packs.

### Required Tools

The following tools and items may be required during the upgrade:

- Authorized wrist grounding strap
- One copy of each of the following manuals:
  - *DEFINITY® Communications System Generic 1 and Generic 3i—Maintenance, 555-204-105*
  - *DEFINITY® Communications System Generic 1 and System 75—Administration and Measurement Reports, 555-200-500*
  - *DEFINITY® Communications System Generic 3i—Implementation, 555-230-650*

### Save Translations

1. Login at the G1 Manager I or G3-MT terminal.
2. Enter `save translations`. Press `Return`. This command instructs the system to take all translation information in memory and write it onto the tape.
3. If the system is equipped with a TN750B Announcement circuit pack, the recorded announcements can be saved using the save announcements command. Enter `save announcements`. Press `Return`.
4. Remove the G1 tape, and insert the G3i tape.
5. Enter `save translations`. Press `Return`.
6. Enter `save announcements`. Press `Return`.



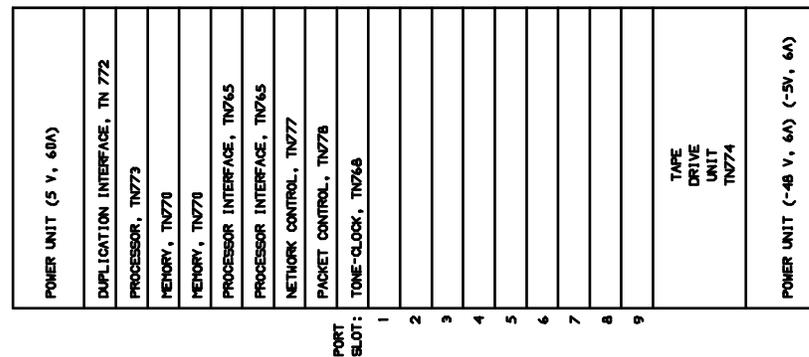


FIGURE 5-3. TN770 Locations in J588890AJ Carrier

### Upgrade System Translations

1. Connect the G1 Manager I or G3-MT terminal to the connector labeled “TERMINAL” on the rear of the “A” cabinet (if required).
2. Insert the new G3i system tape (if required).

**WARNING:** If the system is a multiple network system, the power must be turned on in the EPN first, then the PPN.

3. See WARNING. At the rear of each cabinet on the back of the power supply, set the circuit breaker to ON.
4. The system now goes through the rebooting process, loading the system translations from the tape. Rebooting requires 15 to 20 minutes. Refer to the “System Reboot Indications” section in *DEFINITY® Communications System Generic 1 and Generic 3i—Maintenance, 555-204-105*, for circuit pack LED indications and G1 Manager I or G3-MT terminal displays that occur during system reboot.
5. Login at the `login:` prompt on the G1 Manager I or G3-MT terminal, and set the time to ensure that the system is booted properly.
6. Enter `save translations`. Press `(Return)`. This command instructs the system to take all the translation information in memory and write it onto the tape.
7. If the system is equipped with a TN750B Announcement circuit pack, the recorded announcements can be saved by using the `save announcements` command. Enter `save announcements`, and press `(Return)`.
8. Remove the system tape, and insert the G3i tape to be used as the backup tape.

9. Enter `save translations`. Press `Return`.

**Note:** Certain forms have changed for G3i. Data from the G1 may appear on a different form, and fields may be shifted or located in a new position, and/or the name assigned to a particular field may change. Refer to Table 6-A and the *DEFINITY® Communications System Generic 1 and System 75—Administration and Measurement Reports, 555-200-500* and make the necessary changes.

10. If the system is equipped with a TN750B Announcement circuit pack, the recorded announcements can be saved by using the save announcements command. Enter `save announcements`, and press `Return`.

### ***Close Cabinet Doors***

1. Close the front door, and secure with the three latches.

### ***Run Acceptance Tests***

Refer to Chapter 8, “Tests,” and perform the appropriate tests.

### **G1 PPN Without Duplication to G3i EPN Without Duplication**

The DEFINITY G1 PPN Without Duplication is upgraded to the G3i EPN Without Duplication by:

- Removing the control carrier in position “A”
- Installing the J58890AF-1 control carrier in position “A”
- Adding the G3i circuit packs
- Restructuring the port circuits as required

**Prerequisite Hardware**

The equipment in the following table (Table 5-D) **MUST** be on-site before the upgrade is started. Ensure that the tape is the G3i tape.

**TABLE 5-D. Required Hardware**

<b>Equipment</b>	<b>Description</b>	<b>Quantity</b>
J58890AF-1	Control Carrier	1 (Note 1)
TN775	Maintenance	1
TN768	Tone-Clock	1
TN570	EI	2 or 6 (Notes 2 & 3)
TN776	EI	2 or 6 (Notes 2 & 3)
TN771B	Maintenance Test	1 (Note 4)
J58890TE	Tape Cartridge	2
CFY1	Current Limiter	1
FL2P-P-20	Fiber Cable	1 or 3 (Note 5)
9823-Type	Lightwave transceiver	2 or 6

- Note:**
1. When upgrading to a G3i system, all TN770 Memory circuit packs in the system must be of vintage 3 or greater.
  2. TN570 EI is required for systems with packet bus; otherwise use TN776.
  3. One EI is required in the PPN for each EPN. One EI is required in each EPN for the PPN and one for the other EPN if provided.
  4. Optional.
  5. Two or six are required if PPN and EPN(s) are remotely located.

### **Required Tools**

The following tools and items may be required during the upgrade:

- High-intensity AC drop light or flashlight
- 3/8-inch flat screwdriver with a 10-inch shank (minimum)
- 5/16-inch and 1/4-inch sockets with a ratchet and 10-inch extension
- Power screwdriver (optional)
- Pliers
- Static-proof box or original circuit pack packaging for transporting circuit packs
- Labels for labeling the cables attached to the rear of cabinets and port circuit pack
- Receptacle for holding approximately 100 self-tapping screws
- Twelve spare #12 and #10 self-tapping screws
- Four spare carrier grounding straps
- Authorized wrist grounding strap
- Cabinet air filter (may be required)
- Backplane pin repair kit (KS-22876-L2 or equivalent)
- One copy of each of the following manuals:
  - *DEFINITY® Communications System Generic 1 and Generic 3i—Maintenance, 555-204-105*
  - *DEFINITY® Communications System Generic 1 and System 75—Administration and Measurement Reports, 555-200-500*
  - *DEFINITY® Communications System Generic 3i—Implementation, 555-230-650*

### **Label Cables**

1. To make reconnecting the cables easier and to ensure they are properly reconnected, label both ends of the connector cables associated with the carrier to be removed (if not already labeled).

### ***Power Down System***

1. At the power distribution unit, set the main AC circuit breaker to OFF.

### ***Remove Door and Panels and Disconnect Cables***

1. Remove the front door from the cabinet (if desired).
2. With the cable retainer in front of you and the part number visible (4B or 4C), locate the slot that is almost vertical. This slot is adjacent to the part number. Insert a flat blade screwdriver with a wide blade (1/4-inch recommended) into the slot. Twist the screwdriver while the blade is in the slot. The retainer will snap open easily, and the cable can be removed.
3. At the cabinet, disconnect previously labeled cables associated with the carrier to be removed.
4. At the rear of the cabinet, remove the top three panels (positions A, B, and C) and the bottom panel. There are two types of screws holding the back panels to the cabinet. The #10 screws can be removed with a screwdriver or a 1/4-inch socket. The #12 screws can be removed with a screwdriver or a 5/16-inch socket.

### ***Remove Circuit Packs From Carrier "A"***

1. To ensure circuit packs and power units are properly replaced, label all port circuit packs and power units in the "A" carrier.
2. See WARNING. Remove all circuit packs and power units from carrier "A." Store the circuit packs in the static-proof box.

**WARNING:** A wrist strap must always be worn, and the clip must be grounded to the cabinet frame being worked on before inserting and removing any circuit pack.

3. Remove circuit pack blanks from slots not equipped with circuit packs.
4. Remove the front trim plate from the "A" carrier by pulling straight off.

**Remove the "A" Carrier**

1. See CAUTION and Note. Disconnect the TDM/LAN bus between the "A" and "B" carriers from the "A" carriers (see Figure 5-4).
2. See CAUTION and Note. Disconnect the TDM/LAN bus between the "A" and "D" carriers from the "A" carrier (see Figure 5-4).

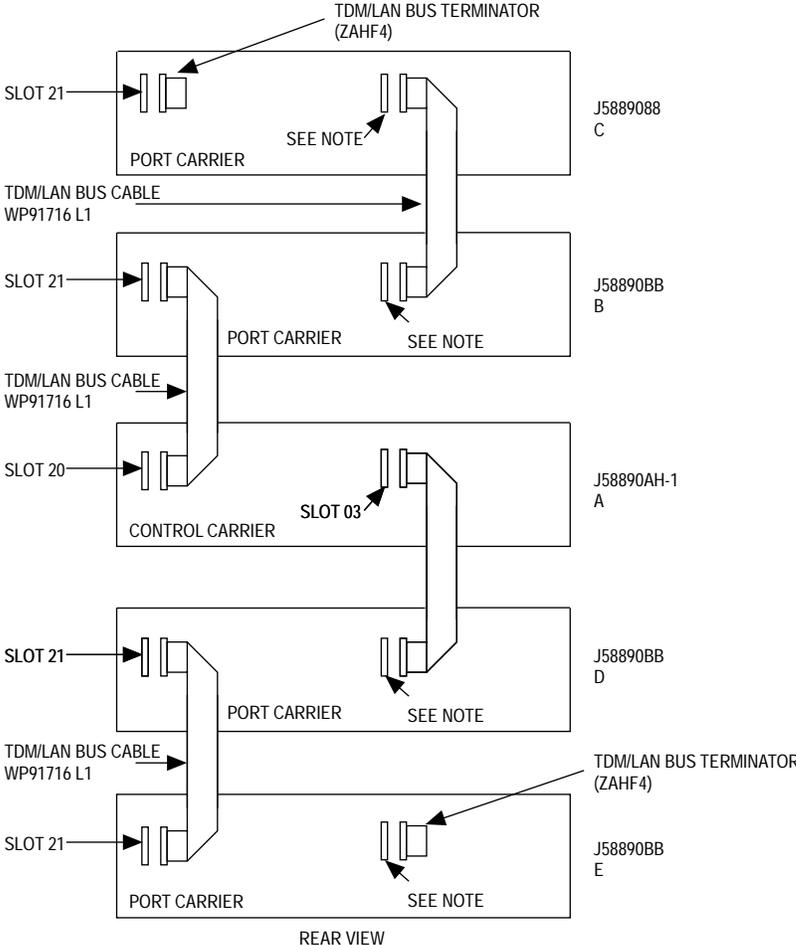
**CAUTION:** When removing the TDM/LAN cables, care should be taken to ensure that none of the short pieces of shrink tubing on the four corner pins of the connector come off.

**Note:** Note the position of the cable before disconnecting the TDM/LAN cables.

3. Disconnect the eight ground straps between the "A" and "B" carriers from the "A" carrier (see Figure 5-5). These straps will be reconnected to the new "A" carrier.
4. Disconnect the eight ground straps between the "A" and "D" carriers from the "A" carrier (see Figure 5-5). These straps will be reconnected to the new "A" carrier.
5. Disconnect the "P1" (small 9-pin) connector and the "P2" (large 37 pin) connector from the "A" carrier (See Figure 5-6). Move the cables into a position where they will not interfere with removing the carrier.
6. Remove the fan trim plate by pulling straight off.
7. Clean or replace the air filter if necessary.
8. Remove the four screws (top two first) holding the "A" carrier to the cabinet frame. Use a long handle screwdriver or 5/16-inch socket with a 10-inch extension.
9. See CAUTION. Slide the carrier forward 1 to 2 inches; then from the back, check that no cables or wire harnesses are caught on any cabinet/carrier framework in such a manner that they could be damaged.

**CAUTION:** Cables and wiring harnesses can be damaged if they catch on framework and too much pressure is used in removing the carrier.

10. Remove the carrier by sliding it out the front of the cabinet.



NOTE:  
ON PORT CARRIER J58890BB-1, CONNECT THE TDM CABLE OR TDM TERMINATOR TO SLOT 02. ON PORT CARRIERS J58890BB-2 OR J58890BB-3, CONNECT THE TDM CABLES OR TDM TERMINATOR TO SLOT 01. IF THE PORT CARRIER HAS J58890BB-1 AND J58890BB-2 STENCILLED ON IT, TREAT IT AS A J58890BB-1.

FIGURE 5-4. G1 TDM/LAN Bus Wiring Diagram—Rear View

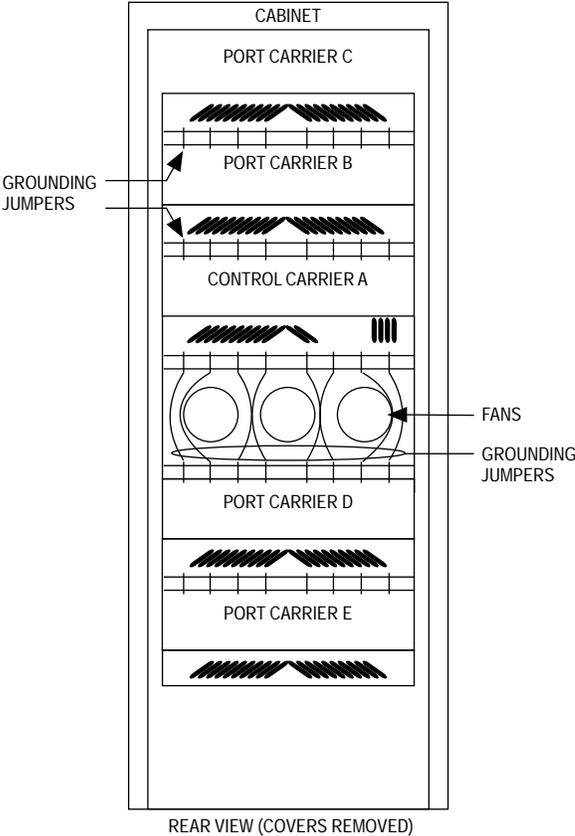


FIGURE 5-5. Grounding Jumper Locations

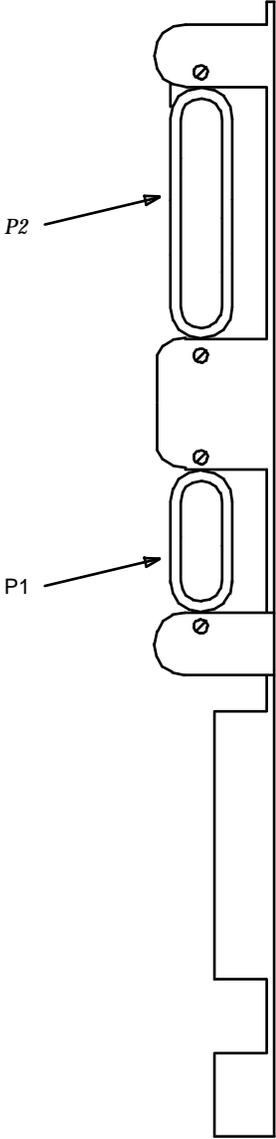


FIGURE 5-6. P1 and P2 Cable Locations

**Install the New "A" Position Carrier**

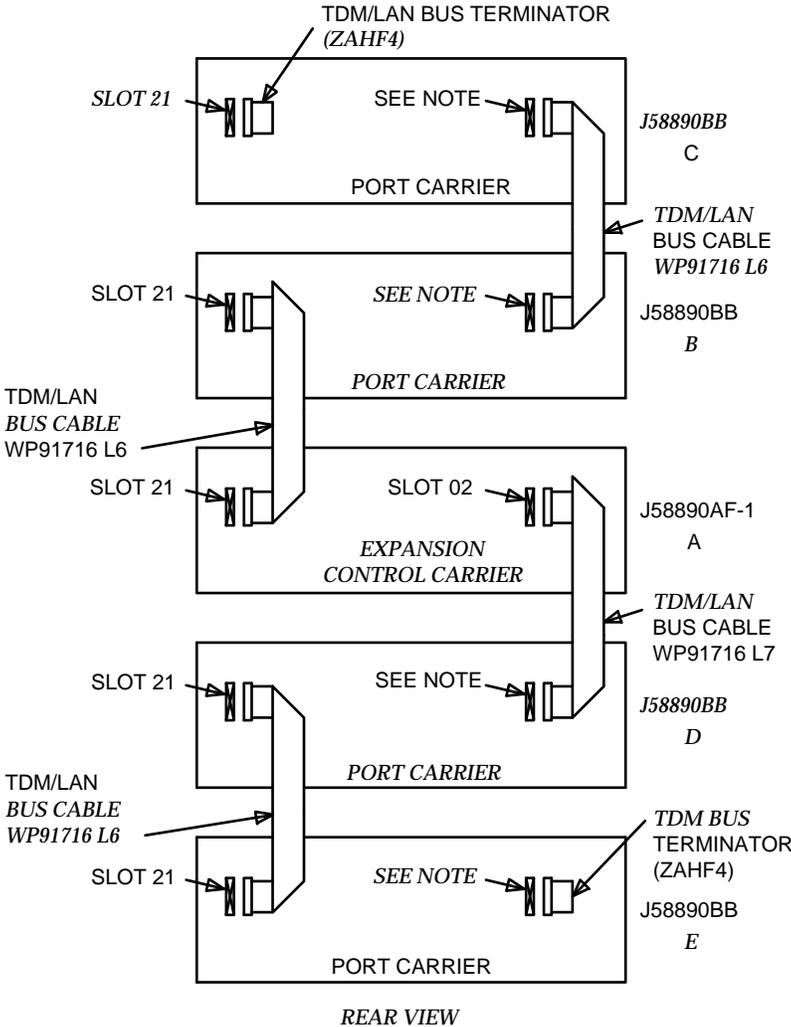
1. Visually inspect the carrier for any damage. Verify the backplane pins are not bent.
2. At the rear connector panel, determine which connectors will have connector cables connected and install the 4B cable retainers on these connectors.
3. Install the J58890AF-1 control carrier in position "A" by lining up the plastic alignment tips on the top rear of the carrier with the screw holes in the cabinet. These alignment tips will support the carrier while the screws are being replaced. Ensure that the power cords are properly placed in the slots in the sides of the carrier.
4. See CAUTION. Fasten the carrier into position with four self-tapping screws saved from the removal of the old carrier.

**CAUTION:** Carefully realign the threads on the self-tapping screws by turning them clockwise a turn or two before tightening them to avoid stripping the threads out of the framework.

5. Connect the "P2" and "P1" (large and small) connectors to the "A" carrier (see Figure 5-6). To get enough slack in the cables, cut the tie wrap holding the intercabinet cables from the upright in the area being installed. Snap the connector lock into place to ensure the connection is properly made.
6. Connect the ground straps from the "B" carrier to the new "A" carrier (see Figure 5-5). These straps were left connected to the "B" carrier when the old "A" carrier was removed.
7. Connect the ground straps from the "D" carrier to the new "A" carrier (see Figure 5-5). These straps were left connected to the "D" carrier when the old "A" carrier was removed.
8. Connect the TDM/LAN bus cables between the "A" and "D" carriers (see Figure 5-7 and Table 5-E). The cable is connected to the "A" carrier to the block marked "TDM" on the right side of the carrier. The cable was left connected to the "D" carrier when the old carrier was removed.
9. Connect the TDM/LAN bus cables between the "A" and "B" carriers (see Figure 5-7 and Table 5-E). The cable is connected to the "A" carrier to the block marked "TDM" on the left side of the carrier. The cable was left connected to the "B" carrier when the old carrier was removed.

**TABLE 5-E. TDM/LAN Cable Connections**

"J" Number	Carrier Type	LHS Slot	RHS Slot
J58890BB-1	Port	21	02
J58890BB-2	Port	21	01
J58890BB-3	Port	21	01
J58890AF-1	EPN Control "A"	21	02



**NOTE:**  
ON PORT CARRIER J58890BB-1, CONNECT THE TDM CABLE OR TDM TERMINATOR TO SLOT 02. ON PORT CARRIERS J58890BB-2 AND J58890BB-3, CONNECT THE TDM CABLES TO SLOT 01.

**FIGURE 5-7. G3i EPN TDM/LAN Cable Connections**

10. Install the front trim plates on the “A” carrier. Install the fan trim plate.
11. Install the power units (removed from G1) into the “A” carrier. There are four different pairs of power units available. They are the 631AR1 and 631BR1, the 631WA1 and 631WB1, the 631DA1 and 631DB1, and the 644A and 645B. Do not interchange the units. The 631AR1, 631WA1, 631DA1, or 644A are installed in the left side, while the 631BR1, 631WB1, 631DB1, or 645B are installed in the right side (see Figure 5-8).
12. If the system is equipped with the 631BR1, 631WB1, or 645B, install the TN736 power unit on the right side of the carrier adjacent to the 631BR1, 631WB1, or 645B. If the system is equipped for neon message waiting, a TN752 or TN755B power unit must be used.

**Note:** The TN736 is not required when the 631DB1 or 645B power unit is used in the J58890AF-1 control carrier or the J58890BB-2 or J58890BB-3 port carriers. It is required in the J58890BB-1 port carrier regardless of which 631 power unit is provided. Use the TN752 or TN755B if the system is equipped with neon message waiting.

13. Install the CFY1 current limiter (CURL) on the “A” carrier to the block marked “CURL.” The CURL is inserted with the components on the left side as viewed from the rear.
14. Connect the power cords to the power units. The power leads are the white cables equipped with plugs that are run through the slots in the front of each carrier (see Figure 5-9).

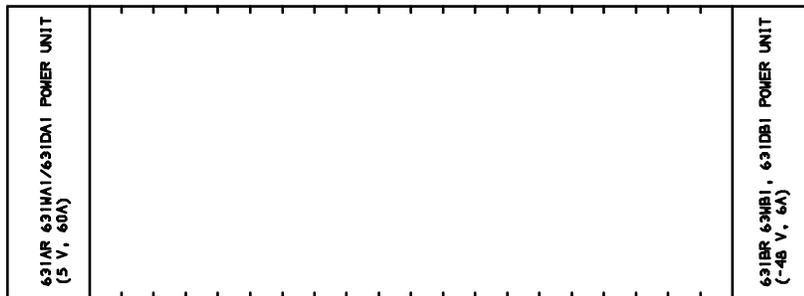


FIGURE 5-8. Power Unit Locations

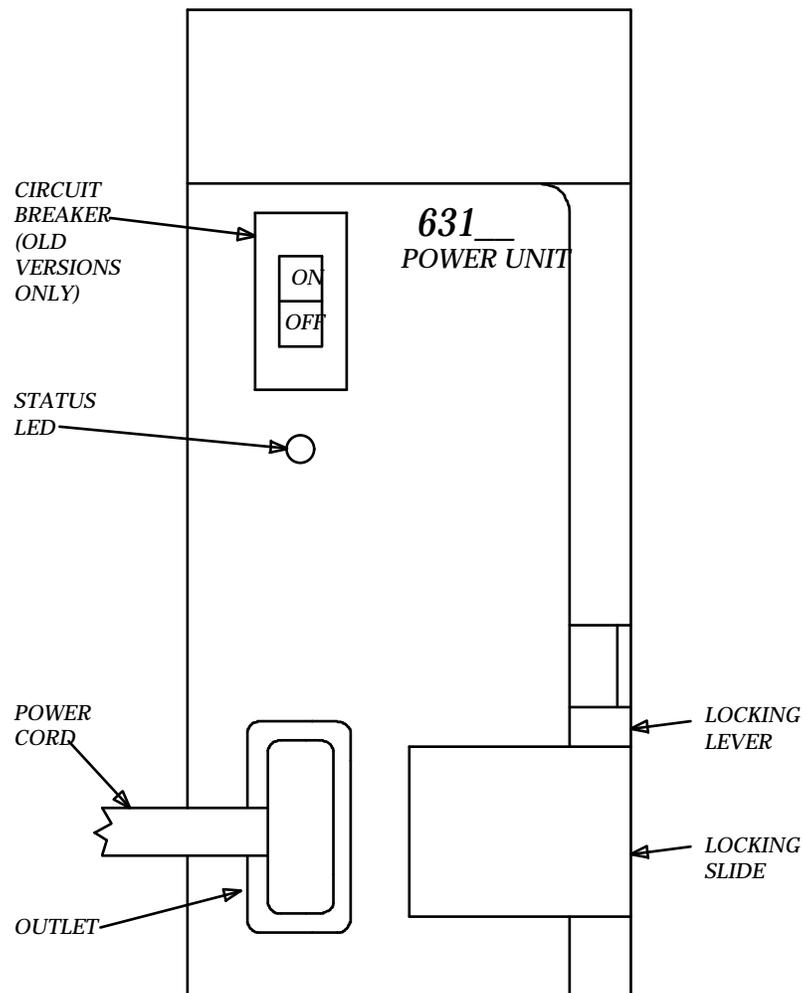


FIGURE 5-9. 631-Type Power Unit

### ***Install Circuit Packs***

1. See WARNING. Install the new G3i circuit packs into carrier "A." Use the new decal and upgrade configuration document, provided with the equipment, as a guide.

**WARNING:** A wrist strap must always be worn, and the clip must be grounded to the cabinet frame being worked on before inserting and removing any circuit pack.

2. See preceding WARNING and the following Note. Install the port circuit packs previously removed into the “A” carrier using the decal and upgrade configuration document, provided with the equipment, as a guide.

**Note:** Because of differences in the number of port slots available in the new carrier, one port circuit may require moving. If this was not performed before the upgrade, install the circuit pack now. The port circuit will have to be translated after the system is rebooted with the G3i tape.

3. Install circuit pack blanks in slots not equipped with circuit packs.
4. Ensure that the PPN associated with this EPN is equipped with a TN776. If the cabinet being upgraded is the second EPN, ensure that the existing EPN has two TN776s and that the PPN has two TN776s.

### ***Connect Fiber-Optic Cable—Systems without Duplication***

For systems with one EPN, one fiber-optic cable (FL2P-P-20) and two lightwave transceivers (9823-type) are required for EPN connections without the Duplication Option if the EPN and PPN are collocated. When the EPN cabinet is installed remotely from the PPN cabinet, two fiber-optic cables (FL2P-P-20), two lightwave transceivers (9823-type), and two lightwave interface units (provided by the PSC) are required.

For systems with two EPNs, three fiber-optic cables (FL2P-P-20) and six lightwave transceivers (9823-type) are required for EPN connections without the Duplication Option if the EPNs and PPN are collocated. When the EPN cabinets are installed remotely from the PPN cabinet, six fiber-optic cables (FL2P-P-20), six lightwave transceivers (9823-type), and four lightwave interface units (provided by the PSC) are required.

#### *Collocated*

For Systems with one EPN, route the cables and make the connections using Figures 5-10 and 5-11.

For Systems with two EPNs, route the cables and make the connections using Figures 5-24, 5-25, 5-26, and 5-27.

#### *Remote*

For System with one EPN, route the cables and make the connections using Figure 5-24 and 5-28.

For systems with two EPNs, route the cables and make the connections using Figures 5-24, 5-28, 5-29, and 5-30.

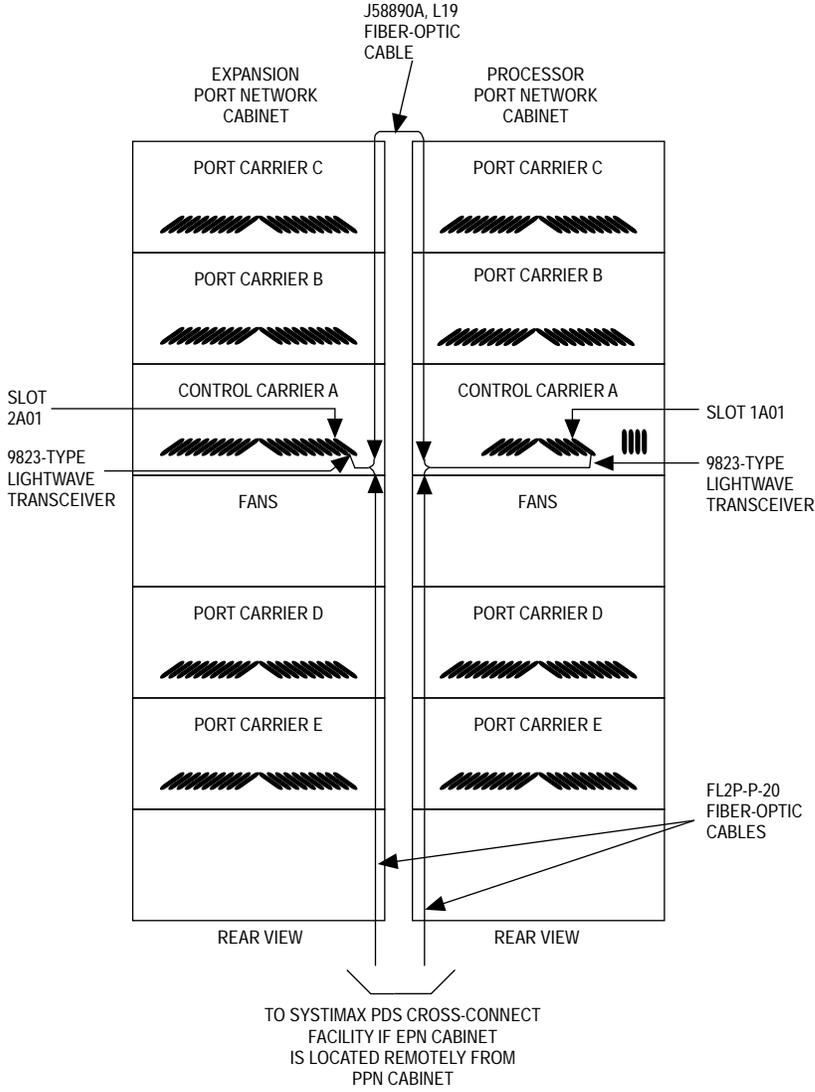
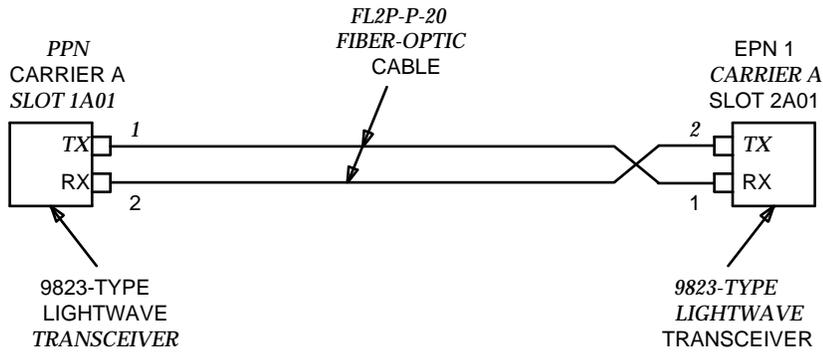
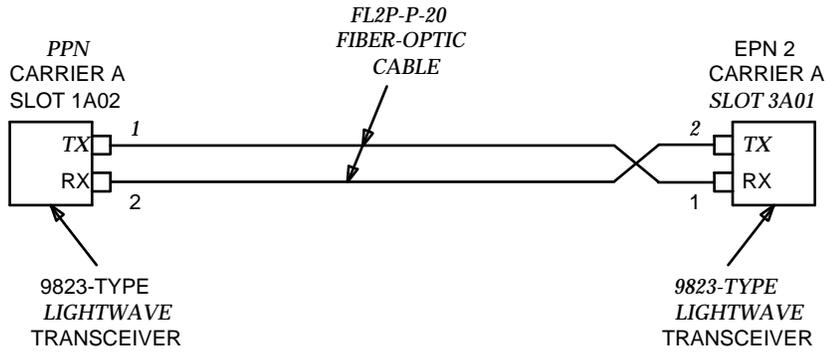


FIGURE 5-10. G3i EPN Fiber-Optic Cable Routing Without Duplication



**FIGURE 5-11. Fiber-Optic Connections PPN to EPN1**



**FIGURE 5-12. Fiber-Optic Connections PPN to EPN2**

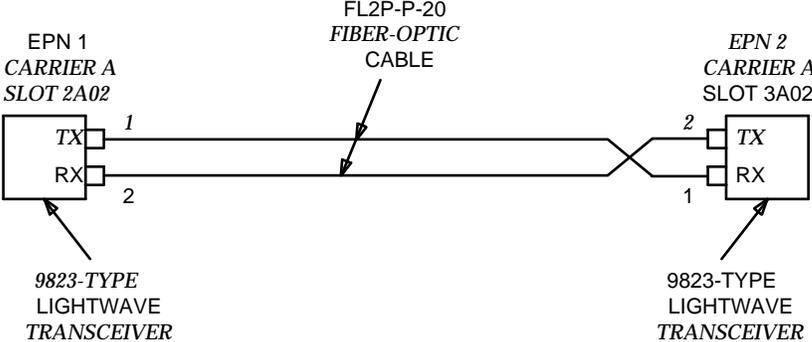


FIGURE 5-13. Fiber-Optic Connections EPN1 to EPN2

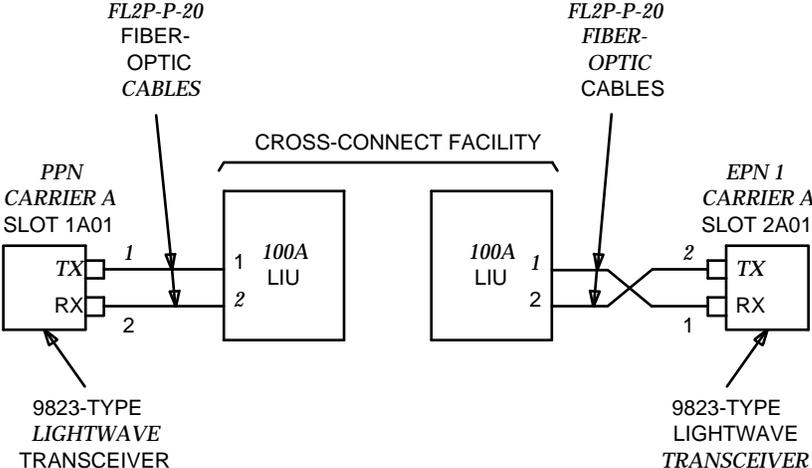
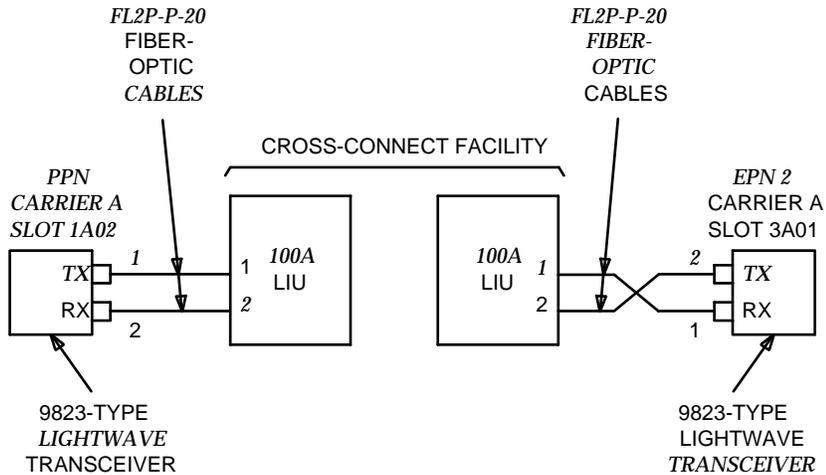
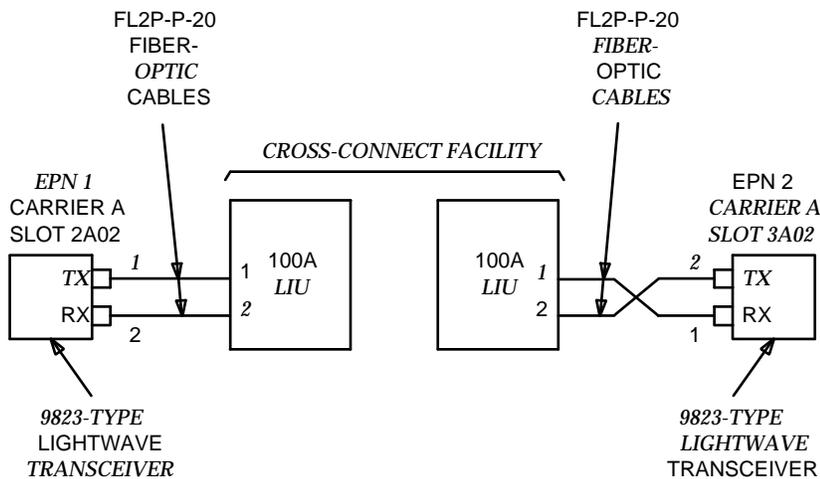


FIGURE 5-14. Fiber-Optic Connections PPN to EPN1



**FIGURE 5-15. Fiber-Optic Connections PPN to EPN2**



**FIGURE 5-16. Fiber-Optic Connections EPN1 to EPN2**

**Secure Fiber-Optic Cables**

1. Secure the fiber-optic cable (with cable ties) against the cable tray wall at the cable tie positions built into the tray.
2. At the top of the cabinet, coil the surplus length of fiber-optic cable. Secure the cable against the cable tray wall with cable ties.

## Upgrade System Translations

1. Connect the G1 Manager I or G3-MT terminal to the connector labeled “TERMINAL” on the rear of the “A” cabinet (if required).
2. Insert the new G3i system tape (if required).

**WARNING:** If the system is a multiple network system, the power must be turned on in the EPN first, then the PPN.

3. See WARNING. At the rear of each cabinet on the back of the power supply, set the circuit breaker to ON.
4. The system now goes through the rebooting process, loading the system translations from the tape. Rebooting requires 15 to 20 minutes. Refer to the “System Reboot Indications” section in *DEFINITY® Communications System Generic 1 and Generic 3i—Maintenance, 555-204-105*, for circuit pack LED indications and G1 Manager I or G3-MT terminal displays that occur during system reboot.
5. Login at the `login:` prompt on the G1 Manager I or G3-MT terminal, and set the time to ensure that the system is booted properly.
6. Enter `save translations`. Press . This command instructs the system to take all the translation information in memory and write it onto the tape.
7. If the system is equipped with a TN750B Announcement circuit pack, the recorded announcements can be saved by using the save announcements command. Enter `save announcement` and press .
8. Remove the system tape and insert the G3i tape to be used as the backup tape.
9. Enter `save translations`. Press .

**Note:** Certain forms have changed for G3i. Data from the G1 may appear on a different form, fields may be shifted or located in a new position, and/or the name assigned to a particular field may change. Refer to Table 6-A and the *DEFINITY® Communications System Generic 1 and System 75—Administration and Measurement Reports, 555-200-500*, and make the necessary changes.

10. If the system is equipped with a TN750B Announcement circuit pack, the recorded announcements can be saved by using the save announcements command. Enter `save announcements`, and press .

### ***Close Up Cabinet and Reconnect Cables***

1. At the PPN power distribution unit, set the main circuit breaker to OFF.
2. At the EPN power distribution unit, set the main circuit breaker to OFF.
3. Label and disconnect the lightwave transceiver and fiber cables from the appropriate carriers.
4. Replace all back panels previously removed.
5. At the cabinet, reconnect the lightwave transceiver and fiber cables and the connector cables associated with the carrier being replaced.
6. Install the front door on the cabinet if previously removed.

### ***Power Up the System***

1. At the EPN power distribution unit, set the main circuit breaker to ON.
2. At the PPN power distribution unit, set the main circuit breaker to ON.
3. The system now goes through the rebooting process, loading the system translations on the tape. Rebooting requires 15 to 20 minutes. Refer to the “System Reboot Indications” section in *DEFINITY® Communications System Generic 1 and Generic 3i—Maintenance, 555-204-105*, for circuit pack LED indications and G1 Manager I or G3-MT terminal displays that occur during the system reboot.
4. After the system reboot is finished and all trouble is cleared, verify that the EMERGENCY TRANSFER CONTROL switch is set to AUTO. This restores the system to the normal mode.

### ***Retranslate Port Circuits***

If port circuit packs had to be moved because of slot limitations in the new carrier, and they were not moved and retranslated before the original tape was updated and sent to the TSC or NTSO, they must be retranslated now. Refer to *DEFINITY® Communications System Generic 1 and System 75—Administration and Measurement Reports, 555-200-500* for instructions on performing the retranslations.

### ***Run Acceptance Tests***

Refer to Chapter 8, “Tests,” and perform the appropriate tests.

### **Upgrade G1 PPN to G3i EPN With Duplication**

The G1 PPN is upgraded to the G3i EPN With Duplication by:

- Removing the control carrier in position “A”
- Installing the J58890AF-1 control carrier in position “A”
- Removing the control carrier in position “B”
- Installing the J58890BB-3 port carrier in position “A”
- Adding the G3i circuit packs
- Restructuring the port circuits as required

**Prerequisite Hardware**

The equipment in the following table (Table 5-F) **MUST** be on-site before the upgrade is started.

**TABLE 5-F. Required Hardware**

<b>Equipment</b>	<b>Description</b>	<b>Quantity</b>
J58890AF-1	Control Carrier	1 (Note 1)
J58890BB-3	Port Carrier	1
TN775	Maintenance	1
TN768	Tone-Clock	2
TN570	EI	4 or 12 (Notes 2 & 3)
TN776	EI	4 or 12 (Notes 2 & 3)
CFY1	Current Limiter	1
H-600-204 G1	ICC	2
FL2P-P-20	Fiber Cable	2 or 6 (Note 4)
ZAHF4	TDM Bus terminator	2
9823-Type	Lightwave transceiver	4 or 12

- Note:**
1. When upgrading to a G3i system, all TN770 Memory circuit packs in the system must be of vintage 3 or greater.
  2. TN570 EI is required for systems with packet bus, otherwise use TN776.
  3. Two EIs are required in the PPN for each EPN. Two EIs are required in each EPN for the PPN and the other EPN, if provided.
  4. Four or 12 are required if the EPN and PPN are remotely located.

**Required Tools**

The following tools and items may be required during the upgrade:

- High-intensity AC drop light or flashlight
- 3/8-inch flat screwdriver with a 10-inch shank (minimum)
- 5/16-inch and 1/4-inch sockets with a ratchet and 10-inch extension
- Power screwdriver (optional)
- Pliers
- Static-proof box or original circuit pack packaging for transporting circuit packs
- Labels for labeling the cables attached to the rear of cabinets and port circuit pack
- Receptacle for holding approximately 100 self-tapping screws
- Twelve spare #12 and #10 self-tapping screws
- Four spare carrier grounding straps
- Authorized wrist grounding strap
- Cabinet air filter (may be required)
- Backplane pin repair kit (KS-22876-L2 or equivalent)
- One copy of each of the following manuals:
  - *DEFINITY® Communications System Generic 1 and Generic 3i—Maintenance, 555-204-105*
  - *DEFINITY® Communications System Generic 1 and System 75—Administration and Measurement Reports, 555-200-500*
  - *DEFINITY® Communications System Generic 3i—Implementation, 555-230-650*

**Label Cables**

1. To make reconnecting the cables easier and to ensure they are properly reconnected, label both ends of the connector cables associated with the carrier to be removed (if not already labeled).

**Power Down System**

1. At the power distribution unit, set the main AC circuit breaker to OFF.

***Remove Door and Panels and Disconnect Cables***

1. Remove the front door from the cabinet (if desired).
2. With the cable retainer in front of you and the part number visible (4B or 4C), locate the slot that is almost vertical. This slot is adjacent to the part number. Insert a flat blade screwdriver with a wide blade (1/4-inch recommended) into the slot. Twist the screwdriver while the blade is in the slot. The retainer will snap open easily, and the cable can be removed.
3. Disconnect previously labeled cables associated with the carrier to be removed.
4. At the rear of the cabinet, remove the top three panels or rear doors (positions A, B, and C) and the bottom panel. There are two types of screws holding the back panels to the cabinet. The #10 screws can be removed with a screwdriver or a 1/4-inch socket. The #12 screws can be removed with a screwdriver or a 5/16-inch socket.

***Remove Circuit Packs From Carriers "A" and "B"***

1. To ensure the circuit packs and power units are properly replaced, label all port circuit packs and power units in the "A" and "B" carriers.
2. See WARNING. Remove all circuit packs from carrier "A." Store the circuit packs in the static-proof box.
3. See WARNING. Remove all circuit packs from carrier "B." Store the circuit packs in the static-proof box.

**WARNING:** A wrist strap must always be worn, and the clip must be grounded to the cabinet frame being worked on before inserting and removing any circuit pack.

4. Disconnect the power leads from the "B" carrier.
5. Remove the circuit pack blanks from the slots which are not equipped with circuit packs.
6. Remove the front trim plate from the "B" carrier by pulling straight off. Then remove front trim plate from the "A" carrier.

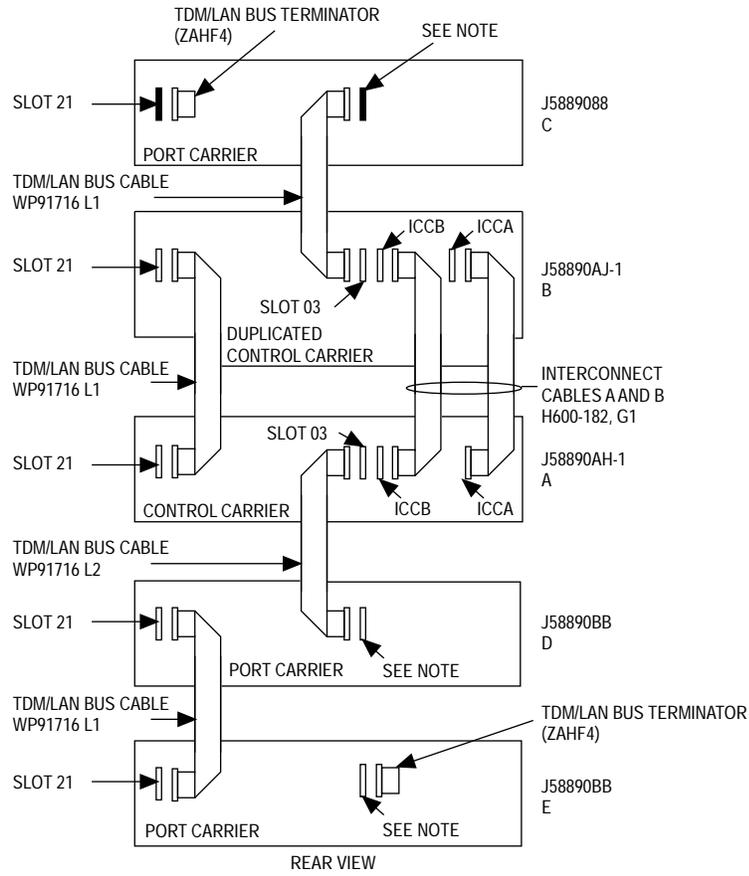
**Remove the "A" and "B" Carriers**

1. See the following CAUTION and Note. Disconnect the TDM/LAN bus between the "A" and "B" carriers from the "A" and "B" carriers (see Figure 5-17). Retain these cables as they will be reused.
2. See CAUTION and Note. Disconnect the TDM/LAN bus between the "A" and "D" carriers from the "A" carrier (see Figure 5-17). Leave the cable connected to the "D" carrier and move into a position that it will not interfere with removing the "A" carrier.
3. See CAUTION and Note. Disconnect the TDM/LAN bus between the "B" and "C" carriers from the "B" carrier (see Figure 5-17). Leave the cable connected to the "C" carrier and move into a position that it will not interfere with removing the "B" carrier.

**CAUTION:** When removing the TDM/LAN cables, care should be taken to ensure that none of the short pieces of shrink tubing on the four corner pins of the connector come off.

**Note:** Note the position of the TDM/LAN cable before disconnecting.

4. Disconnect the eight ground straps between the "A" and "B" carriers from the "A" and "B" carriers (see Figure 5-18). Retain these straps as they will be used to connect to the new "A" and "B" carriers.
5. Disconnect the eight ground straps between the "A" and "D" carriers from the "A" carrier (see Figure 5-18). These straps will be used to connect to the new "A" carrier.
6. Disconnect the eight ground straps between the "B" and "C" carriers from the "A" carrier (see Figure 5-18). These straps will be used to connect to the new "A" carrier.
7. Disconnect the "P1" (small 9-pin) connector and the "P2" (large 37 pin) connector from the "A" carrier (see Figure 5-19). Move the cables into a position where they will not interfere with removing the carrier.
8. Slide the latch up, and disconnect the "P1" (small 9 pin) connector from the "B" carrier (see Figure 5-19). Move the cable into a position where it will not interfere with removing the carrier.
9. Disconnect and remove the ICC cables (see Figure 5-17). They will not be reused.



NOTE:

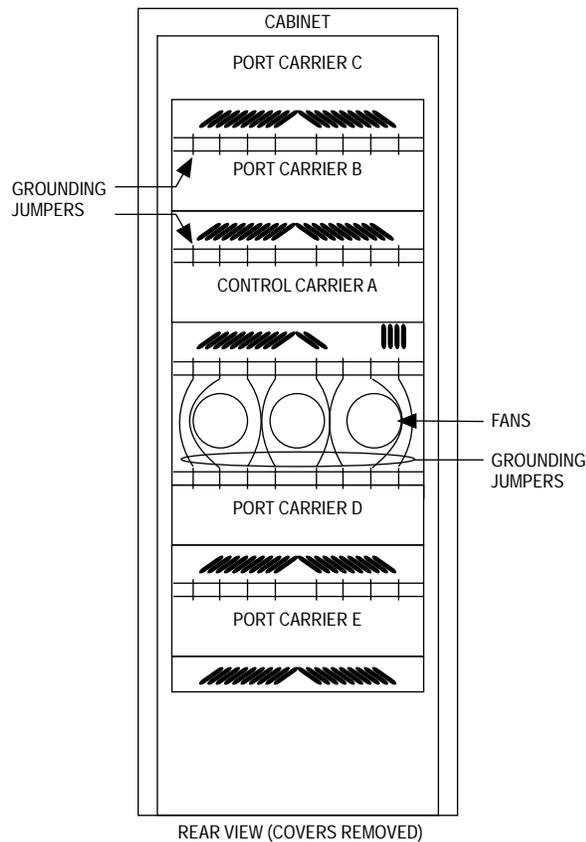
ON PORT CARRIER J58890BB-1, CONNECT THE TDM CABLE OR TDM TERMINATOR TO SLOT 02. ON PORT CARRIERS J58890BB-2 AND J58890BB-3, CONNECT THE TDM CABLES OR TDM TERMINATOR TO SLOT 01. IF THE PORT CARRIER HAS J58890BB-1 AND J58890BB-2 STENCILLED ON IT, TREAT IT AS A J58890BB-1.

FIGURE 5-17. G1 PPN TDM/LAN Connections

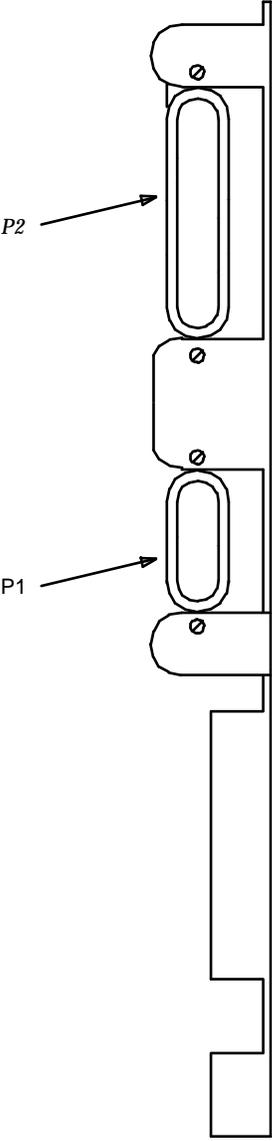
10. Remove the fan trim plate by pulling straight off.
11. Clean or replace the air filter if necessary.
12. Remove the four screws (top two first) holding the “A” carrier to the cabinet frame. Use a long handle screwdriver or 5/16-inch socket with a 10-inch extension.
13. See CAUTION. Slide the carrier forward 1 to 2 inches; then, from the back check that no cables or wire harnesses are caught on any cabinet/carrier framework in such a manner that they could be damaged.

**CAUTION:** Cables and wiring harnesses can be damaged if they catch on framework and too much pressure is used in removing the carrier.

14. Remove the carrier by sliding it out the front of the cabinet.
15. Repeat Steps 12 through 14 for the “B” carrier.



**FIGURE 5-18. Grounding Jumper Locations**



**FIGURE 5-19. P1 and P2 Cable Locations**

**Install the New "A" and "B" Position Carriers**

1. Visually inspect the carrier for any damage. Verify the backplane pins are not bent.
2. At the rear connector panel, determine which connectors will have connector cables connected, and install the 4B cable retainers on those connectors.
3. Install the J58890AF-1 control carrier in position "A" by lining up the plastic alignment tips on the top rear of the carrier with the screw holes in the cabinet. These alignment tips will support the carrier while the screws are being replaced. Ensure that the power cords are properly placed in the slots in the sides of the carrier.
4. See CAUTION. Fasten the carrier into position with four self-tapping screws saved from the removal of the old carrier.

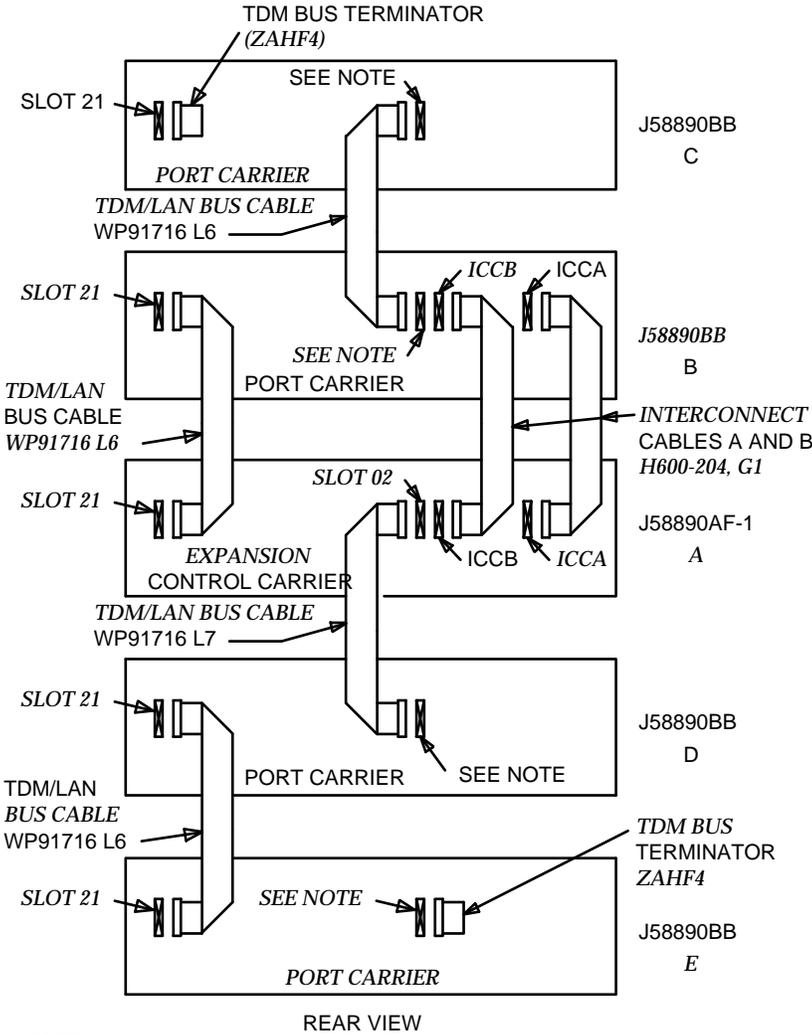
**CAUTION: Carefully realign the threads on the self-tapping screws by turning them clockwise a turn or two before tightening them to avoid stripping the threads out of the framework.**

5. Install the J58890BB-3 port carrier in position "B" by lining up the plastic alignment tips on the top rear of the carrier with the screw holes in the cabinet. These alignment tips will support the carrier while the screws are being replaced. Ensure that the power cords are properly placed in the slots in the sides of the carrier.
6. See CAUTION. Fasten the carrier into position with four self-tapping screws saved from the removal of the old carrier.
7. Connect the "P2" and "P1" (large and small) connectors to the "A" carrier. To get enough slack in the cables, cut the tie wrap holding the intercabinet cables from the upright in the area of the carrier being installed. Snap the connector lock into place to ensure the connection is properly made (see Figure 5-19).
8. Connect the "P1" (small) connector to the "B" carrier. To get enough slack in the cables, cut the tie wrap holding the intercabinet cables from the upright in the area of the carrier being installed. Snap the connector lock into place to ensure the connection is properly made (see Figure 5-19).
9. Connect the ground straps from the "D" carrier to the new "A" carrier (see Figure 5-18). These straps were left connected to the "D" carrier.
10. Connect the ground straps from the "C" carrier to the new "B" carrier (see Figure 5-18). These straps were left connected to the "C" carrier.
11. Connect the ground straps between the new "A" and "B" carriers (see Figure 5-18). These straps were removed from the old carriers when they were removed.
12. Connect the TDM/LAN bus cables between the "A" and "D" carriers (see Figure 5-20 and Table 5-G). The cable is connected to the "A" carrier to the block marked "TDM" on the right side of the carrier. The cable was left connected to the "D" carrier when the old carrier was removed.
13. Connect the TDM/LAN bus cables between the "B" and "C" carriers (see Figure 5-20 and Table 5-G). The cable is connected to "B" carrier to the block marked "TDM" on the right side of the carrier. The cable was left connected to the "C" carrier when the old carrier was removed.

- 14. Connect the TDM/LAN bus cables between the “A” and “B” carriers (see Figure 5-20 and Table 5-G). The cable is connected to “A” carrier to the block marked TDM on the left side of the carrier. The cable is connected to the “B” carrier to the block marked “TDM” on the left side of the carrier.

**TABLE 5-G. TDM/LAN Cable Connections**

“J” Number	Carrier Type	LHS Slot	RHS Slot
J58890BB-1	Port	21	02
J58890BB-2	Port	21	01
J58890BB-3	Port	21	01
J58890AF-1	EPN Control “A”	21	02



**NOTE:**  
 ON PORT CARRIER J58890BB-1, CONNECT TDM CABLE ADAPTER OR TDM TERMINATOR TO SLOT 02. ON PORT CARRIERS J58890BB-2 AND J58890BB-3, CONNECT THE TDM CABLE ADAPTERS OR TDM TERMINATOR TO SLOT 01.

**FIGURE 5-20. G3i EPN TDM/LAN Cable Connections**

15. Install the front trim plates, first on the “A” carrier and then the “B” carrier.
16. See CAUTION. Install the ICC cables (H600-204 G1) between carriers “A” and “B.” Connect the cables to the “ICC” block on both carriers (see Table 5-H and Figures 5-20 and 5-21). The cable is installed so that the dark (red, blue, or purple depending on the supplier) colored stripe is on the bottom at both ends.

**CAUTION:** The ICC cable connectors can be installed so that the backplane pins can be bent. Use extreme caution to ensure the pins are not bent. Double check all connections to verify pins aren’t bent.

17. Install the CFY1 current limiter (CURL) on the “A” carrier to the block marked “CURL.” The curl is inserted with the components on the left as viewed from the rear of the cabinet.
18. Install the power units (removed from G1) into the “A” carrier. There are four different pairs of power units available. They are the 631AR1 and 631BR1, the 631WA1 and 631WB1, the 631DA1 and 631DB1, and the 644A and 645B. Do not interchange the units. The 631AR1, 631WA1, 631DA1 or 644A are installed in the left side, while the 631BR1, 631WB1, 631DB1 or 645B are installed in the right side (see Figure 5-22).
19. If the system is equipped with the 631BR1, 631WB1, or 645B, install the TN736 power unit on the right side of carrier adjacent to the 631BR1, 631WB1, or 645B. If the system is equipped for neon message waiting, a TN752 or TN755B power unit must be used.

**Note:** The TN736 is not required when the 631DB1 or 645B power unit is used in the J58890AH-1 control carrier or the J58890BB-2 or J58890BB-3 port carriers. It is required in the J58890BB-1 port carrier regardless of which 631 power unit is provided. Use the TN752 or TN755B if the system is equipped with neon message waiting.

20. Connect the power cords to the power units. The power cords are the white cables equipped with plugs that are run through the slots in the front of each carrier (see Figure 5-23).

**TABLE 5-H. Intercabinet Cable Connections**

Connect ICC Cables				
	From		To	
	Carrier	CONN	Carrier	CONN
PPN	J58890AH-1	ICCA ICCB	J58890AJ-1	ICCA ICCB



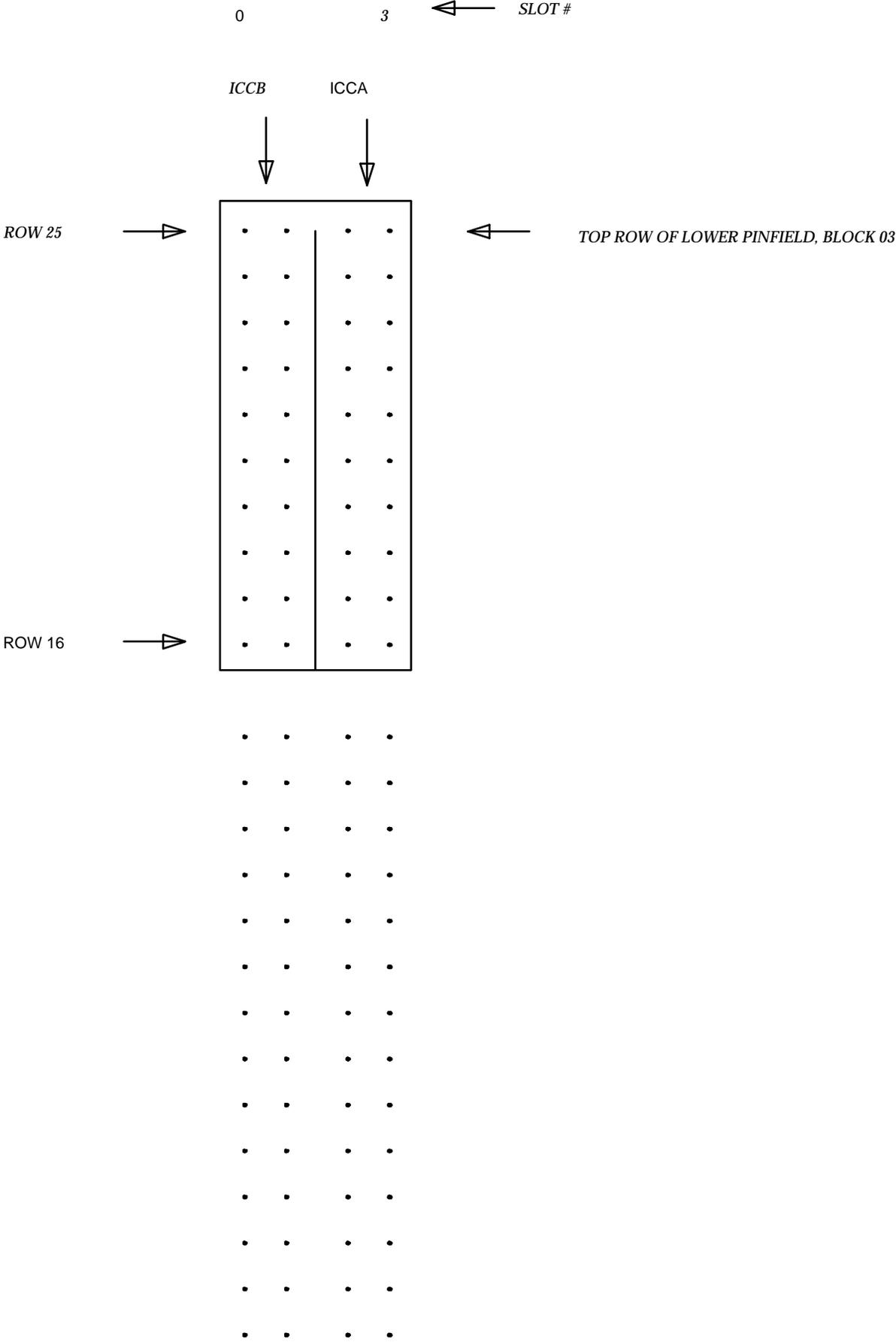


FIGURE 5-21. ICC Connections for 20-Pin Cable

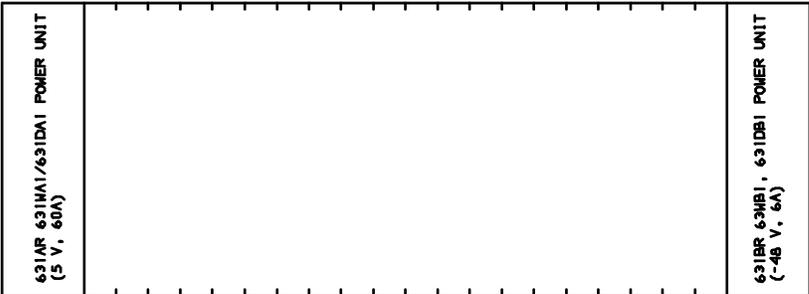
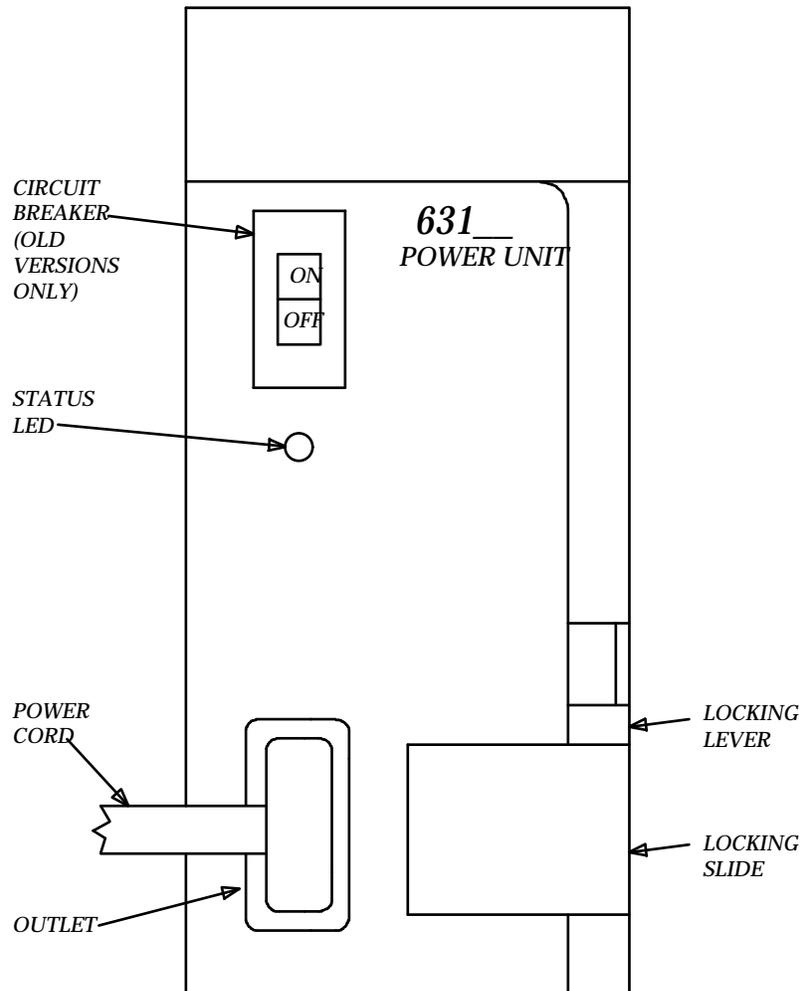


FIGURE 5-22. Power Unit Locations



**FIGURE 5-23. 631-Type Power Unit**

**Test the CURL**

1. Plug the cabinet power cord into the appropriate receptacle.
2. At the power distribution unit, set the main circuit breaker to ON.
3. Unplug the power cord from the power unit "B" (right-hand side) in the "A" carrier.
4. Verify that the fans continue running. If they are not running, check the installation of the CURL.
5. Reconnect the power cord to the power unit in the "A" carrier, then unplug the power cord from power unit "B" (right-hand side) in the "B" carrier.

6. Verify that the fans continue running. If they are not running, check the installation of the CURL.
7. Reconnect the power cord to the power unit in the “B” carrier.
8. At the power distribution unit, set the main circuit breaker to OFF.

### ***Install Circuit Packs***

1. See WARNING. Install the new G3i circuit packs into carriers “A” and “B.” Use the new decal and upgrade configuration document provided with the equipment as a guide.

**WARNING:** A wrist strap must always be worn, and the clip must be grounded to the cabinet frame being worked on before inserting and removing any circuit pack.

2. See preceding WARNING and the following Note. Install the port circuit packs previously removed into the “A” carrier using the decal and upgrade configuration document provided with the equipment as a guide.
3. See preceding WARNING and the following Note. Install the port circuit packs previously removed into the “B” carrier using the decal and the upgrade configuration document, provided with the equipment, as a guide.

**Note:** Because of differences in the number of port slots available in the new carriers, some port circuits may require moving. If this was not performed before the upgrade, install the circuit packs now. The port circuits will have to be translated after the system is rebooted with the G3i tape.

4. If the cabinet being upgraded is the first EPN, verify that the associated PPN is equipped with two TN776s. If the cabinet being upgraded is the second EPN, verify that the associated PPN and EPN are both equipped with four TN776s.

### ***Connect Fiber-Optic Cable—Systems With Duplication***

For systems with one EPN, two fiber-optic cables (FL2P-P-20) and four lightwave transceivers (9823-type) are required for EPN connections with the Duplication Option if the EPN and PPN are collocated. When the EPN cabinet is installed remotely from the PPN cabinet, four fiber-optic cables (FL2P-P-20), four lightwave transceivers (9823-type), and two lightwave interface units (provided by the PSC) are required.

For systems with two EPNs, six fiber-optic cables (FL2P-P-20) and 12 lightwave transceivers (9823-type) are required for EPN connections with the Duplication Option if the EPNs and PPN are collocated. When the EPN cabinets are installed remotely from the PPN cabinet, twelve fiber-optic cables (FL2P-P-20), twelve lightwave transceivers (9823-type), and six lightwave interface units (provided by the PSC) are required.

*Collocated*

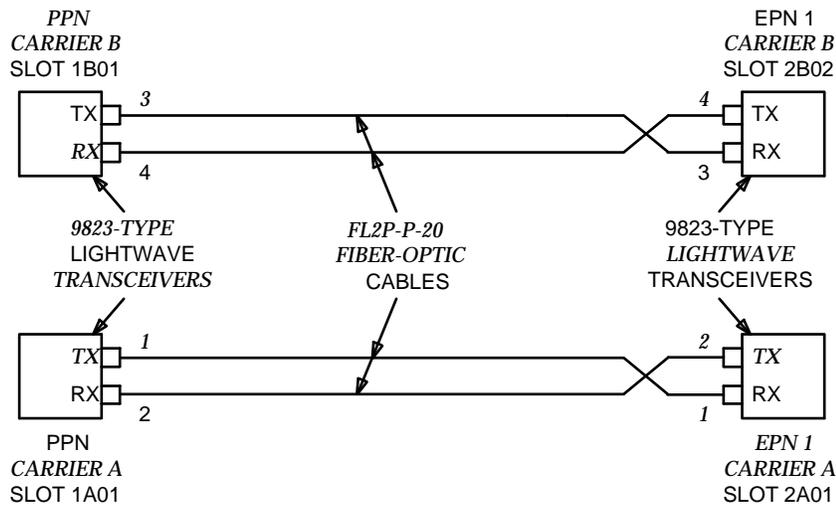
For systems with one EPN, route the cables and make the connections using Figures 5-24 and 5-25.

For systems with two EPNs, route the cables and make the connections using Figures 5-24, 5-25, 5-26, and 5-27.

*Remote*

For systems with one EPN, route the cables and make the connections using Figures 5-24 and 5-28.

For systems with two EPNs, route the cables and make the connections using Figures 5-24, 5-28, 5-29, and 5-30.



**FIGURE 5-24. G3i EPN Without Duplication Fiber-Optic Cable Routing**

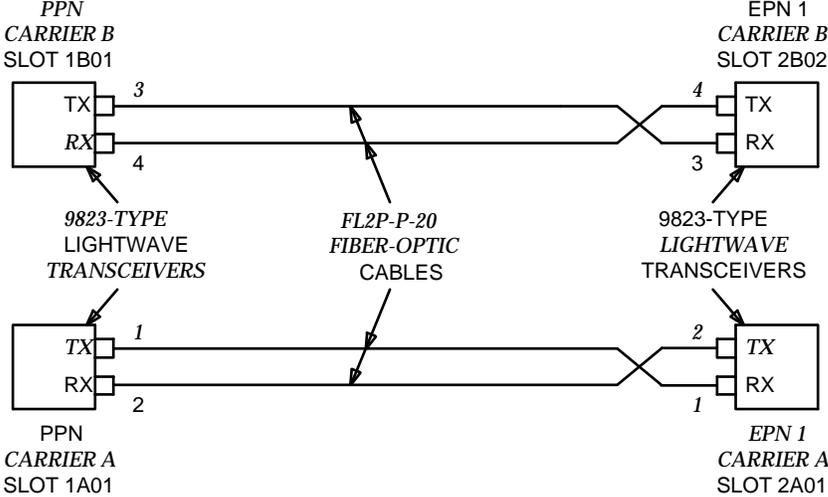


FIGURE 5-25. Fiber-Optic Connections PPN to EPN1

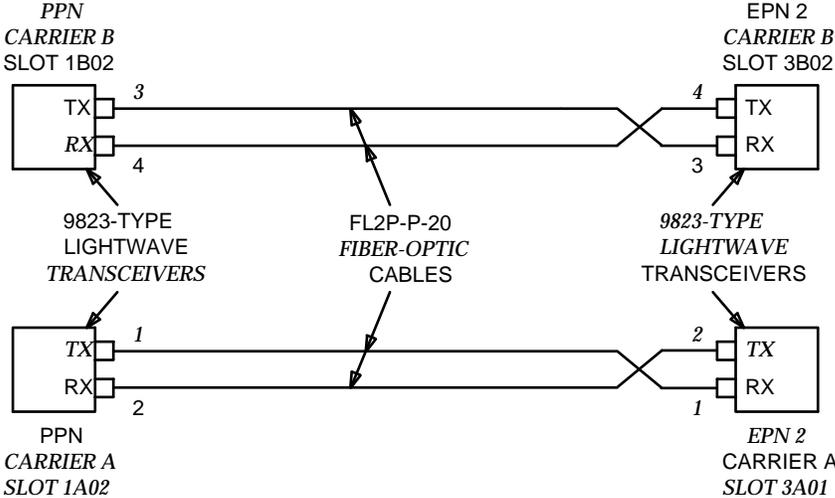


FIGURE 5-26. Fiber-Optic Connections PPN to EPN2

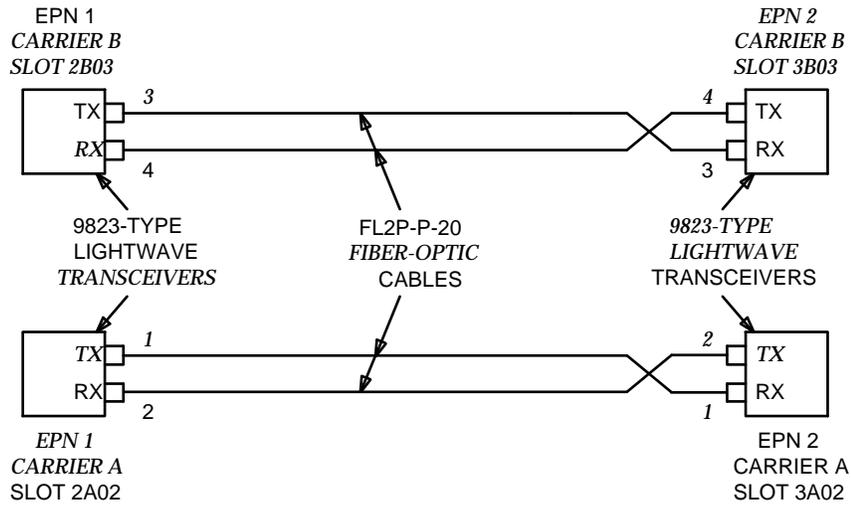


FIGURE 5-27. Fiber-Optic Connections EPN1 to EPN2

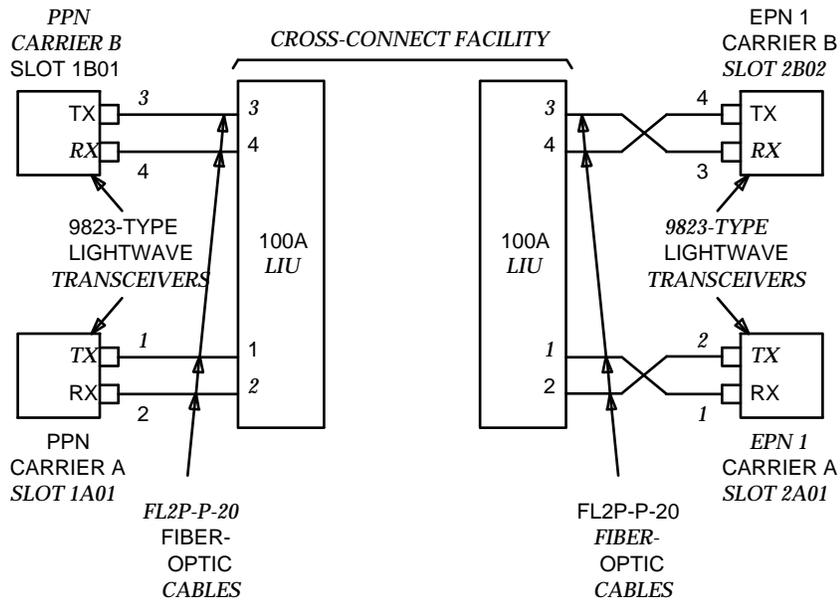


FIGURE 5-28. Fiber-Optic Connections PPN to EPN1

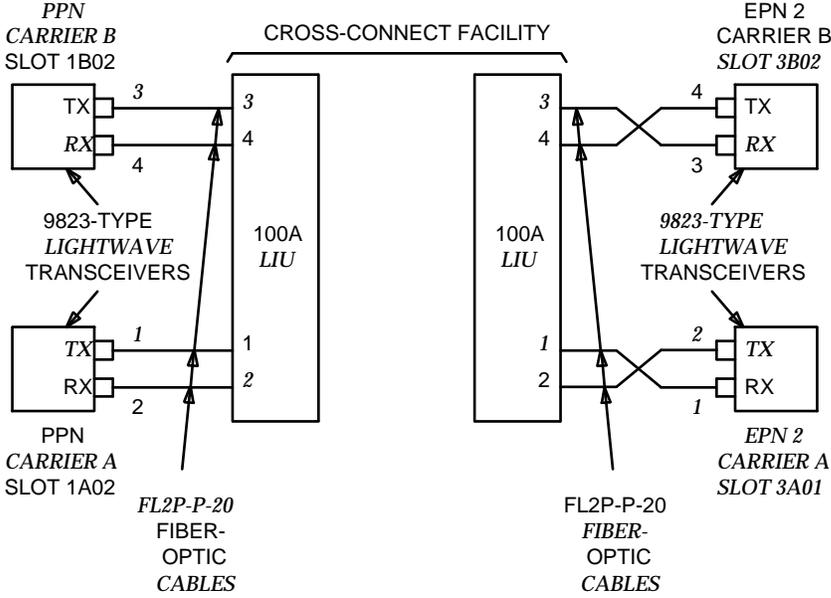


FIGURE 5-29. Fiber-Optic Connections PPN to EPN2

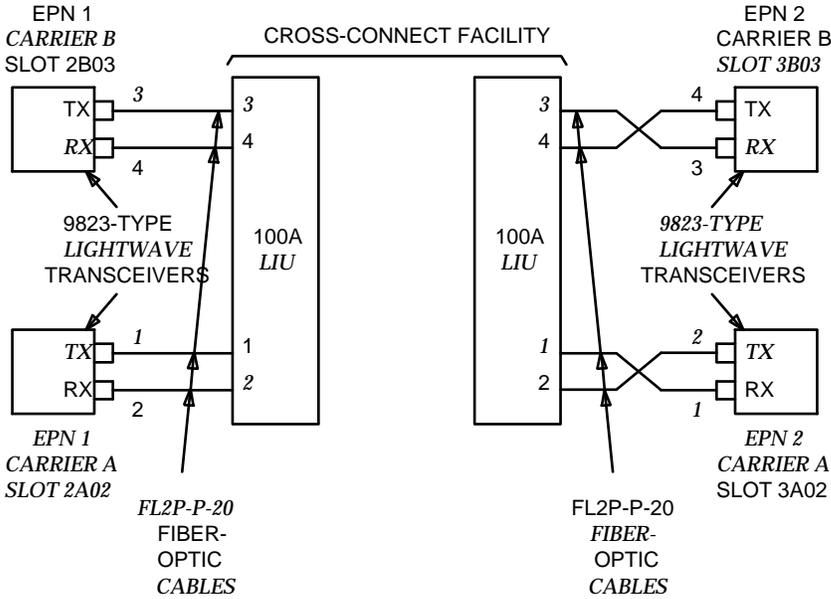


FIGURE 5-30. Fiber-Optic Connections EPN1 to EPN2

### **Secure Fiber-Optic Cables**

1. Secure the fiber-optic cable (with cable ties) against the cable tray wall at the cable tie positions built into the tray.
2. At the top of the cabinet, coil up the surplus length of fiber-optic cable. Secure the cable against the cable tray wall with cable ties.

### **Upgrade System Translations**

1. Connect the G1 Manager I or G3-MT terminal to the connector labeled “TERMINAL” on the rear of the “A” cabinet (if required).
2. Insert the new G3i system tape (if required).

**WARNING:** If the system is a multiple network system, the power must be turned on in the EPN first, then the PPN.

3. See WARNING. At the rear of each cabinet on the back of the power supply, set the circuit breaker to ON.
4. The system now goes through the rebooting process, loading the system translations from the tape. Rebooting requires 15 to 20 minutes. Refer to the “System Reboot Indications” section in *DEFINITY® Communications System Generic 1 and Generic 3i—Maintenance, 555-204-105*, for circuit pack LED indications and G1 Manager I or G3-MT terminal displays that occur during system reboot.
5. Login at the `login:` prompt on the G1 Manager I or G3-MT terminal, and set the time to ensure that the system is booted properly.
6. Enter `save translations`. Press `Return`. This command instructs the system to take all the translation information in memory and write it onto the tape.
7. If the system is equipped with a TN750B Announcement circuit pack, the recorded announcements can be saved by using the `save announcements` command. Enter `save announcements`, and press `Return`.
8. Remove the system tape, and insert the G3i tape to be used as the backup tape.
9. Enter `save translations`. Press `Return`.

**Note:** Certain forms have changed for G3i. Data from the G1 may appear on a different form, fields may be shifted or located in a new position, and/or the name assigned to a particular field may change. Refer to Table 6-A and the *DEFINITY® Communications System Generic 1 and System 75—Administration and Measurement Reports, 555-200-500* and make the necessary changes.

10. If the system is equipped with a TN750B Announcement circuit pack, the recorded announcements can be saved by using the `save announcements` command. Enter `save announcements`, and press `Return`.

### ***Close Up Cabinet and Reconnect Cables***

1. At the PPN power distribution unit, set the main circuit breaker to OFF.
2. At the EPN power distribution unit, set the main circuit breaker to OFF.
3. Label and disconnect the lightwave transceivers and fiber-optic cables.
4. Replace all back panels previously removed.
5. At the cabinet, reconnect the lightwave transceivers and fiber cables and the connector cables associated with the carrier being replaced.
6. Install the front door on the cabinet if previously removed.

### ***Power Up the System***

1. At the EPN power distribution unit, set the main circuit breaker to ON.
2. At the PPN power distribution unit, set the main circuit breaker to ON.
3. The system now goes through the rebooting process, loading the system translations on the tape. Rebooting requires 15 to 20 minutes. Refer to the “System Reboot Indications” section in *DEFINITY® Communications System Generic 1 and Generic 3i—Maintenance, 555-204-105*, for circuit pack LED indications and G1 Manager I or G3-MT terminal displays that occur during the system reboot.
4. After the system reboot is finished and all trouble is cleared, verify the EMERGENCY TRANSFER CONTROL switch is set to AUTO. This restores the system to the normal mode.

### ***Retranslate Port Circuits***

If port circuit packs had to be moved because of slot limitations in the new carrier, and they were not moved and retranslated before the original tape was updated and sent to the TSC or NTSO, they must be retranslated now. Refer to *DEFINITY® Communications System Generic 1 and System 75—Administration and Measurement Reports, 555-200-500*, for instructions on performing the retranslations.

### ***Run Acceptance Tests***

Refer to Chapter 8, “Tests,” and perform the appropriate tests.



## CHAPTER 6. UPGRADE PROCESS G1 to G3i SINGLE-CARRIER CABINET

This chapter provides the information necessary to upgrade a DEFINITY G1 system to a DEFINITY G3i system. The hardware and software involved in the upgrades and the upgrade procedures are also provided.

**WARNING:** When upgrading to BCMS, it is important to note that BCMS data is stored in volatile switch memory; it cannot be saved to or retrieved from tape. This data is preserved if a Reset System 1 (system Warm start), reset system 2 (system cold start), or Reset System Interchange (in a duplicated system) occurs. However, this data is lost if a cold start (power failure) occurs.

The following processes are required for a G1 to G3i upgrade:

- Hardware upgrades that involve adding circuit packs and in some instances replacing cabinets
- Replacing the software tape
- Software upgrades that involve saving, loading, and reentering system translations
- Testing the upgraded system to verify proper operation

G3i features and functions are listed in the *DEFINITY® Communications System Generic 1 and Generic 3i—Feature Description, 555-230-201*. *DEFINITY® Communications System Generic 3i—Implementation, 555-230-650*, provides the procedures and forms required to implement the G3i features. *DEFINITY® Communications System Generic 1 and System 75—Administration and Measurement Reports, 555-200-500*, provides the commands and procedures required to initialize and administer the G3i.

## Considerations

### Service Interruption

The upgrade process requires a service interruption of approximately one to five hours. This service interruption must be closely coordinated with the customer and the local account team.

### Communication Between Equipment Rooms

If the upgrade consists of equipment that is in a remote location, the upgrade activity will be much easier if temporary communications are established between the equipment rooms.

### Contact Network Craft

The network craft must be contacted before the upgrade is started. It is possible that if the network craft is not involved in the upgrade that the links will be busied-out.

### Relocation of Port Circuit Packs

It is recommended that the relocation of the port circuits and the retranslation be completed before the upgrade. This will lessen any service interruption that may occur at the time of the upgrade. If a third network is required, it cannot be added until the time of the upgrade. G1 software will not support the third network.

### Power

If a new network (either a PPN or an EPN) is added, it may be either AC- or DC-powered. If the network being added is powered differently from the existing network, the existing network does not have to be converted as mixed power configurations are allowed.

If a new cabinet powered by AC is to be added, a separate AC receptacle is provided to support the new cabinet. This AC receptacle must not be shared with any other equipment or be under the control of a wall switch. It should not be located under the cross-connect field.

If a new DC-powered cabinet is to be added, refer to *DEFINITY® Communications System Generic 1 and Generic 3i—Installation and Tests, 555-230-104*, for DC power requirements.

### Isolator

All peripherals connected to a DC-powered system via the asynchronous EIA-232 interface on the PPN A or B cabinet or the EPN Maintenance Board require a 116A isolator. The isolator is inserted at the EIA-232 interface between the peripheral and the interface connector.

**Software**

The G3i software and translations are saved on the TN774 Tape Drive circuit pack just as the G1 software and translations are. Although the G1 translations upgrades automatically to G3i, several features require special attention because of form changes or potential naming conflicts in the upgrade procedure. The following table contains a list of forms that are either changed or new for G3i. The System Implementation Coordinator should check these forms to ensure that after the upgrade is completed that the data is appropriate for the customer's needs. Refer to the *DEFINITY® Communication System Generic 3i—Implementation, 555-230-650*, and *DEFINITY® Communications System Generic 1 and System 75—Administration and Measurement Reports, 555-200-500*, for the information to make any required changes.

**TABLE 6-A. G3i Changed/New Administration Forms**

<b>From G1</b>	<b>To G3i</b>
ARS fnpa	ARS Digit Analysis
ARS hnpa	ARS Digit Analysis
Allowed Call List	Toll Analysis
Code Restriction fnpa	Toll Analysis
Code Restriction hnpa	Toll Analysis
Permanent Switched Calls	Administered Connections
RNX Table	AAR Digit Analysis
Ten-Seven Digit Conversion	ARS/AAR Digit Conversion
None (Note 1)	Alias Station
None	Alphanumeric Dialing
None	Call Vector
None	Signaling Group
None	Access Endpoints
None	Vector Directory Number

**Note:** 1. None represents a new form for G3i.

## Hardware Description

### Circuit Packs

Only one circuit pack is required for the basic G3i system upgrades. The other seven will be provided on an optional basis for G3i features, as required by the customer.

The required circuit pack is:

- TN770

A second TN770 Memory circuit pack is required for G3i. It provides the increased memory required by G1. It provides an extra 6 Megabytes of memory.

**WARNING: When upgrading to a G3i system, all TN770 Memory circuit packs in the system must be of vintage 3 or greater.**

The seven optional new circuit packs are:

- TN556

The ISDN BRI circuit pack (TN556) provides both circuit and packet connectivity for up to 12 BRI (2B+D) endpoints using the 4-wire S/T interface. The circuit pack supports the frame relaying of ISDN Packet Mode data in either the D-channel or one of the B-channels, but G3i software will support only circuit switching of Mode 3 in the B-channel.

The system must be equipped with a Packet Control (TN778) circuit in order to support this circuit pack.

- TN570

The EI circuit pack (TN570) provides the control channel connectivity and the time slot interchanging between the PPN and an EPN. The TN776 EI circuit packs used in G1 provide only TDM bus connectivity, while the TN570 also provides packet bus connectivity between port networks. G3i can continue to support the TN776 for upgrades from G1, while new shipments of G3i can use the TN570. The TN570 is required to connect EPNs and PPNs in a G3i system with packet switching or ISDN BRI.

The system must be equipped with a Packet Control (TN778) circuit in order to support this circuit pack.

- TN726B

The Data Line circuit pack (TN726B) provides eight ports with limited distance modem interfaces for circuit data switching. It supports asynchronous data endpoints and uses the Mode 2 or Mode 3 data transfer protocol.

- TN744

The Call Classifier circuit pack (TN744) provides eight detectors that can be used as either touch tone or call classifier tone detectors. In addition, it detects SITs for network intercept tone detection in the OCM application. This circuit pack will be optionally provided for OCM applications.

- TN771B

The Maintenance/Test circuit pack (TN771B) performs four maintenance functions: packet bus reconfiguration, DCP Mode 2 endpoint testing, digital trunk testing and analog trunk testing. The packet bus reconfiguration function allows the Maintenance/Test to diagnose and correct recoverable packet bus failures before the LAPD links, using the bus, fail. The digital trunk testing function can originate and terminate loopback tests on 56 and 64 Kbps digital facilities and will be used in G3i for ISDN PRI trunk testing. The Maintenance/Test is required for the Duplication Option and for digital trunk testing. Without a Maintenance/Test circuit pack packet bus failures can be detected, but automatic recovery is not possible.

- TN778

Direct access between the SPE and the packet bus is achieved by the Packet Control (TN778) circuit pack. Similar to the PI on the TDM bus, the Packet Control circuit pack provides a generalized protocol processing capability to interface the SPE to the packet bus.

The Packet Control circuit pack is required to support signaling for ISDN BRI, X.25, DDS/NIPM/Analog, and the remote concentrator, and for packet bus maintenance.

- TN780

The TN780 Tone-Clock circuit pack provides all the features and functions of the TN768 Tone-Clock circuit pack and in addition allows connection to an external Stratum 3 synchronizer via the tip/ring field.

## **Networks**

The G3i offers an optional third Network. This network, the EPN, enables the system to add up to four more port cabinets. This second EPN network is the same network as the first EPN network that was available in a G1 system.

## Software Translation Upgrade

The G3i uses the same format and tape drive as the G1; therefore, it is a simple task to perform the software upgrade. The translations must be saved onto the existing G1 tape. The G1 tape should then be removed and the new G3i tape installed. The translations should then be saved onto the new G3i tape. After the hardware upgrade is completed, the system should be rebooted with the G3i tape. Backup tapes must then be made.

The instructions on how and when to do these operations are included in the “System Upgrades” section of this manual.

## System Upgrades

There are many configurations of the DEFINITY G1 in the field. The system software and hardware is uniquely configured. The manner in which the system is upgraded will depend on the present configuration.

If a G1 PPN is being upgraded to a G3i PPN, hardware changes (circuit pack additions) are required. Upgrading a G1 EPN to a G3i EPN requires no hardware changes. If a G1 PPN is upgraded to a G3i EPN, hardware changes (cabinet replacement) are required.

If the system upgrade involves adding a new network, refer to *DEFINITY® Communications System Generic 1 and Generic 3i—Installation and Test, 555-230-104*, for the installation procedures.

### G1 PPN Without Duplication to G3i PPN Without Duplication

The G1 PPN Without Duplication is upgraded to the G3i PPN Without Duplication by:

- Adding the second TN770 Memory circuit pack to the control cabinet
- Installing the G3i tape and loading the existing translations onto it

#### **Prerequisite Hardware**

The equipment in the following table (Table 6-B) **MUST** be on-site before the upgrade is started. Ensure that the tapes are G3i tapes.

**TABLE 6-B. Required Hardware**

Equipment	Description	Quantity
TN770	Memory	1*
J58890TE-1	Tape Cartridge	2

\* TN770 must be of vintage 3 or greater. If the G1 Memory circuit pack is not of vintage 3 or greater, it must be replaced, so you will need to bring 2 circuit packs.

### **Required Tools**

The following tools and items may be required during the upgrade:

- Authorized wrist grounding strap
- One copy of each of the following manuals:
  - *DEFINITY® Communications System Generic 1 and Generic 3i—Maintenance, 555-204-105*
  - *DEFINITY® Communications System Generic 1 and System 75—Administration and Measurement Reports, 555-200-500*
  - *DEFINITY® Communications System Generic 3i—Implementation, 555-230-650*

### **Open Door**

1. Use a screwdriver, and turn the door latch screw counter-clockwise one-fourth turn to open the door.

### **Save Translations**

1. Login at the G1 Manager I or G3-MT terminal.
2. Enter `save translations`. Press `[Return]`. This command instructs the system to take all translation information in memory and write it onto the tape.
3. If the system is equipped with a TN750B Announcement circuit pack, the recorded announcements can be saved using the save announcements command. Enter `save announcements`. Press `[Return]`.
4. Remove the G1 tapes and insert the G3i tape.
5. Enter `save translations`. Press `[Return]`.
6. Enter `save announcements`. Press `[Return]`.

### **Power Down System**

**WARNING:** If the system being upgraded is a two network system, the power must be turned off in the PPN first, then the EPN.

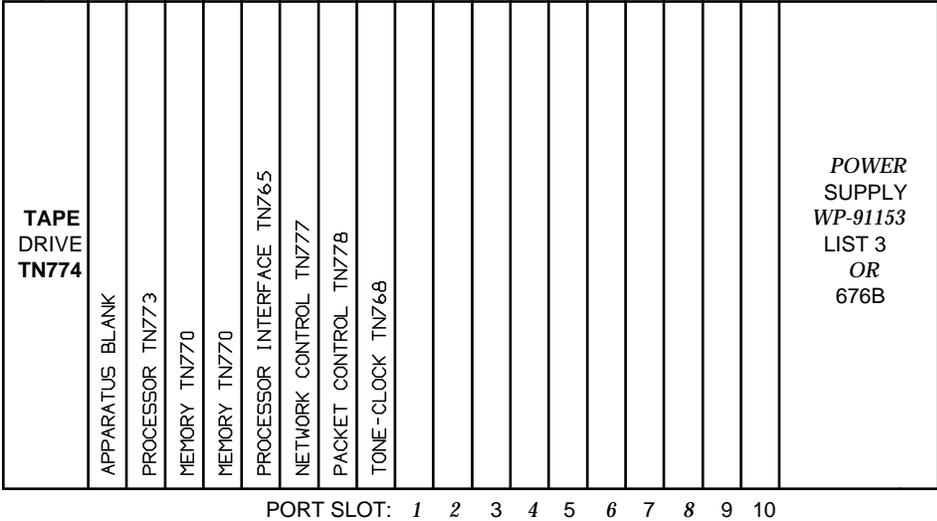
1. See WARNING. At the rear of each cabinet on the back of the power supply, set the circuit breaker to OFF.

**Install Circuit Pack**

**Note:** If new features are being added to the system that require the addition of circuit packs, that information is located in the “Additions” section of this manual.

- 1. See WARNING. At the J58890L-1 control cabinet, install the second TN770 memory circuit pack in the spare slot on the right side of the existing TN770 Memory circuit pack (see Figure 6-1).

**WARNING:** A wrist strap must always be worn, and the clip must be grounded to the cabinet frame being worked on before inserting and removing any circuit pack.



**FIGURE 6-1. TN770 Location in J58890L Cabinet**

### Upgrade System Translations

1. Connect the G1 Manager I or G3-MT terminal to the connector labeled “TERMINAL” on the rear of the “A” cabinet (if required).
2. Insert the new G3i system tape (if required).

**WARNING:** If the system is a multiple network system, turn on power in the EPN first, then the PPN.

3. See WARNING. At the rear of each cabinet on the back of the power supply, set the circuit breaker to ON.
4. The system now goes through the rebooting process, loading the system translations from the tape. Rebooting requires 15 to 20 minutes. Refer to the “System Reboot Indications” section in *DEFINITY® Communications System Generic 1 and Generic 3i—Maintenance, 555-204-105*, for circuit pack LED indications and G1 Manager I or G3-MT terminal displays that occur during system reboot.
5. Login at the `login:` prompt on the G1 Manager I or G3-MT terminal, and set the time to ensure that the system is booted properly.
6. Enter `save translations`. Press `Return`. This command instructs the system to take all the translation information in memory and write it onto the tape.
7. Record the announcements.
8. If the system is equipped with a TN750B Announcement circuit pack, the recorded announcements can be saved by using the `save announcements` command. Enter `save announcements`, and press `Return`.
9. Remove the system tapes and insert the G3i tape to be used as the backup tape.
10. Enter `save translations`. Press `Return`.

**Note:** Certain forms have changed for G3i. Data from the G1 may appear on a different form, fields may be shifted or located in a new position, and/or the name assigned to a particular field may change. Refer to Table 6-A and the *DEFINITY® Communications System Generic 1 and System 75—Administration and Measurement Reports, 555-200-500*, and make the necessary changes.

11. If the system is equipped with a TN750B Announcement circuit pack, the recorded announcements can be saved by using the `save announcements` command. Enter `save announcements`, and press `Return`.

**Close Cabinet Doors**

1. Close the front door and secure with the latch.

**Run Acceptance Tests**

Refer to Chapter 8, “Tests,” and perform the appropriate tests.

**G1 PPN With Duplication to G3i PPN With Duplication**

The G1 PPN With Duplication is upgraded to the G3i PPN With Duplication by:

- Adding the second TN770 Memory circuit pack to both control cabinet A and control cabinet B
- Installing the G3i tape in both control cabinets and loading the existing translations onto it

**Prerequisite Hardware**

The equipment in the following table (Table 6-C) **MUST** be on-site before the upgrade is started. Ensure that the tapes are G3i tapes.

**TABLE 6-C. Required Hardware**

Equipment	Description	Quantity
TN770	Memory	2*
J58890TE-1	Tape Cartridge	4

\* TN770 must be of vintage 3 or greater. If the G1 Memory circuit packs are not of vintage 3 or greater, they must be replaced, so you will need to bring 4 circuit packs.

**Required Tools**

The following tools and items may be required during the upgrade:

- Authorized wrist grounding strap
- One copy of each of the following manuals:
  - *DEFINITY® Communications System Generic 1 and Generic 3i—Maintenance, 555-204-105*
  - *DEFINITY® Communications System Generic 1 and System 75—Administration and Measurement Reports, 555-200-500*
  - *DEFINITY® Communications System Generic 3i—Implementation, 555-230-650*

### **Save Translations**

1. Login at the G1 Manager I or G3-MT terminal.
2. Enter `save translations`. Press `Return`. This command instructs the system to take all translation information in memory and write it onto the tape.
3. If the system is equipped with a TN750B Announcement circuit pack, the recorded announcements can be saved using the `save announcements` command. Enter `save announcements`. Press `Return`.
4. Remove the G1 tape and insert the G3i tape.
5. Enter `save translations`. Press `Return`.
6. Enter `save announcements`. Press `Return`.

### **Power Down System**

**WARNING:** If the system being upgraded is a two network system, The power must be turned off in the PPN first, then the EPN.

1. See WARNING. At the rear of each cabinet on the back of the power supply, set the circuit breaker to OFF.

### **Install Circuit Pack**

**Note:** If new features are being added to the system that require the addition of circuit packs, that information is located in the “Additions” section of this manual.

1. Use a screwdriver, and turn the door latch screw counter-clockwise one fourth turn to open the door.
2. See WARNING. At the J58890L-1 control cabinet, install the second TN770 memory circuit pack in the spare slot on the right side of the existing TN770 Memory circuit pack (see Figure 6-2).

**WARNING:** A wrist strap must always be worn, and the clip must be grounded to the cabinet frame being worked on before inserting and removing any circuit pack.

- 3. See WARNING. At the J58890M-1 control cabinet, install the second TN770 memory circuit pack in the spare slot on the right side of the existing TN770 Memory circuit pack (see Figure 6-3).

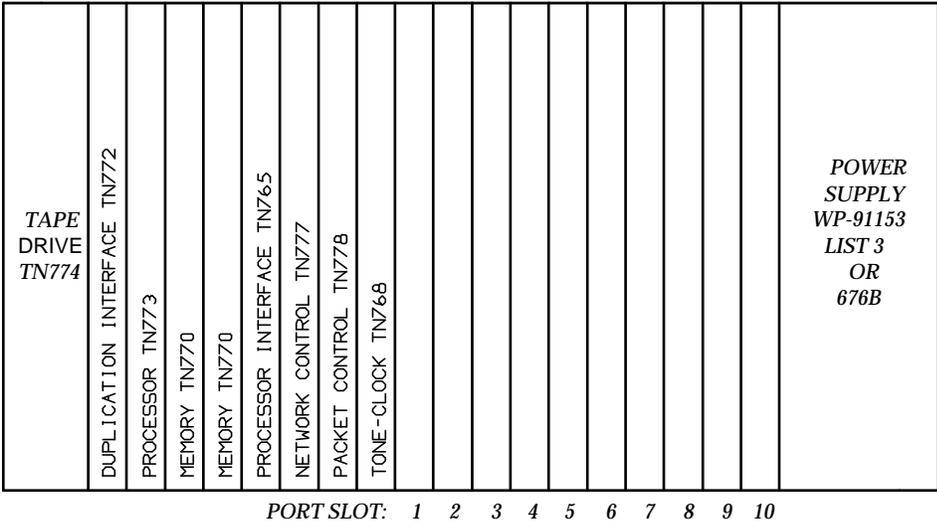


FIGURE 6-2. TN770 Location in J58890L Cabinet

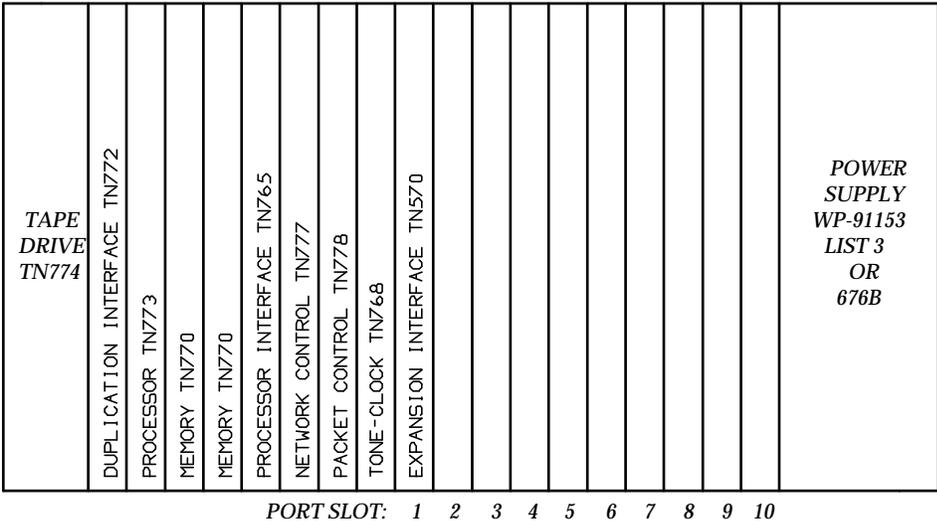


FIGURE 6-3. TN770 Location in J58890M Cabinet

### **Upgrade System Translations**

1. Connect the G1 Manager I or G3-MT terminal to the connector labeled “DOT” on the rear of the “A” cabinet (if required).
2. At both control cabinets, insert the new G3i system tape (if required).

**WARNING:** If the system is a two-network system, the power must be turned on in the EPN first, then the PPN.

3. See WARNING. At the rear of each cabinet on the power supply, set the circuit breaker to ON.
4. The system now goes through the rebooting process, loading the system translations from the tape. Rebooting requires 15 to 20 minutes. Refer to the “System Reboot Indications” section in *DEFINITY® Communications System Generic 1 and Generic 3i—Maintenance, 555-204-105*, for circuit pack LED indications and G1 Manager I or G3-MT terminal displays that occur during system reboot.
5. Login at the `login:` prompt on the G1 Manager I or G3-MT terminal, and set the time to ensure that the system is booted properly.
6. Enter `save translations`. Press . This command instructs the system to take all the translation information in memory and write it onto the tape.

**Note:** Certain forms have changed for G3i. Data from the G1 may appear on a different form, fields may be shifted or located in a new position, and/or the name assigned to a particular field may change. Refer to Table 6-A and the *DEFINITY® Communications System Generic 1 and System 75—Administration and Measurement Reports, 555-200-500*, and make the necessary changes.

7. If the system is equipped with a TN750B Announcement circuit pack, the recorded announcements can be saved by using the `save announcements` command. Enter `save announcements`, and press .
8. At both control cabinets, remove the system tape and insert the G3i tape to be used as the backup tape.
9. Enter `save translations`. Press .
10. If the system is equipped with a TN750B Announcement circuit pack, the recorded announcements can be saved by using the `save announcements` command. Enter `save announcements`, and press .

### **Close Cabinet Doors**

1. Close the front door and secure with the latch.

### **Run Acceptance Tests**

Refer to Chapter 8, “Tests,” and perform the appropriate tests.

### G1 PPN With or Without Duplication to G3i EPN With or Without Duplication

The G1 PPN Without Duplication is upgraded to the G3i EPN With Duplication by:

- Removing the control cabinet in position “A”
- Installing the J58890N-1 control cabinet in position “A”
- Adding the G3i circuit packs
- Restructuring the port circuits as required

#### ***Prerequisite Hardware***

The equipment in the following table (Table 6-D) **MUST** be on-site before the upgrade is started. Ensure that the tape is the G1 tape.

**TABLE 6-D. Required Hardware**

<b>Equipment</b>	<b>Description</b>	<b>Quantity</b>
J58890N1-L1	Control Cabinet	1 (Note 1)
TN775	Maintenance	1
TN570	EI	(Notes 2 & 3)
TN776	EI	(Notes 2 & 3)
TN748C	Tone Detector	1
TN768	Tone-Clock	2 (Note 4)
TN771B	Maintenance Test	optional
FL2P-P-20	Fiber Cable	(Note 5)
9823 Type	Lightwave Transceiver	(Note 6)
J58890TE,L1	Tape Cartridge	2 (Note 7)
H600-248G1	ICC Cables	2 (Note 8)

- Notes:**
1. When upgrading to a G3i system, all TN770 Memory circuit packs in the system must be of vintage 3 or greater.
  2. TN570 EI is required in systems with Packet Bus, otherwise use TN776.
  3. In systems without Duplication, one EI is required in the PPN for each EPN. One EI is required in each EPN for the PPN and the other EPN (if provided). In Duplicated systems, two EIs are required in the PPN. Two EIs are required in each EPN for the PPN and the other EPN (if provided).
  4. One without duplication, two with duplication.
  5. Systems without Duplication and one local EPN require one, two local EPNs require three, one remote EPN requires two, and two remote EPNs require 4. Systems with Duplication and one local EPN require two, two local EPNs require six, one remote EPN requires four, and two remote EPNs require 12.
  6. Systems without Duplication and one local EPN require two, two local EPNs require six, one remote EPN requires two, and two remote EPNs require 4. Systems with Duplication and one local EPN require four, two local EPNs require twelve, one remote EPN requires four, and two remote EPNs require twelve.
  7. Systems with duplication require four tapes, two for system tapes and two for backup.
  8. Required when system is equipped with the duplication option.

**Required Tools**

The following tools and items may be required during the upgrade:

- Flashlight or high-intensity AC drop light
- Power screwdriver (optional)
- 1/4-inch flat screwdriver
- 1/4-inch socket with ratchet (optional)
- Pliers
- Static-proof box or original circuit pack packaging for transporting circuit packs
- Labels for labeling the cables attached to the rear of cabinets and port circuit pack
- Receptacle for holding screws
- Twelve #8 self-tapping screws
- New air filter (optional)
- Backplane pin repair kit (KS-22876-L2 or equivalent)
- One copy of each of the following manuals:
  - *DEFINITY® Communications System Generic 1 and Generic 3i—Maintenance, 555-204-105*
  - *DEFINITY® Communications System Generic 1 and System 75—Administration and Measurement Reports, 555-200-500*
  - *DEFINITY® Communications System Generic 3i—Implementation, 555-230-650*

**Label Cables**

1. To make reconnecting the cables easier and to ensure they are properly reconnected, label all the connector cables associated with the system (if not already labeled).

**Power Down System**

1. At the rear of each cabinet on the back of the power supply, set the circuit breaker to OFF.

***Disconnect Power and Grounding***

1. Disconnect the cabinet power cords from the rear of the each cabinet.
2. Disconnect the coupled bonding conductor.
3. Disconnect the 6-AWG cabinet ground wire from the ground bar in the cabinet.

**Note:** A screwdriver is required to loosen and tighten the bolts that secure the ground wire to the ground bar.

***Remove Door and Panels and Disconnect Cables***

1. Remove the front door from all the cabinets.
2. Disconnect all the previously labeled connector cables.
3. Disconnect the G1 Manager I or G3-MT terminal from the TERM connector.
4. Remove the ground plate(s) between all the cabinets.
5. Remove the top and bottom rear panels from all the cabinets.

***Remove Circuit Packs***

1. Label all port circuit packs in the control cabinet.
2. See WARNING. Remove all circuit packs and power units from the control cabinet. Store the circuit packs in the static-proof box.

**WARNING:** A wrist strap must always be worn, and the clip must be grounded to the cabinet frame being worked on before inserting and removing any circuit pack.

***Disconnect TDM/LAN and ICC Cables***

1. See Note. Remove and retain all the TDM/LAN cables. They will be reused.

**Note:** Note the position of the cable before disconnecting the cables.

2. See preceding Note. If the system being upgraded is a duplicated system, remove the ICC cables. They will not be reused.

### ***Remove the Existing Control Cabinet***

Since the control cabinet is located at the bottom of the network, the system will have to be completely dismantled. At this point in the upgrade, all the power, grounding, TDM, ICC, and connector cables should be disconnected. Before you proceed, ensure that there is adequate space available to place each cabinet in an out-of-the-way location as the network is dismantled.

1. Remove the cabinet clip between each cabinet or front earthquake plate as provided.
2. Remove rear ground plate.
3. See WARNING. Remove the port cabinets and place in a safe place.

**WARNING: Port cabinets may weigh as much as 125 pounds each and require two handlers to unstack the cabinets. If a fourth cabinet is to be removed, remove the front door, power supply, and circuit packs from the fourth cabinet to lighten the load. Make sure the two handlers are capable (size and strength) of lifting the cabinet from the fourth position.**

4. See preceding WARNING. If the system being upgraded is duplicated, remove the control cabinet in position "B." It will not be reused so it can be removed at this time.
5. If the control cabinet in position "A" is earthquake mounted, remove the hardware securing the cabinet to the floor.
6. Move the existing control cabinet out of its present location. It will not be reused, so it can be removed at this time.

### ***Unpack and Inspect New Control Cabinet for Damage***

1. See WARNING. Unpack cabinet.

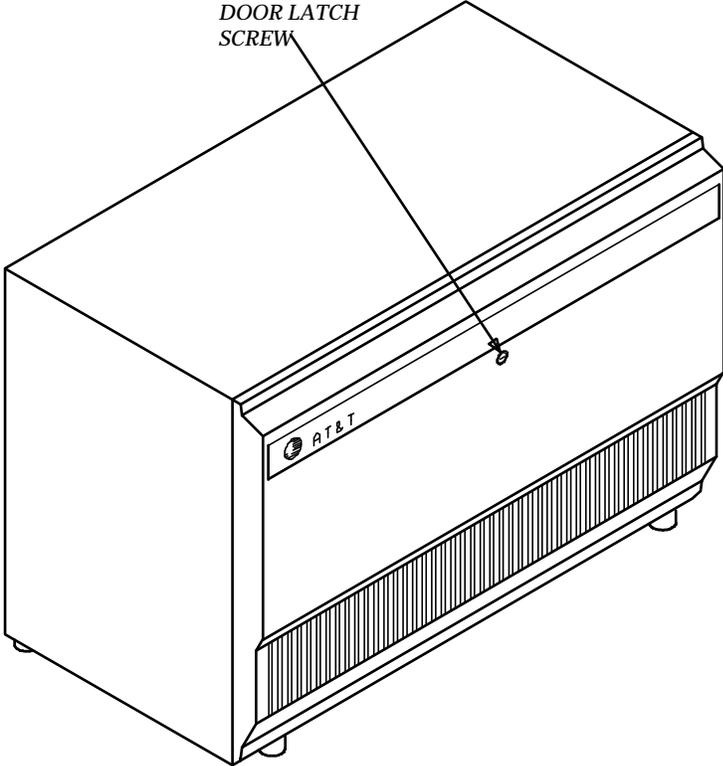
**WARNING: Care must be taken to avoid injury while cutting and removing bands.**

2. Visually inspect cabinet for any physical damage caused during shipping. Report any damage for appropriate action per local procedures.

**Remove Front Door**

Remove the front door of control cabinet.

- 1. Use a screwdriver, and turn door latch screw counterclockwise one quarter turn to release door (see Figure 6-4).
- 2. Lift door from lower slots and remove from cabinet.



**FIGURE 6-4. G3i Cabinet Door Latch Screw Location**

**Install Control Cabinet**

1. See WARNING. Position the J58890N-1 control cabinet at the desired location.

**WARNING:** The cabinet may weigh as much as 130 pounds and requires two handlers. Use extreme caution.

2. If earthquake protection is not required, install hole plugs (provided with cabinet) in the holes previously occupied by the two carriage bolts at the bottom rear of the cabinet.

**Add Earthquake Protection**

3. If earthquake protection is required:
  - a. Place the Front Mounting Angle at the location selected for the front of the control cabinet.
  - b. Using the angle as the template, mark the location of the mounting bolts.
  - c. Drill two holes, 1/2 inch in diameter and 1-1/2 inches deep, at the spot marked in Step b.
  - d. Mount the Front Mounting Angle to the floor (Figure 6-5).
  - e. Move the cabinet back into place, and attach the cabinet to the angle with two No. 12-24 by 1/2-inch thread-forming screws.
  - f. Insert a pencil or marker through holes previously occupied with the carriage bolts in the bottom rear of the cabinet, and mark the floor directly beneath each hole.
  - g. Remove the screws installed in Step e, and move the cabinet out of the way.
  - h. Drill two holes, 1/2 inch in diameter and 1-1/2 inches deep, at the spot marked in Step f.
  - i. Move the cabinet back into place.
  - j. Attach the cabinet to the front mounting angle using four No. 12-24 × 1/2-inch thread forming screws.
  - k. In the rear of the cabinet, lay the stiffener on the bottom of the cabinet, aligning the stiffener with the holes in the bottom of the cabinet.
  - l. Fasten the cabinet to the floor (Figure 6-6).

**Note:** This procedure is only a portion of the complete earthquake protection package. Instructions for adding the earthquake front plate and earthquake ground plate will be given at the appropriate location in this chapter to follow the logical installation sequence.

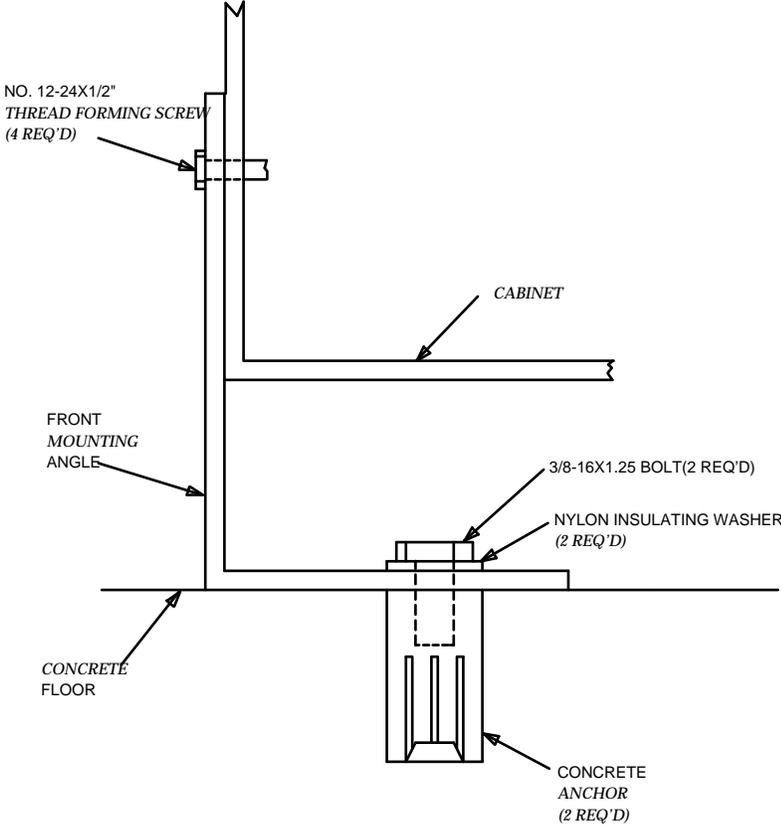
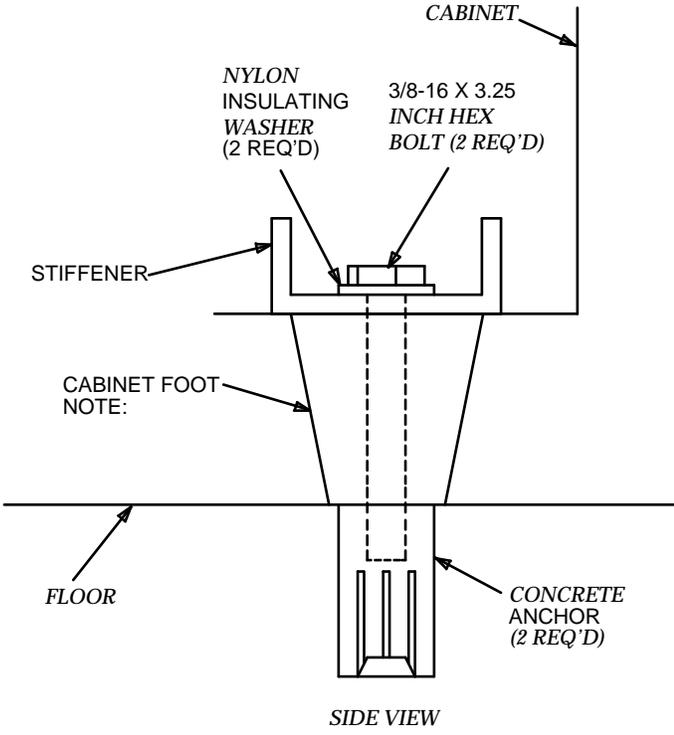


FIGURE 6-5. Front Mounting Angle—Concrete Floor



NOTE: BOLT DOES NOT RUN THROUGH CABINET FOOT

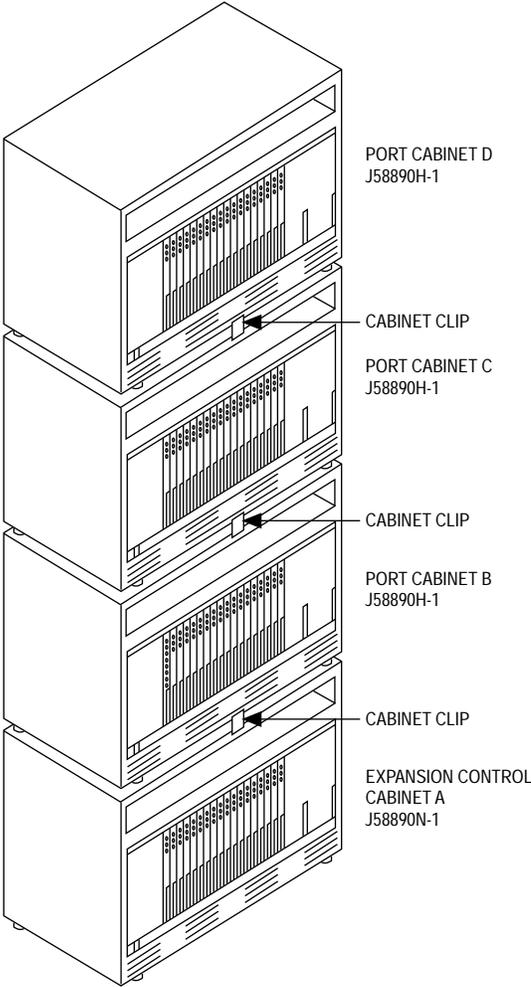
**FIGURE 6-6. Cabinet Earthquake Mounting—Concrete Floor**

**Install Port Cabinets**

- 1. See WARNING and Note. Place the port cabinets into the position they were previously removed from (see Figure 6-7).

**WARNING:** The cabinet may weigh as much as 130 pounds and requires two handlers. Use extreme caution.

**Note:** If the system being upgraded is duplicated, a new J58890H port cabinet must be installed in position “B.”



**FIGURE 6-7. G1 4-Cabinet System—Front View, Doors Removed**

**Install Circuit Packs**

1. See WARNING. Replace the circuit packs and power supply in port cabinet “D” if they were previously removed.

**WARNING:** A wrist strap must always be worn, and the clip must be grounded to the cabinet frame being worked on before inserting and removing any circuit pack.

2. See preceding WARNING. Using the label and upgrade configuration document, provided with the equipment, install the G3i circuit packs in the new control cabinet.
3. See preceding WARNING and the following Note. Install the circuit packs previously removed into the “A” carrier using the decal and upgrade configuration document, provided with the equipment, as a guide.

**Note:** Because of differences in the number of port slots available in the new cabinet, some port circuits may require moving. If this was not performed before the upgrade, install the circuit packs now. The port circuits will have to be retranslated after the system is rebooted with the G3i tape.

4. See preceding WARNING and the following Note. Install the TN776 or TN570 EI (See Table 6-E) and TN768 Tone-Clock in port cabinet “B.” Do not reinsert the TN741 into port cabinet “B.”

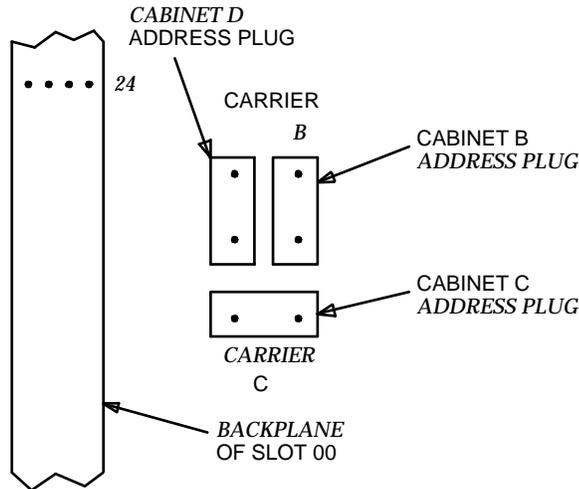
**Note:** Installing these circuit packs may require some port circuit packs be moved. If this was not performed before the upgrade, install the circuit packs now. The port circuits will have to be retranslated after the system is rebooted with the G3i tape.

**TABLE 6-E. TN776 Requirements**

<b>Cabinet</b>	<b>2 Networks W/O Duplication</b>	<b>2 Networks Duplicated</b>	<b>3 Networks W/O Duplication</b>	<b>3 Networks Duplicated</b>
PPN	1	2	2	4
EPN 1	1	2	2	4
EPN 2	N/A	N/A	2	4

### ***Change Cabinet Address Plugs***

The port cabinets may occupy different positions if the control cabinet in position “B” was removed and was not replaced with a port cabinet. The port cabinet address must be changed to reflect the new location (see Figure 6-8).



**FIGURE 6-8. Cabinet Address Plug Location**

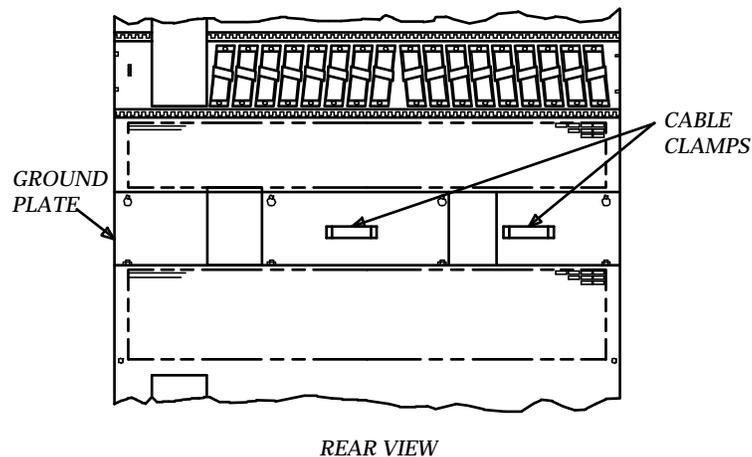
### ***Install TDM Bus Terminators***

1. If the system is a single-cabinet system, verify that the two AHF110 TDM Bus terminators are located per Figure 6-9.
2. If the system is a multi-cabinet system, perform the following procedures:
  - a. Verify that the AHF110 TDM Bus terminator is installed on the right side of the control cabinet looking from the back of the cabinet as shown in Figure 6-9.
  - b. Verify that the AHF110 TDM Bus Terminator is installed on the top port cabinet (see Figure 6-9).

**Connect TDM/LAN Bus Cables and ICC Cables**

1. Route and connect the TDM/LAN bus cables (see Figure 6-10). Use the following steps to route the cables between the R1V3 port cabinets being reused. The new bus cable is not run through the existing slot in the rear shelf.
  - a. Loosen two left (as viewed from the rear) connector panel screws, then remove the other two connector panel screws.
  - b. Attach the TDM/LAN cable to the backplane, and slide the cable between the connector panel and the rear shelf (not through the existing hole in the shelf). Route the cable along the bottom of the cabinet.
  - c. Replace and tighten the connector panel screws.
2. See Note. Connect the ICC cables as shown in Table 6-F and Figures 6-11 and 6-12.

**Note:** Do not use the ICC cables (H600-259G1) that were removed from the duplicated G1 PPN. Use the new ICC cables (H600-248G1).



**FIGURE 6-9. G1 Control Cabinet TDM Bus Terminator Location**

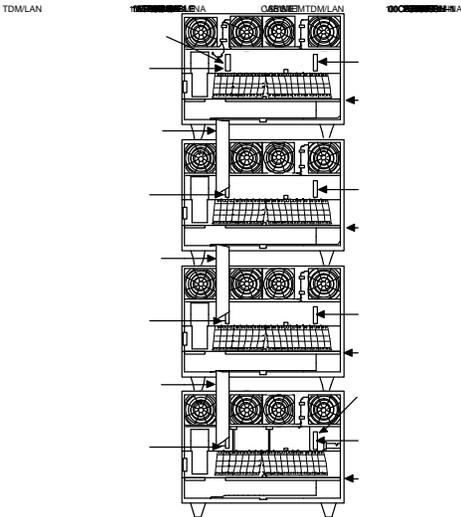


FIGURE 6-10. G1 TDM/LAN Bus Connections

TABLE 6-F. Intercabinet Cable Connections

Connect ICC Cables				
	From		To	
	CARRIER	CONN	CARRIER	CONN
EPN	J58890N	ICCA ICCB	J58890H	ICCA ICCB

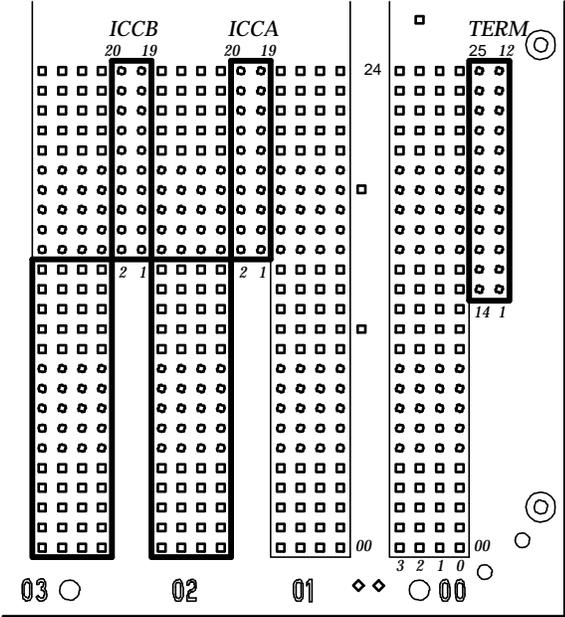


FIGURE 6-11. ICC Pin Blocks on J58890N Cabinet

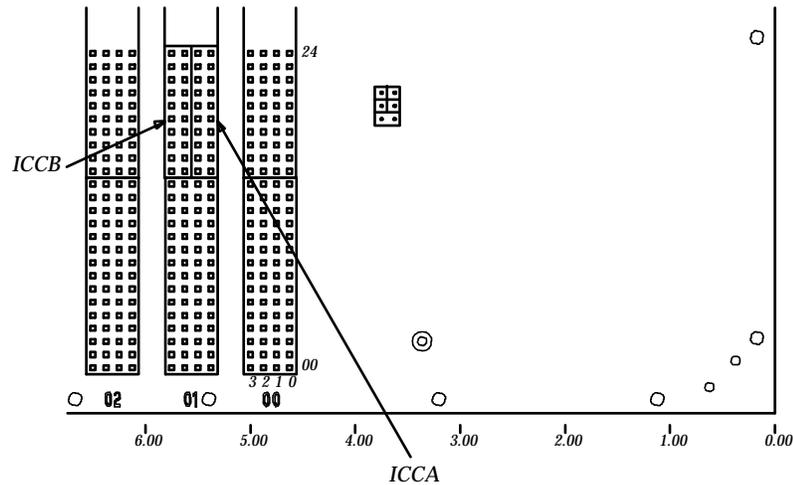


FIGURE 6-12. ICC Pin Blocks on J58890H Cabinet

### Connect Fiber-Optic Cable—Systems Without Duplication

For systems with one EPN, one fiber-optic cable (FL2P-P-20) and two lightwave transceivers (9823-type) are required for EPN connections without the Duplication Option if the EPN and PPN are collocated. When the EPN cabinet is installed remotely from the PPN cabinet, two fiber-optic cables (FL2P-P-20), two lightwave transceivers (9823-type), and two lightwave interface units (provided by the PSC) are required.

For systems with two EPNs, three fiber-optic cables (FL2P-P-20) and six lightwave transceivers (9823-type) are required for EPN connections without the Duplication Option if the EPNs and PPN are collocated. When the EPN cabinets are installed remotely from the PPN cabinet, six fiber-optic cables (FL2P-P-20), six lightwave transceivers (9823-type), and four lightwave interface units (provided by the PSC) are required.

#### *Collocated*

For systems with one EPN, route the cables and make the connections using Figures 6-13 and 6-14.

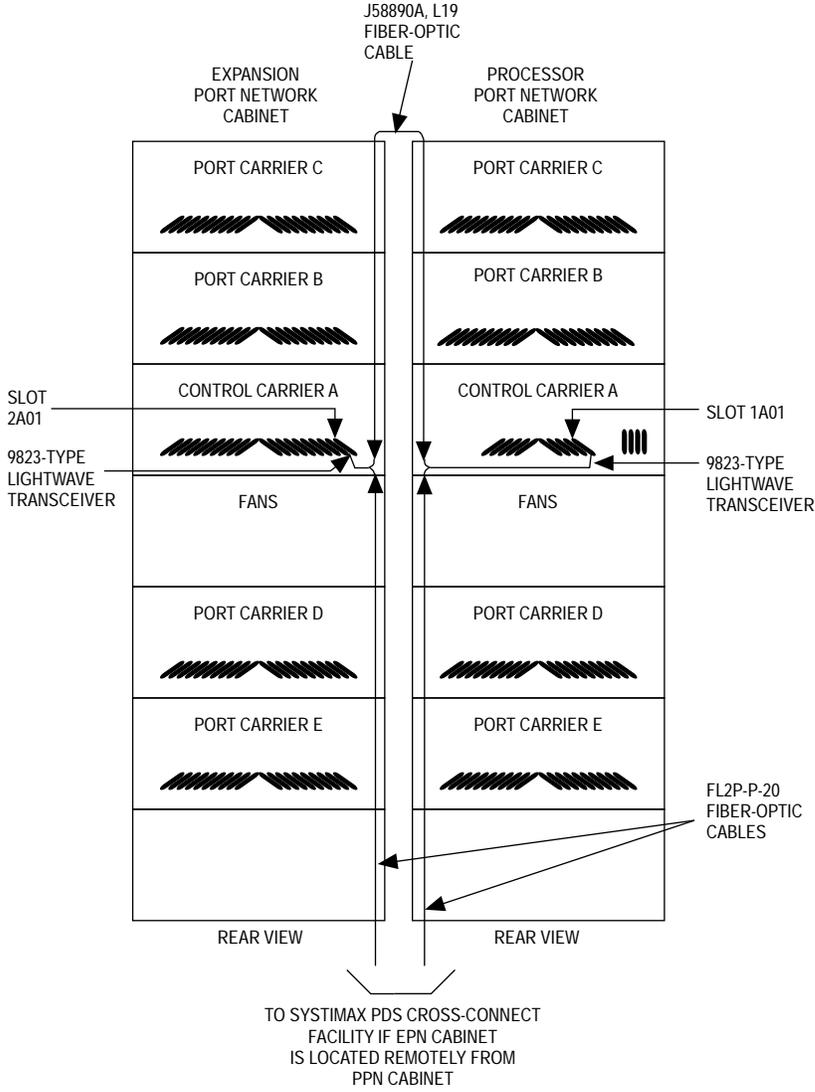
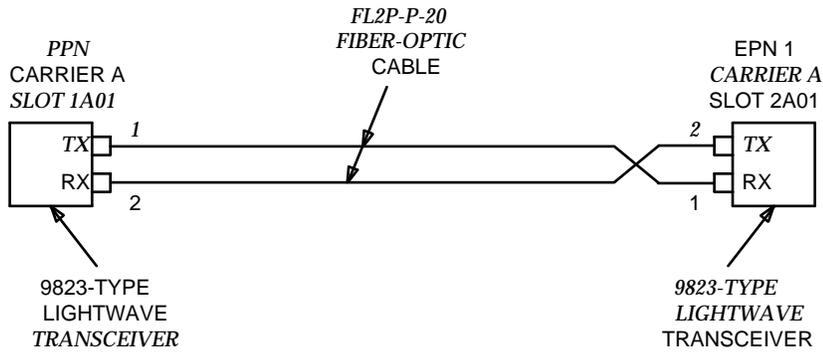
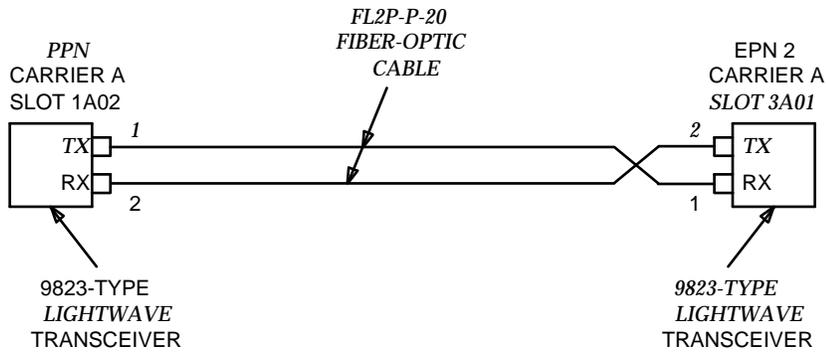


FIGURE 6-13. G3i EPN Fiber-Optic Cable Routing Without Duplication



**FIGURE 6-14. Fiber-Optic Connections PPN to EPN1**

For systems with two EPNs, route the cables and make the connections using Figures 6-13, 6-14, 6-15, and 6-16.



**FIGURE 6-15. Fiber-Optic Connections PPN to EPN2**

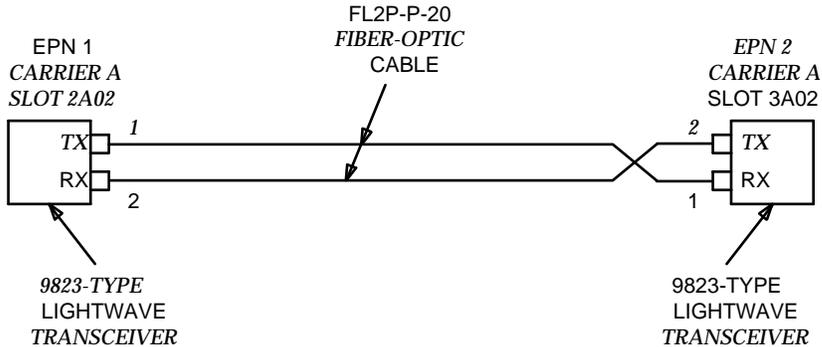


FIGURE 6-16. Fiber-Optic Connections EPN1 to EPN2

Remote

For systems with one EPN, route the cables and make the connections using Figures 6-13 and 6-17.

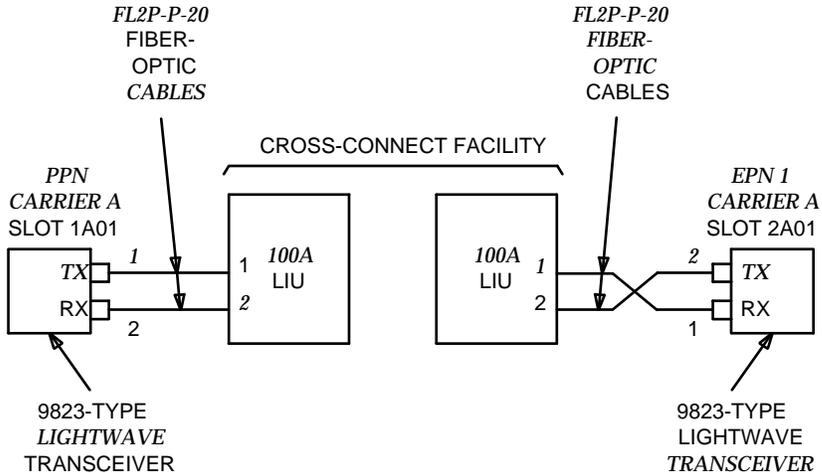
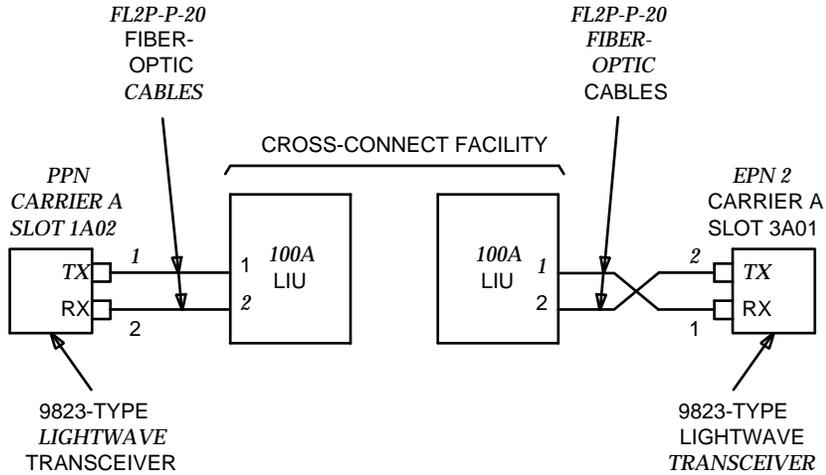
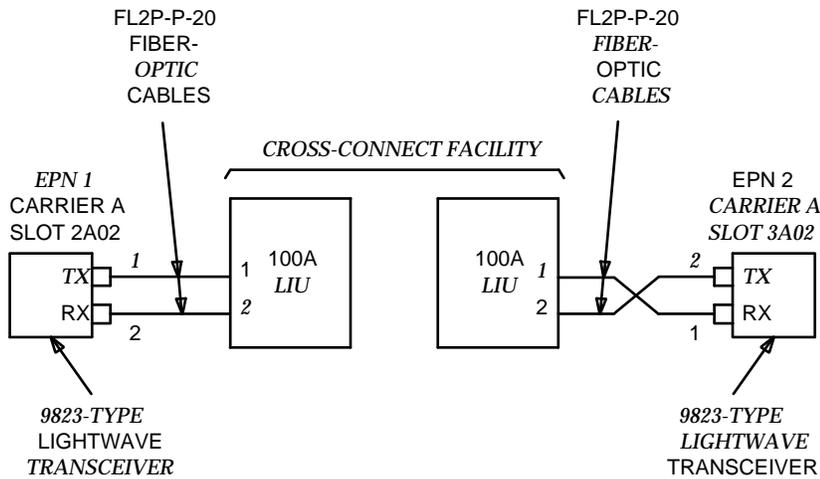


FIGURE 6-17. Fiber-Optic Connections PPN to EPN1

For systems with two EPNs, route the cables and make the connections using Figures 6-13, 6-17, 6-18, and 6-19.



**FIGURE 6-18. Fiber-Optic Connections PPN to EPN2**



**FIGURE 6-19. Fiber-Optic Connections EPN1 to EPN2**

## Secure Fiber-Optic Cables

1. Secure the fiber-optic cable (with cable ties) against the cable tray wall at the cable tie positions built into the tray.
2. At the top of the cabinet, coil the surplus length of fiber-optic cable. Secure the cable against the cable tray wall with cable ties.

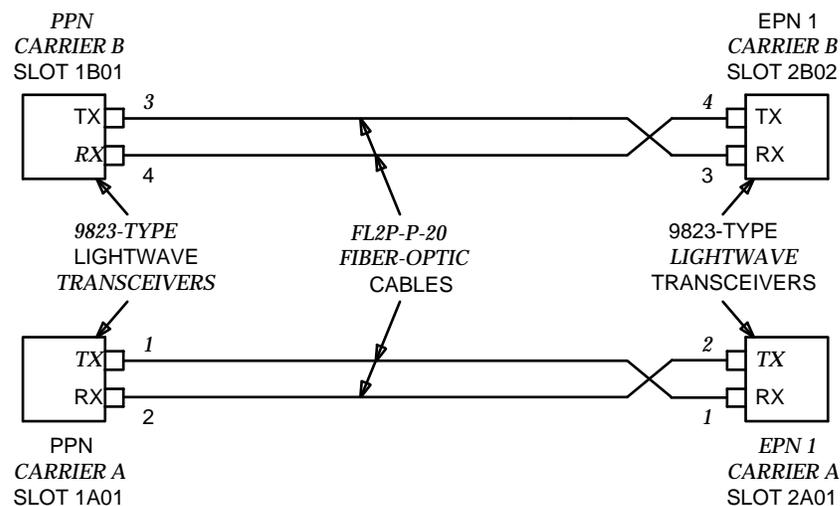
## Connect Fiber-Optic Cable—Systems with Duplication

For systems with one EPN, two fiber-optic cables (FL2P-P-20) and four lightwave transceivers (9823-type) are required for EPN connections with the Duplication Option if the EPN and PPN are collocated. When the EPN cabinet is installed remotely from the PPN cabinet, four fiber-optic cables (FL2P-P-20), four lightwave transceivers (9823-type), and two lightwave interface units (provided by the PSC) are required.

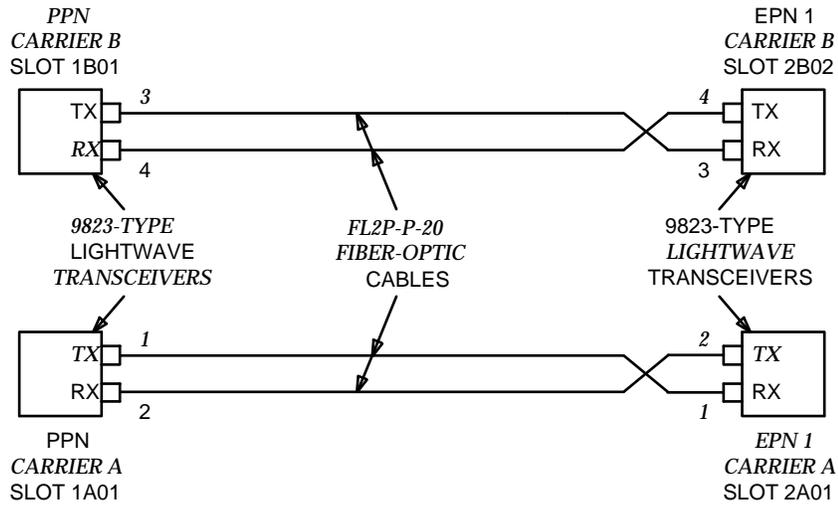
For systems with two EPNs, six fiber-optic cables (FL2P-P-20) and 12 lightwave transceivers (9823-type) are required for EPN connections with the Duplication Option if the EPNs and PPN are collocated. When the EPN cabinets are installed remotely from the PPN cabinet, 12 fiber-optic cables (FL2P-P-20), 12 lightwave transceivers (9823-type), and six lightwave interface units (provided by the PSC) are required.

### Collocated

For systems with one EPN, route the cables and make the connections using Figures 6-20 and 6-21.

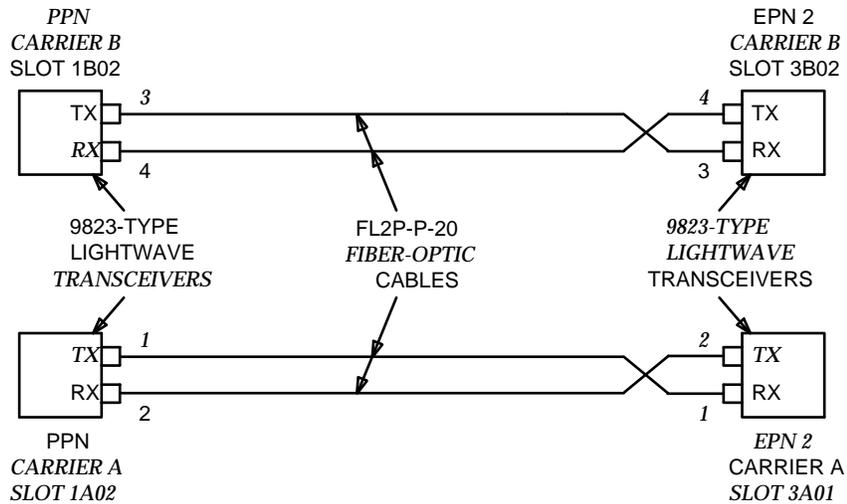


**FIGURE 6-20. G3i EPN With Duplication Fiber-Optic Cable Routing**



**FIGURE 6-21. Fiber-Optic Connections PPN to EPN1**

For systems with two EPNs, route the cables and make the connections using Figures 6-20, 6-21, 6-22, and 6-23.



**FIGURE 6-22. Fiber-Optic Connections PPN to EPN2**

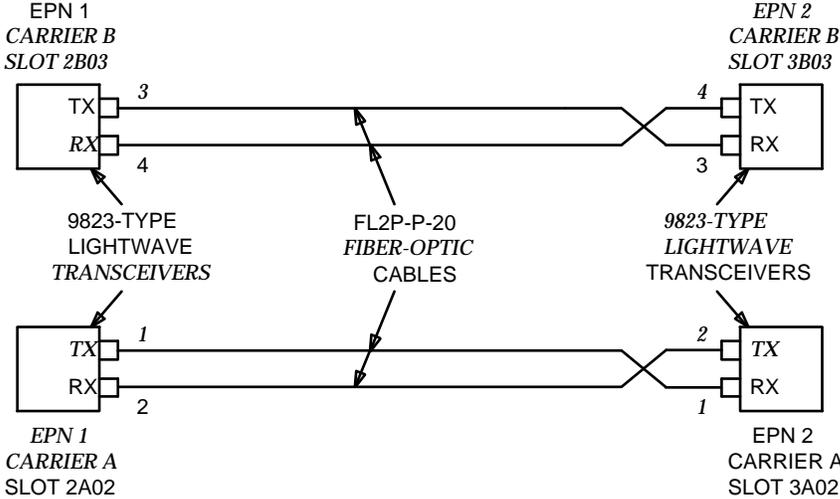


FIGURE 6-23. Fiber-Optic Connections EPN1 to EPN2

Remote

For systems with one EPN, route the cables and make the connections using Figures 6-20 and 6-24.

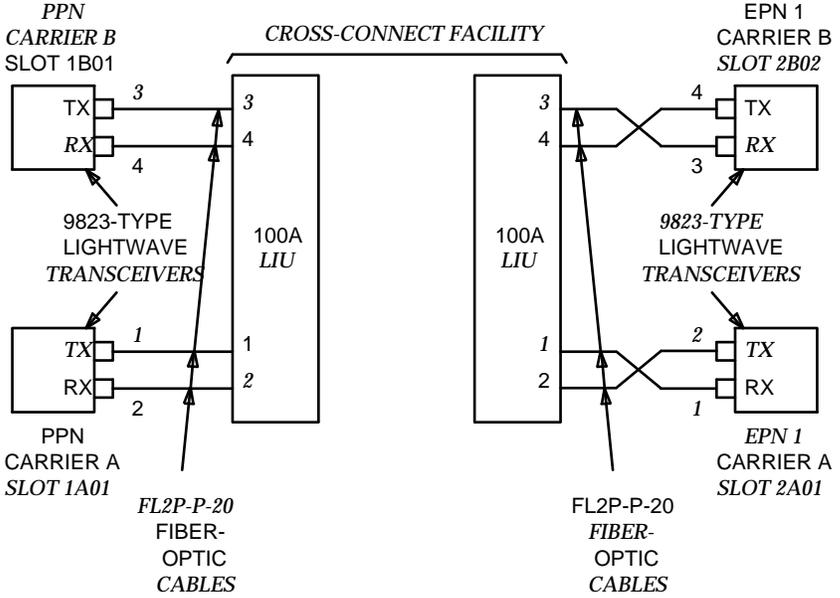


FIGURE 6-24. Fiber-Optic Connections PPN to EPN1

For systems with two EPNs, route the cables and make the connections using Figures 6-20, 6-24, 6-25, and 6-26.

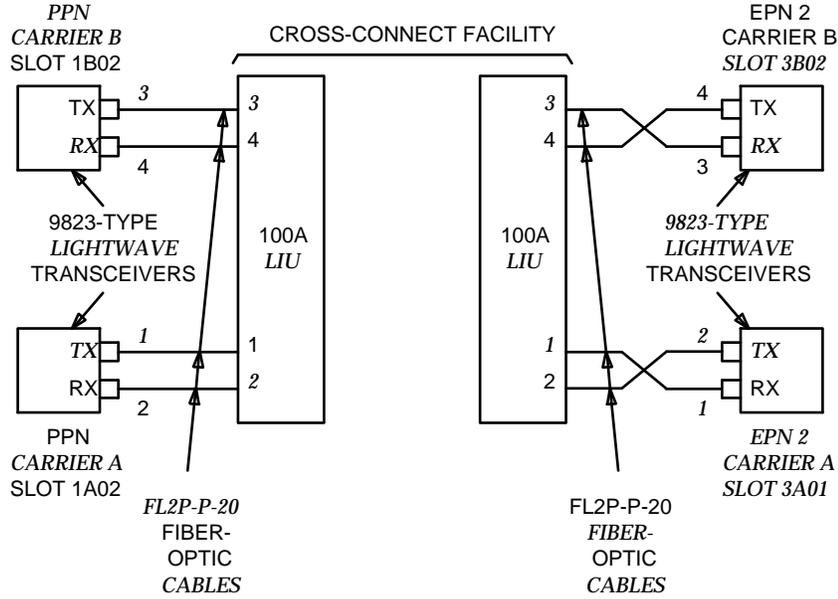
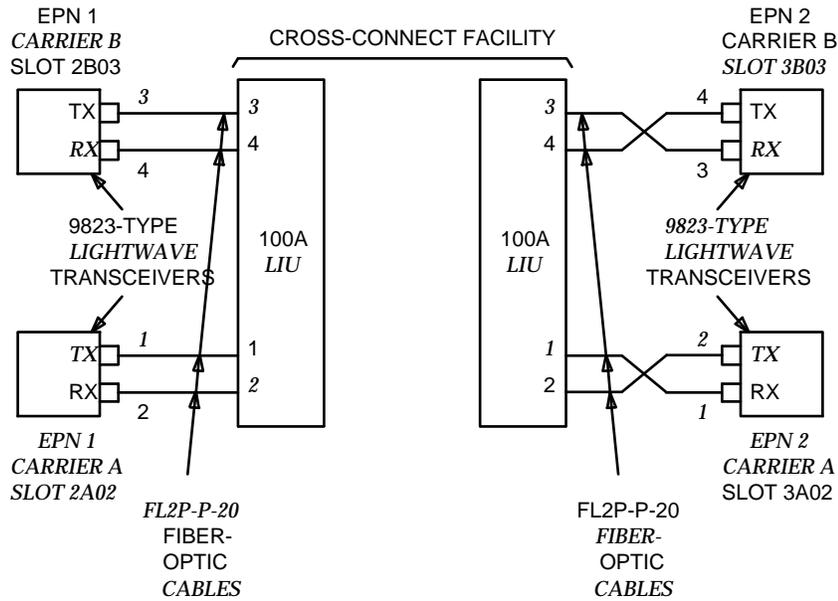


FIGURE 6-25. Fiber-Optic Connections PPN to EPN2



**FIGURE 6-26. Fiber-Optic Connections EPN1 to EPN2**

### Install Ground Plate(s)

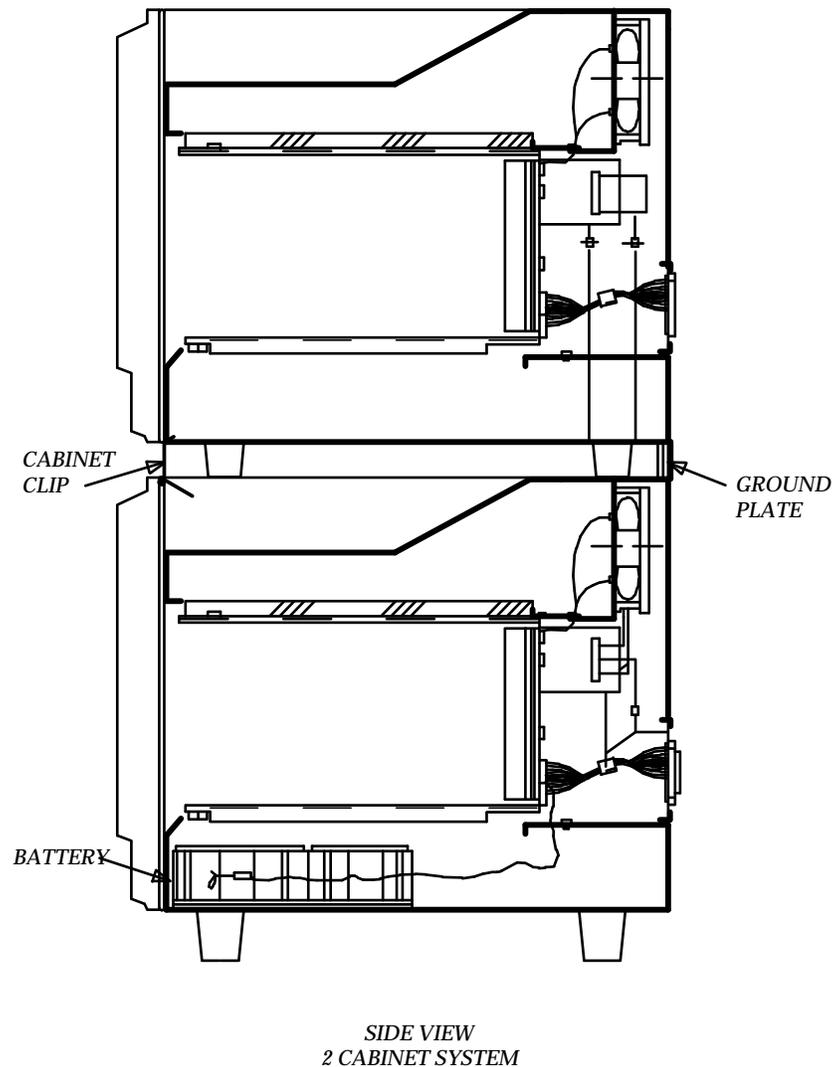
**Note:** If the system being upgraded is mounted with earthquake protection, do not install the ground plates at this time.

A ground plate is required between each cabinet (see Figures 6-27). The ground plate not only provides the ground connection between cabinets, it also stabilizes the cabinets.

1. See Note. At the rear of the cabinets, replace the upper and lower panels (leave the screws loose).

**Note:** The rear cover on the new control carriers are different. The bottom rear cover for the port cabinet in position "C" must be replaced with a new version cover so that the TDM/LAN cables and ground plates can be installed properly.

2. Place the ground plate over the lower rear panel of the upper cabinet so that the four screws that attach the lower rear panel go through the four ground plate keyhole slots.
3. Slide the ground plate down over the upper rear panel of the lower cabinet so that the four screws that attach the upper rear panel go through the four lower ground plate slots.
4. Assure that the exposed portion of the TDM/LAN bus cable that is between the cabinets does not get pinched.
5. Tighten all screws.



**FIGURE 6-27. Ground Plate, Cabinet Clip, and Battery Locations**

### Install Cabinet Clip(s)

**Note:** This procedure is only used on systems without earthquake protection.

A cabinet clip, used to stabilize the cabinets, is required between each cabinet.

At the front of the cabinets, install cabinet clip between the cabinets by hooking the clip into the slot of the upper cabinet and snapping the straight leg of the clip into the slot on the lower cabinet (see Figures 6-7 and 6-27).

### Connect Power and Grounding

1. Reconnect the 6-AWG cabinet ground wire from the ground bar in the cabinet.

**Note:** A screwdriver is required to loosen and tighten the bolts that secure the ground wire to the ground bar.

2. Reconnect the coupled bonding conductor.
3. Reconnect the cabinet power cords at the rear of each cabinet.

### Upgrade System Translations

1. Connect the G1 Manager I or G3-MT terminal to the connector labeled “DOT” on the rear of the “A” cabinet (if required).
2. At both control cabinets, insert the new G3i system tape (if required).

**WARNING:** If the system is a two-network system, the power must be turned on in the EPN first, then the PPN.

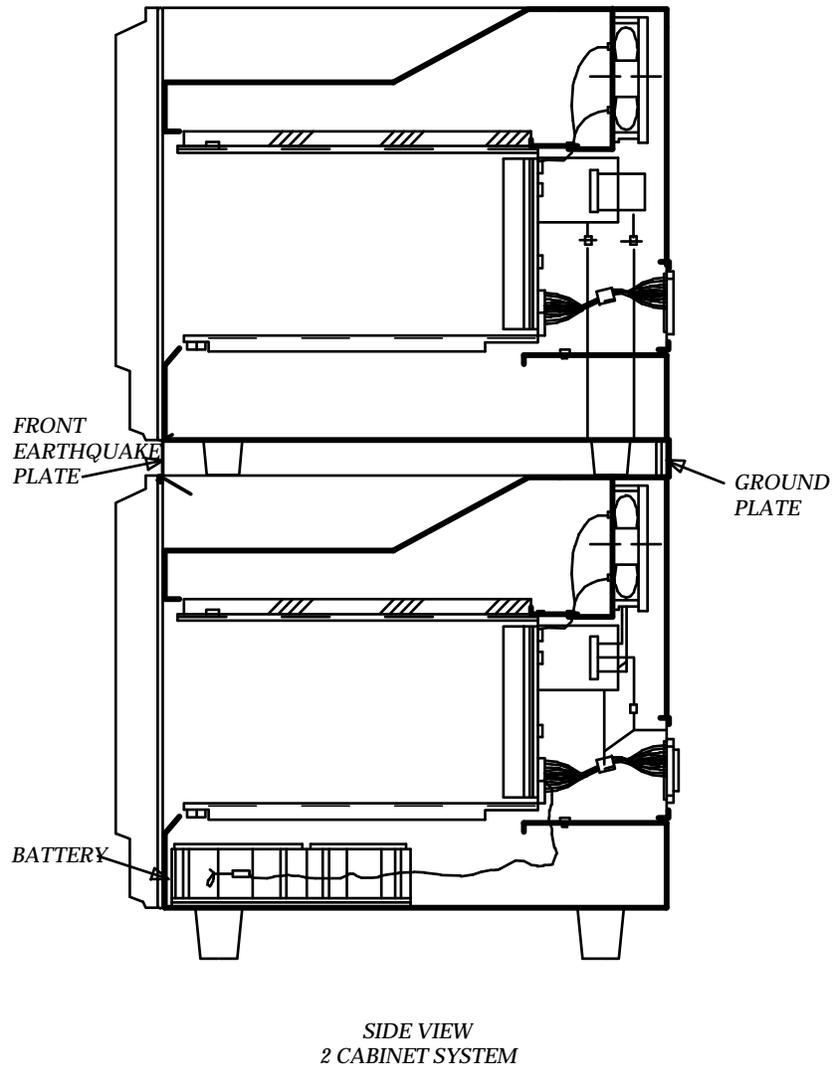
3. See WARNING. At the rear of each cabinet on the power supply, set the circuit breaker to ON.
4. The system now goes through the rebooting process loading the system translations from the tape. Rebooting requires 15 to 20 minutes. Refer to the “System Reboot Indications” section in *DEFINITY® Communications System Generic 1 and Generic 3i—Maintenance, 555-204-105*, for circuit pack LED indications and G1 Manager I or G3-MT terminal displays that occur during system reboot.
5. Login at the `login:` prompt on the G1 Manager I or G3-MT terminal, and set the time to ensure that the system is booted properly.
6. Enter `save translations`. Press `Return`. This command instructs the system to take all the translation information in memory and write it onto the tape.
7. If the system is equipped with a TN750B Announcement circuit pack, the recorded announcements can be saved by using the save announcements command. Enter `save announcements` and press `Return`.
8. At both control cabinets, remove the system tape and insert the G3i tape to be used as the backup tape.
9. Enter `save translations`. Press `Return`.
10. If the system is equipped with a TN750B Announcement circuit pack, the recorded announcements can be saved by using the save announcements command. Enter `save announcements` and press `Return`.

### **Close Up Cabinet Without Earthquake Protection and Reconnect Cables**

1. At the rear of each cabinet on the back of the power supply, set the circuit breaker to OFF.
2. Replace all cables that were labeled and removed.
3. Install the front door on each cabinet.
4. Install the DEFINITY label on the existing port cabinet.
5. Install the top and bottom rear covers. Ensure that the new J58890L and J58890M rear covers are installed on the correct carrier. Do not use them on the port cabinets.

### **Close Up Cabinet With Earthquake Mounting and Reconnect Cables**

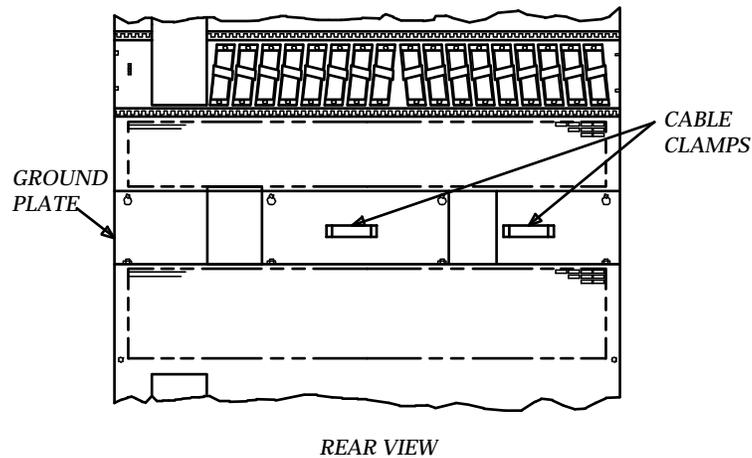
1. At the rear of each cabinet on the back of the power supply, set the circuit breaker to OFF.
2. Replace all cables that were labeled and removed.
3. Install the upper and lower rear panels with all the screws except for the screws that run along the top and bottom of the cabinet. Do not tighten the screws.
4. Line up the four holes in the ground plate with the four holes and install the screws but do not tighten.
5. Line up the ground plate with the top holes of the upper rear cover of the lower cabinet. Install the four screws, but do not tighten.
6. At the front of the cabinet, line up the earthquake front plate with the holes at the top and bottom of the cabinet (See Figure 6-28). Install the eight screws, but do not tighten.
7. Tighten all screws.
8. Repeat Steps 3 through 7 for remaining cabinets.
9. Install the front door on each cabinet.
10. Install the DEFINITY label on the cabinet.



**FIGURE 6-28. Single Carrier Cabinet Ground Plate, Earthquake Front Plate, and Battery Locations**

### **Install Cable Clamps**

At the rear of the cabinets, using screws provided, install two cable clamps on each ground plate (see Figure 6-29). These clamps are used to hold the port cables.



**FIGURE 6-29. Single Carrier Cabinet Ground Plate, and Cable Clamp Locations**

### Power Up the System

1. At the rear of each cabinet on the back of the power supply, set the circuit breaker to ON.
2. The system now goes through the rebooting process, loading the system translations on the tape. Rebooting requires 15 to 20 minutes. Refer to the “System Reboot Indications” section in *DEFINITY® Communications System Generic 1 and Generic 3i—Maintenance, 555-204-105*, for circuit pack LED indications and G1 Manager I or G3-MT terminal displays that occur during the system reboot.
3. After the system reboot is finished and all trouble is cleared, verify the EMERGENCY TRANSFER CONTROL switch is set to AUTO. This restores the system to the normal mode.

### Retranslate Port Circuits

If port circuit packs had to be moved because of slot limitations in the new cabinet, and they were not moved and retranslated before the original tape was updated, they must be retranslated now. Refer to *DEFINITY® Communications System Generic 1—Administration and Measurement Reports, 555-204-500*, for instructions on performing the retranslations.

### Run Acceptance Tests

Refer to Chapter 8, “Tests,” and perform the appropriate test.



## CHAPTER 7. ADDITIONS

This chapter describes the procedures required to install additional features or equipment to an existing G3i system.

All testing and trouble clearing must be done as specified in *DEFINITY® Communications System G1 and G3i Maintenance, 555-204-105*.

The commands and procedures required to administer the system are provided in *DEFINITY® Communication System Generic 1 and System 75 Administration and Measurement Reports, 555-200-500*.

### **1. Add G3i Single-Carrier Cabinet Expansion Port Network (EPN)**

Refer to the “Install G3i Single-Carrier Cabinet Expansion Port Network” section in *DEFINITY® Communications System Generic 1 and Generic 3i—Installation and Test, 555-230-104*, for the installation instructions for the EPN.

### **2. Add G3i Multi-Carrier Cabinet Expansion Port Network (EPN)**

Refer to the “Install Multi-Carrier Cabinet Expansion Port Network” section in *DEFINITY® Communications System Generic 1 and Generic 3i—Installation and Test, 555-230-104*, for the installation instructions for the EPN.

### **3. Add Auxiliary Cabinet (G3i Multi-Carrier Cabinet Only)**

Refer to the “Install Auxiliary Cabinet” section in *DEFINITY® Communications System Generic 1 and Generic 3i—Installation and Test, 555-230-104*, for the installation instructions for the auxiliary cabinet. Also, refer to the same section for instructions on installing the 19-inch EIA Mounting Bracket.

## 4 . Add Port Cabinet(s) (G3i Single-Carrier Cabinet Only)

Cabinets (1-, 2-, or 3-port) may be added to a control carrier when additional features or equipment exceed the capacity of the present system.

See WARNING. Each cabinet is shipped in a polyethylene bag, packed in a cardboard container, with wood/Styrofoam pallets. The cardboard container is strapped by two metal bands.

**WARNING: Port cabinets may weigh as much as 125 pounds each and require two handlers. Use extreme caution.**

### Unpack and Inspect for Damage

1. See WARNING. Unpack cabinet(s).

**WARNING: Care must be taken to avoid injury while cutting and removing bands.**

2. Visually inspect cabinet(s) for any physical damage caused during shipping. Report any damage for appropriate action per local procedures.

### Service Interruption

The addition of port cabinets requires service interruption. The customer should be notified in advance when the addition is going to be done.

### Verify System Status

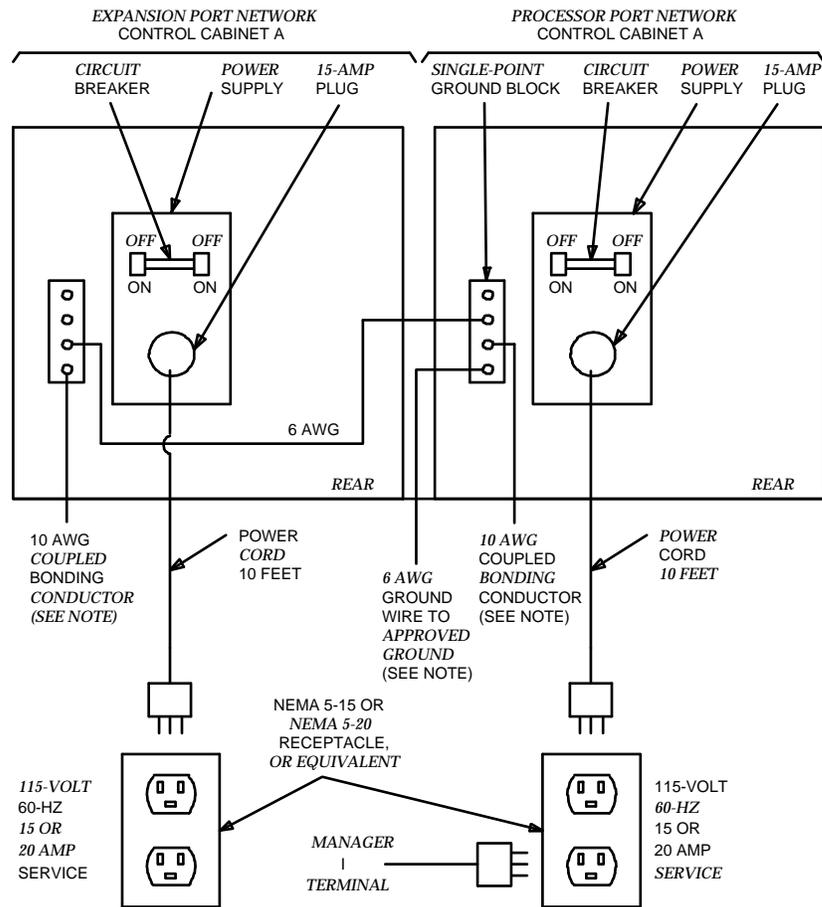
The system should be examined for alarms before proceeding, and all problems should be corrected. The system must be alarm-free.

### Save Translations

1. Login at the G1 Manager I or G3-MT terminal.
2. Enter `save translations`, and press `(Return)`. This command instructs the system to take all translation information in memory and write it onto the tape.
3. If the system is equipped with a TN750B Announcement circuit pack, the recorded announcements can be saved by using the `save announcements` command. Enter `save announcements`, and press `(Return)`.

### Power Down System

1. At the PPN, on the rear of each cabinet on the back of the power supply, set the circuit breaker to OFF (see Figure 7-1).
2. If the system is equipped with an EPN, on the rear of each cabinet on the back of the power supply, set the circuit breaker to OFF (see Figure 7-1).
3. Unplug the power cord from the receptacle for each on-line cabinet. (See Figures 7-1, 7-2, and 7-3.)



NOTE:  
TO APPROVED GROUND LOCATED NEAREST THE TELEPHONE COMPANY OWNED  
PROTECTOR GROUND BLOCK AT THE BUILDING ENTRANCE FACILITY

FIGURE 7-1. Typical Power and Grounding Layout

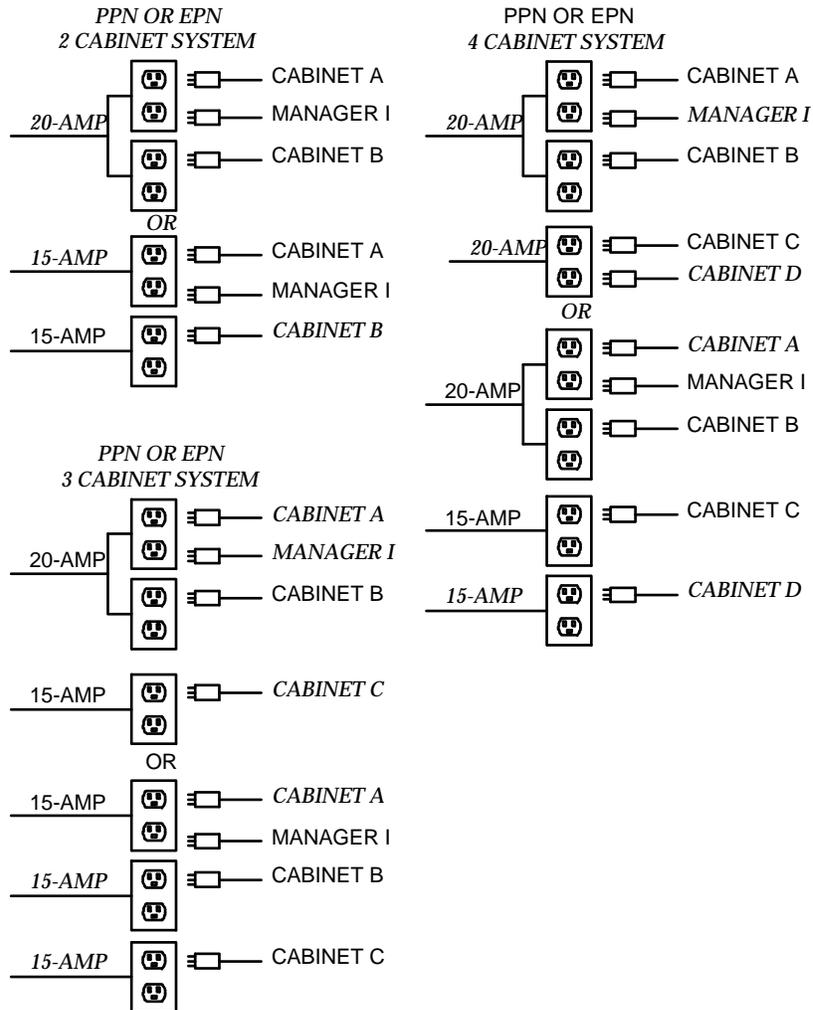
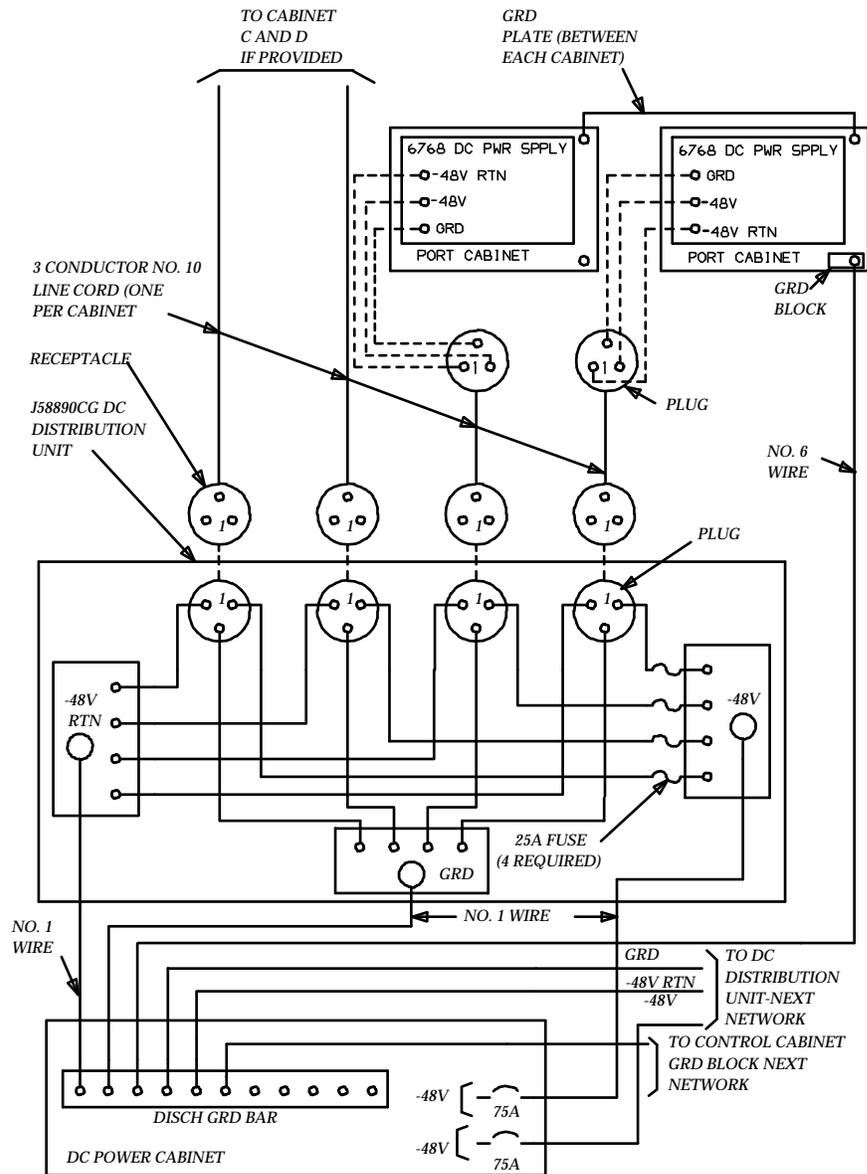


FIGURE 7-2. AC Power Requirements for Multiple Cabinet Systems

4 . Add Port Cabinet(s) (G3i Single-Carrier Cabinet Only)



**FIGURE 7-3. Typical Single-Carrier Cabinet System DC Power and Grounding Wiring**

### Position Port Cabinets

1. Remove the front door of each cabinet.
  - a. Use a screwdriver, and turn door latch screw counter clockwise one-fourth turn to open door (see Figure 7-4).
  - b. Lift door from lower slots and remove from cabinet.
2. See WARNING. Stack cabinet(s) on top of control cabinet A (or B if provided) (see Figure 7-5).

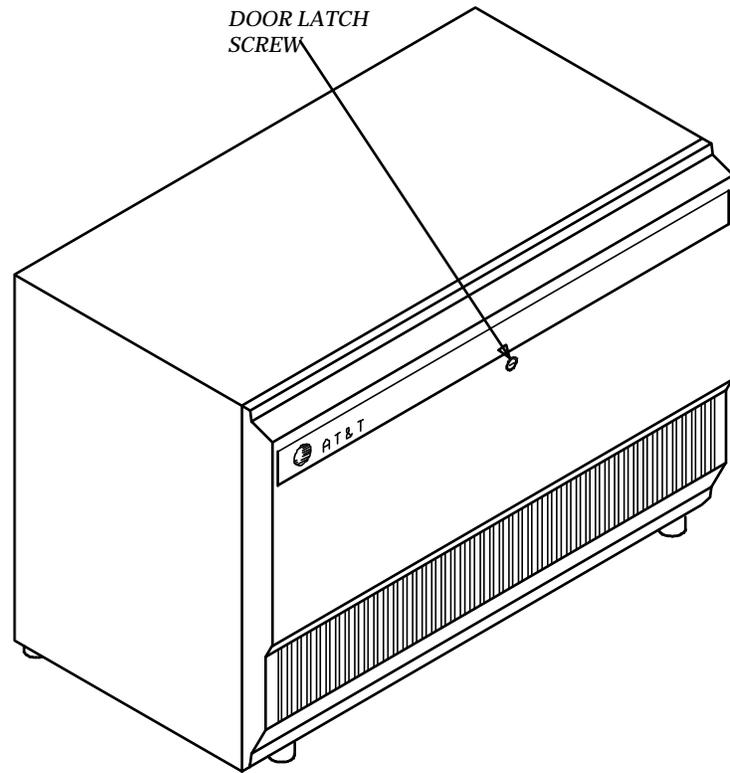
**WARNING: Port cabinets may weigh as much as 125 pounds each and require two handlers to stack the cabinets. If adding a fourth cabinet, remove its power supply to lighten the load and make sure the two handlers are capable (size and strength) of lifting the cabinet to the fourth position.**

3. Install cabinet label(s) on the front and back of cabinet(s) to the left of the circuit pack labels. The second cabinet should be labeled B, the third cabinet should be labeled C, and the fourth cabinet should be labeled D.

### Connect TDM/LAN Bus Cables

1. Remove upper and lower rear panels.
2. Disconnect TDM bus terminator (Figure 7-6, 7-7, or 7-8) from slot 18 of the control cabinet or slot 17 of the port cabinet and move to slot 17 of the top port cabinet.
3. Connect TDM/LAN bus cables (see Figure 7-6, 7-7, or 7-8). The TDM bus cable is located behind the lower rear panel.

4 . Add Port Cabinet(s) (G3i Single-Carrier Cabinet Only)



**FIGURE 7-4. Location of Cabinet Door Latch Screw**

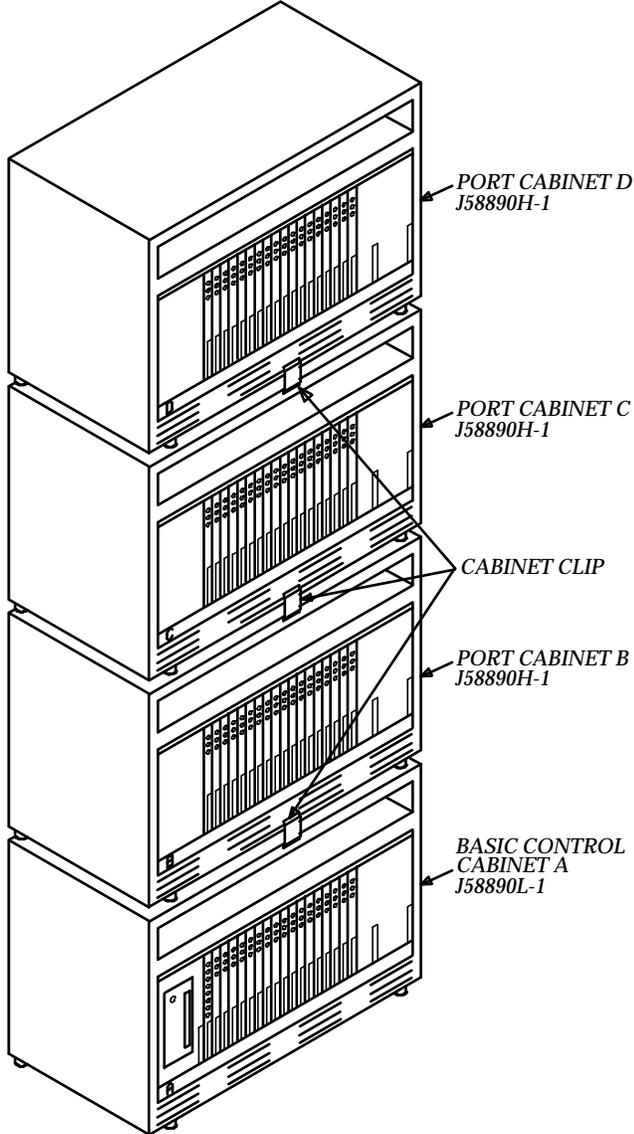


FIGURE 7-5. Four-Cabinet System—Front View, Doors Removed

4 . Add Port Cabinet(s) (G3i Single-Carrier Cabinet Only)

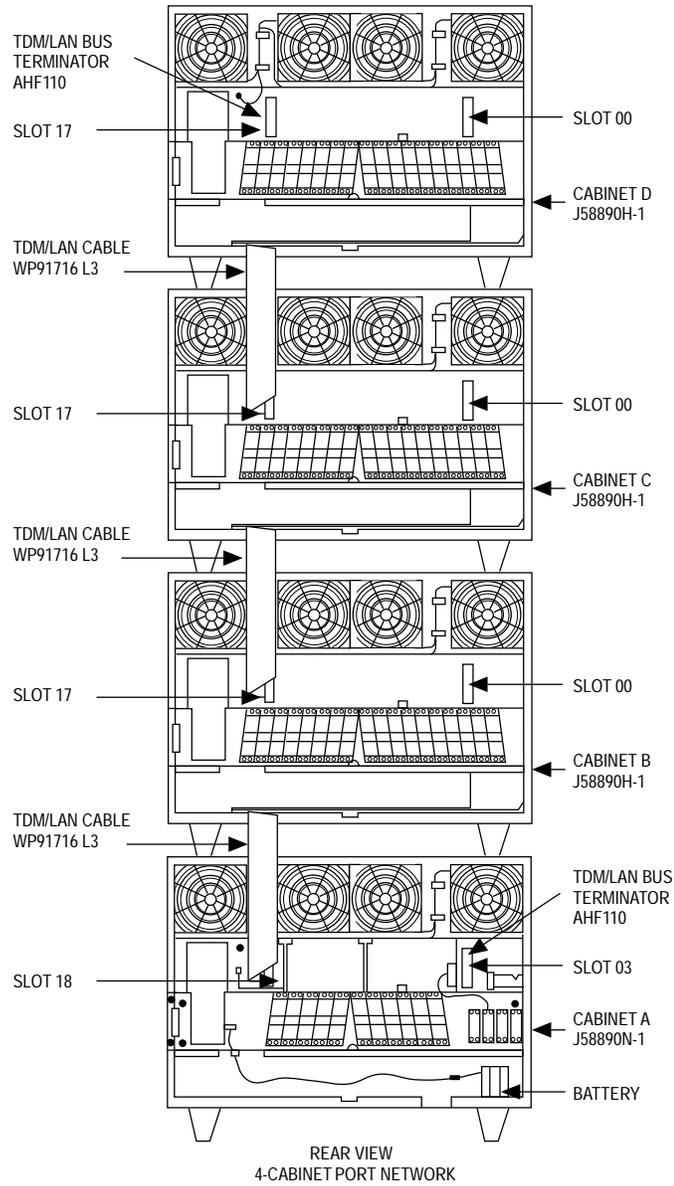


FIGURE 7-6. TDM/LAN Bus Connections PPN Without Duplication

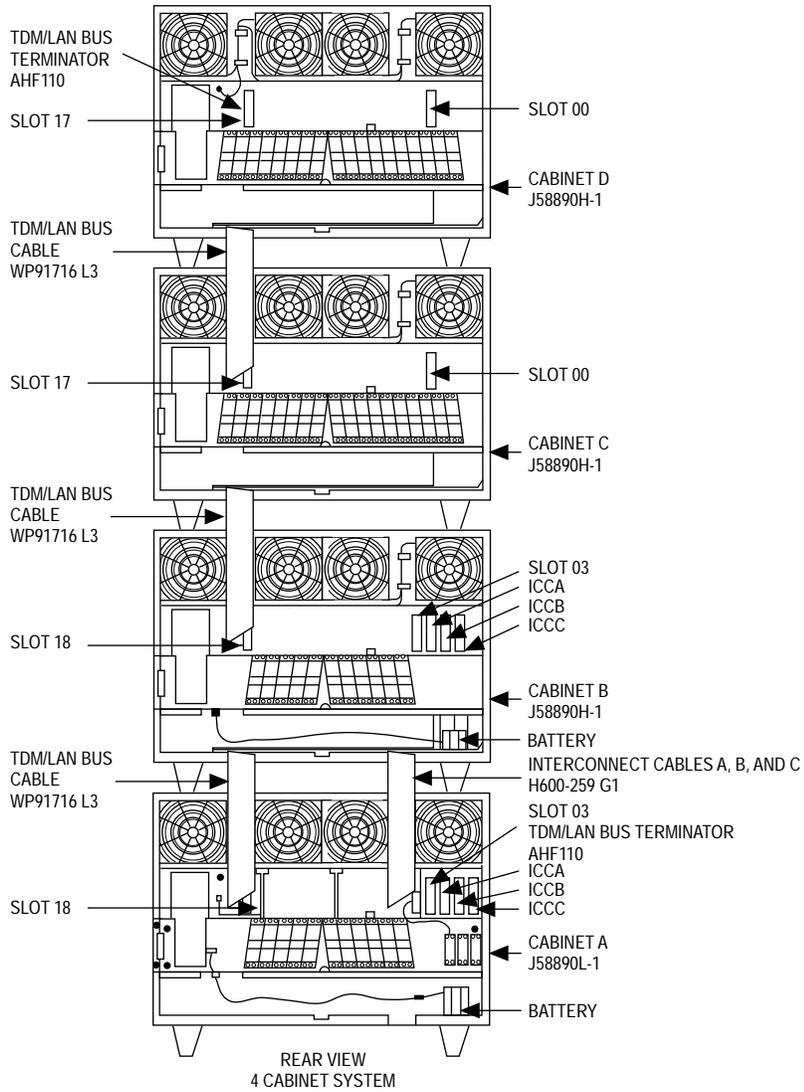


FIGURE 7-7. TDM/LAN Bus Connections PPN With Duplication

4 . Add Port Cabinet(s) (G3i Single-Carrier Cabinet Only)

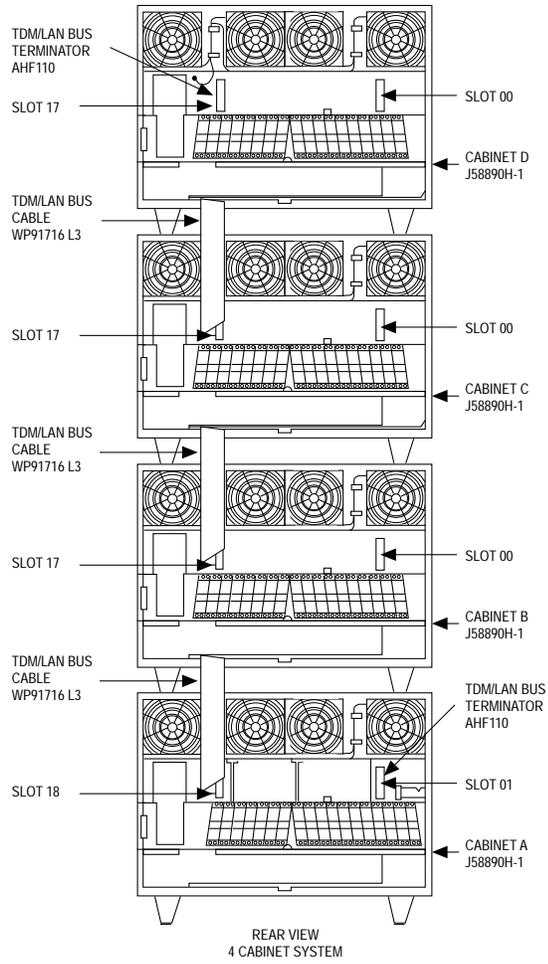


FIGURE 7-8. TDM/LAN Bus Connections EPN

**Connect ICC Cables**

If the port cabinet being installed is cabinet B on the EPN, ICC cables must be connected.

- 1. Install the ICC cables (ICC A and ICC B). They are connected to the “ICC” block on the control cabinet A and port cabinet B. The cable is installed so the dark stripe on the cable is on the bottom (see Table 7-A and Figures 7-9 and 7-10).

**TABLE 7-A. Intercabinet Cable Connections**

Connect ICC Cables				
	From		To	
	Carrier	CONN	Carrier	CONN
EPN	J58890N	ICCA ICCB	J58890H	ICCA ICCB

4 . Add Port Cabinet(s) (G3i Single-Carrier Cabinet Only)

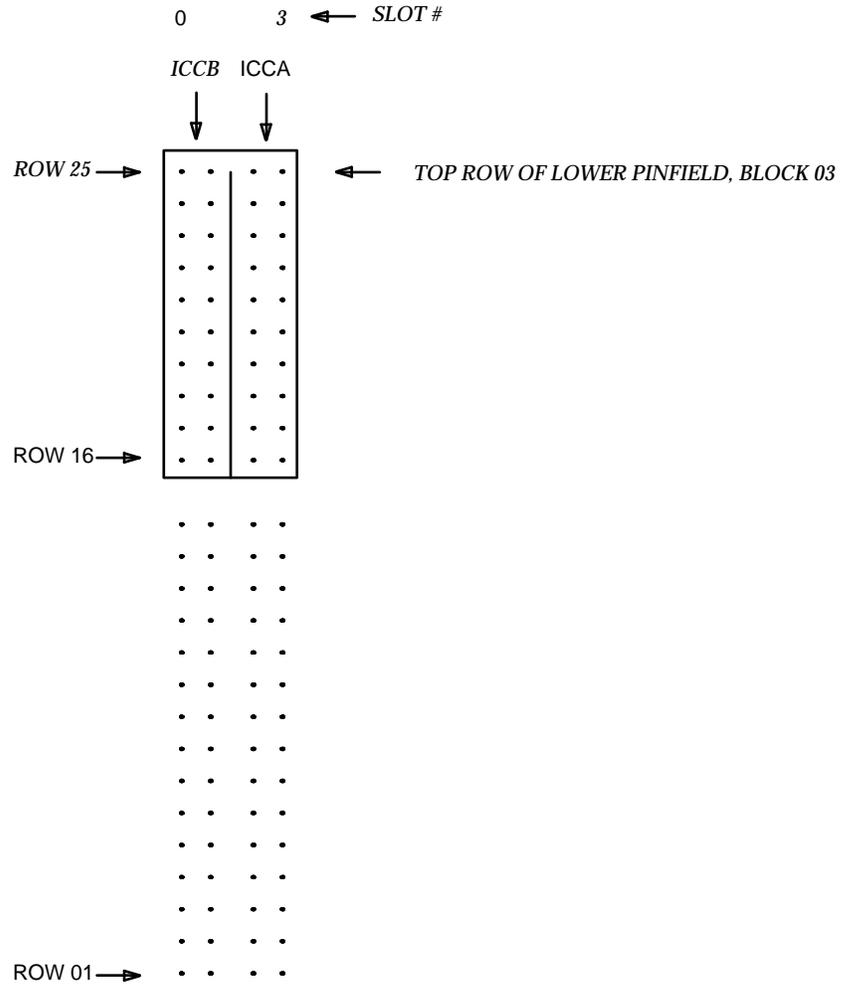


FIGURE 7-9. ICC Pin Block on J58890N

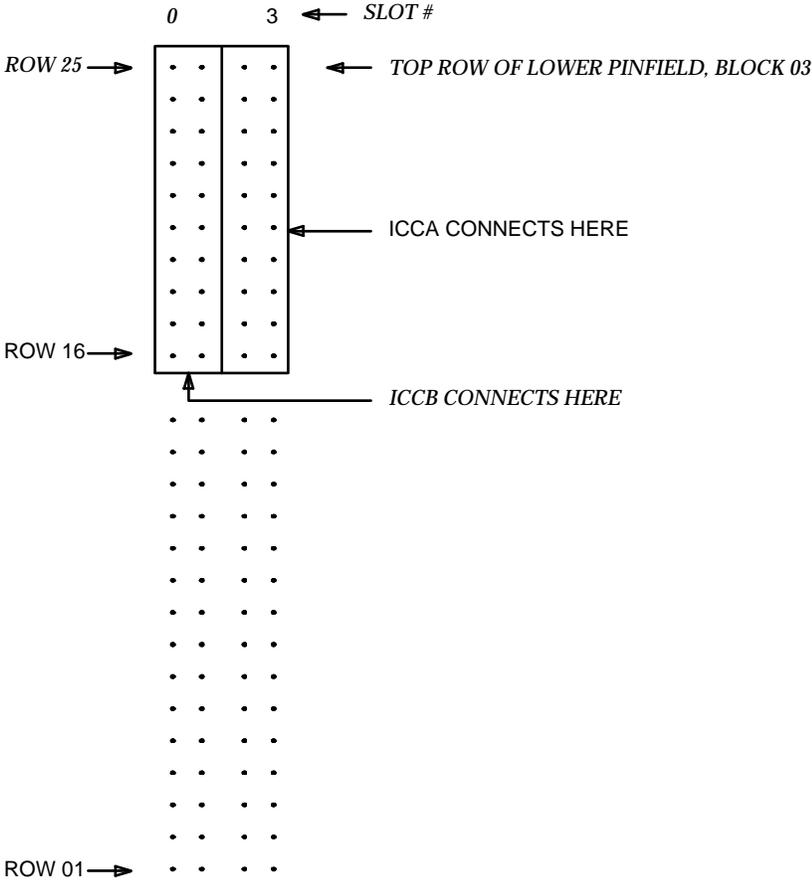


FIGURE 7-10. ICC Pin Block on J58890H

### Install Cabinet Address Plug(s)

On the backplane of the port cabinets to the right of slot 00, a group of six pins are marked for the cabinet (carrier) address plug connections. Install one plug in each port cabinet as shown in Figure 7-11.

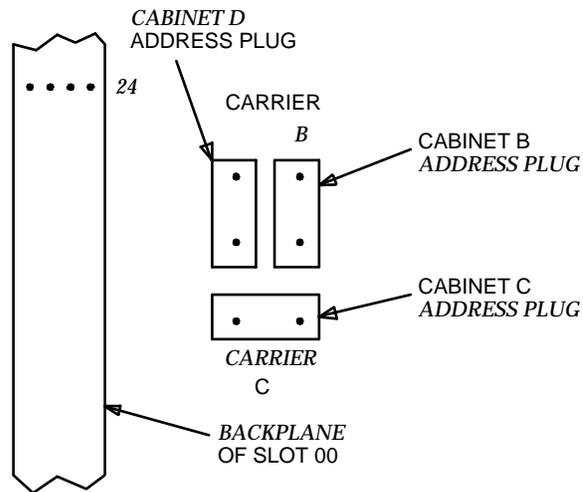


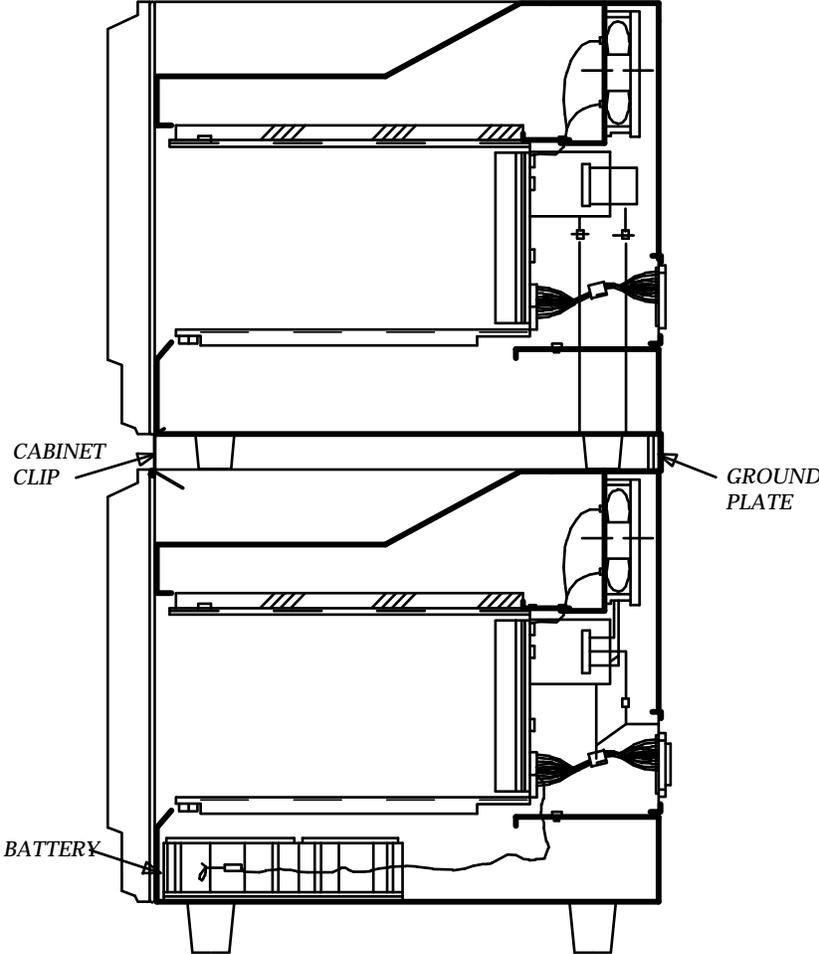
FIGURE 7-11. Cabinet Address Plug Location

### Install Ground Plates

The ground plate provides the ground connection between cabinets and also stabilizes the cabinets.

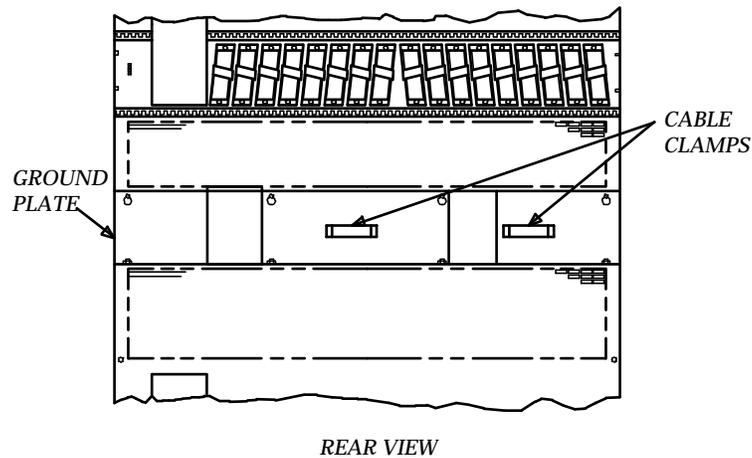
A ground plate is required between each cabinet (Figures 7-12 and 7-13).

1. At the rear of the cabinets, replace the upper and lower panels with all the screws except for the screws that run along the top and bottom of each cabinet.
2. At the upper cabinet, place the top of the ground plate over the bottom of the lower-rear panel. Line up the four holes in the ground plate with the four holes at the bottom of the lower rear cover of the cabinet, and install the screws. Do not tighten the screws.
3. At the top of the cabinet below the cabinet referred to in Step 2, line up the bottom of the ground plate with the top four holes in the upper rear cover of the lower cabinet. Install the four screws. Do not tighten at this time.
4. Repeat Steps 2 and 3 until the earthquake ground plates are installed between all cabinets.
5. Tighten all screws.



SIDE VIEW  
2 CABINET SYSTEM

FIGURE 7-12. Ground Plate and Cabinet Clips Location



**FIGURE 7-13. Single-Carrier Cabinet Ground Plate and Cable Clamp Locations**

### **Install Cabinet Clip(s) on Systems Without Earthquake Protection**

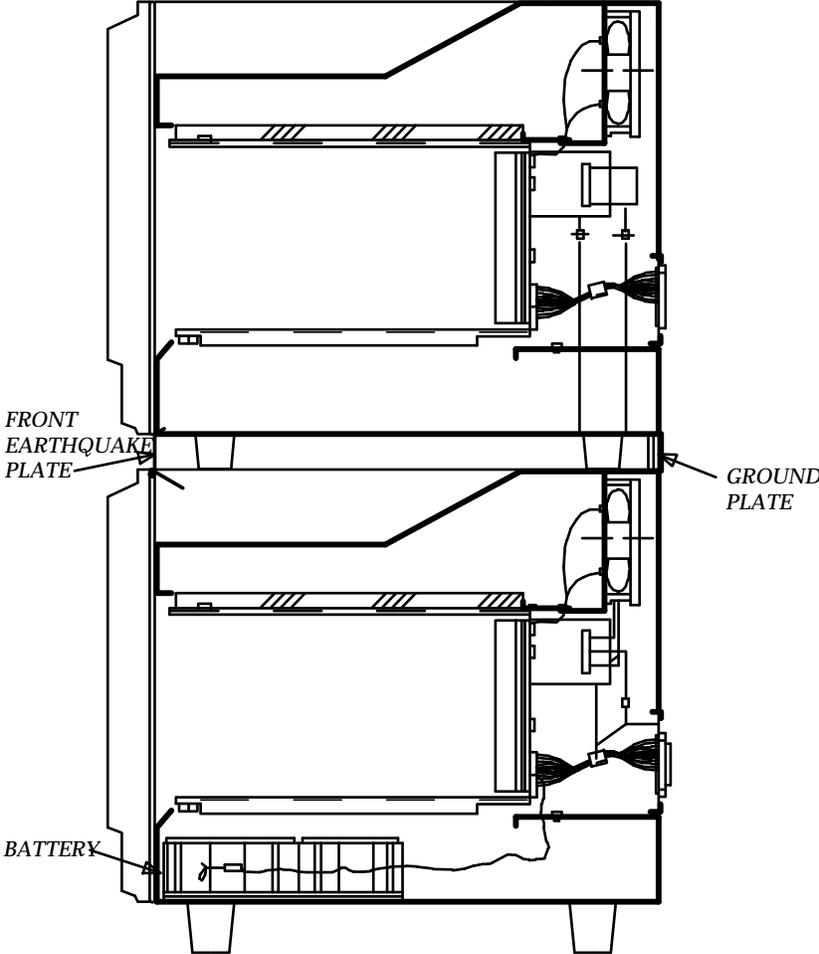
A cabinet clip, used to stabilize the cabinets, is required between each cabinet.

At the front of the cabinets, install the cabinet clip between the cabinets by hooking the clip into the slot on the upper cabinet and snapping the straight leg of the clip into the slot on the lower cabinet (see Figures 7-5 and 7-12).

### **Install Earthquake Front Plates**

The earthquake front plate replaces the cabinet clip for systems equipped with earthquake protection. An earthquake front plate is required between each cabinet (Figure 7-14).

1. At the front of the cabinets, line up the holes in the top of the earthquake front plate with the holes at the bottom of the upper cabinet, and insert the four screws. Do not tighten at this time.
2. At the front of the cabinets, line up the holes in the bottom of the earthquake front plate with the holes at the top of the lower cabinet and insert the four No. 12-24 by 1/2-inch thread-forming screws. Do not tighten at this time.
3. Repeat Steps 1 and 2 until all the cabinets are fastened together with the earthquake front plate.
4. Tighten all screws.



SIDE VIEW  
2 CABINET SYSTEM

**FIGURE 7-14. Single-Carrier Cabinet Ground Plate, Earthquake Front Plate, and Battery Locations**

**Install Cable Clamps**

At the rear of the cabinets, install two cable clamps on each ground plate (see Figure 7-13). These clamps are used to hold the port cables.

### Install Port Circuit Packs

1. See WARNING. Install circuit packs in the proper slots according to the Customer Service Document and Port Assignment Worksheet. Also, see “6. Add Circuit Packs” later in this chapter.

**WARNING:** A wrist strap must always be worn and the clip must be grounded to the cabinet frame being worked on before inserting or removing any circuit pack.

### Install Cables

Install cables from port cabinet(s) to cross-connect field, as required.

Detailed descriptions for installing wiring are contained in *DEFINITY® Communications System Generic 1 and Generic 3i—Wiring, 555-204-111*.

### Connect AC Power

Each cabinet contains its own power supply, and an AC power cable must be connected to each cabinet. The customer-provided AC receptacle options are shown in Figure 7-2.

1. Connect an AC power cord to each added cabinet.
2. Connect the AC power cable from each cabinet to power receptacles (see Figures 7-1 and 7-2).

### Connect DC Power

Each network must have a DC Power Distribution Unit associated with it. Each DC Power Distribution Unit can furnish DC power for four single carrier cabinets. The DC Power Distribution Unit comes equipped with four power cords. Each cord comes equipped with the appropriate male and female connectors. Use the following instructions to connect each cabinet to the DC Power Distribution Unit.

1. At the J58890CG DC Power Distribution Unit, connect the power cord to the cabinet connector associated with the cabinet being added. Route the cable to the rear of the cabinet being installed. Connect the power cord to the DC connector on the rear of the cabinet being installed (see Figure 7-3).

### Power Up System

1. At the EPN, if provided, on the rear of each cabinet on the back of the power supply, set the circuit breaker to ON (see Figure 7-1).
2. At the PPN, on the rear of each cabinet on the back of the power supply, set the circuit breaker to ON (see Figure 7-1).
3. The system now goes through the rebooting process, loading the system program and translations from the tape. Rebooting requires several minutes. Refer to the “System Reboot Indications” section in *DEFINITY® Communications System Generic 1 and Generic 3i—Maintenance, 555-204-105*, for circuit pack LED indications and G1 Manager I or G3-MT terminal displays that occur during system reboot.
4. After the system reboot is finished and all trouble is cleared, verify the EMERGENCY TRANSFER CONTROL switch is set to AUTO. This restores the system to the normal operating mode.

### Enter Added Translations

Enter added translation data as applicable using *DEFINITY® Communications System Generic 3i—Implementation, 555-230-650*, and *DEFINITY® Communications System Generic 1 and System 75—Administration and Measurement Reports, 555-200-500*.

### Save Translations

1. Enter `save translations`, and press `Return`. This command instructs the system to take all translation information in memory and write it onto the tape.
2. If the system is equipped with a TN750B Announcement circuit pack, the recorded announcements can be saved by using the save announcements command. Enter `save announcements`, and press `Return`.
3. Update backup tape if required.

## 5. Add Port Carriers (G3i Multi-Carrier Cabinet Only)

A new port carrier can be installed when additional features or equipment exceed the capacity of the present system. Port carriers are identified as B, C, D, and E except for a PPN cabinet with the duplication option. The “B” carrier is the second control carrier. PEC 63155 provides the necessary equipment for adding the carrier.

### Service Interruption

The addition of port carriers requires service interruption. The customer should be notified in advance when the addition is going to be done.

### Verify System Status

The system should be examined for alarms before proceeding and all problems corrected. The system must be alarm-free.

### Save Translations

1. Login to the G1 Manager I or G3-MT terminal.
2. Enter `save translations`, and press `(Return)`. This command instructs the system to take all translation information in memory and write it onto the tape.
3. If the system is equipped with a TN750B Announcement circuit pack, the recorded announcements can be saved by using the save announcements command. Enter `save announcements`, and press `(Return)`.

### Power Down System

1. At the PPN, on the power distribution unit, set the main circuit breaker to OFF.
2. At the EPN, if provided, on the power distribution unit, set the main circuit breaker to OFF.

## Install Port Carrier

### At rear of cabinet:

1. Open the rear doors.

### At front of cabinet:

2. Remove the blank port carrier panel by pushing outward on panel from the rear of the cabinet until the panel clears the four retaining pins on the cabinet frame (see Figure 7-15).
3. Use a screwdriver to loosen and remove the four retaining pins from the cabinet frame.
4. Align the carrier through the front of the system cabinet with four pilot holes on cabinet frame.

**Note:** Support the carrier by the molded-in support pins above the top mounting holes.

5. Insert self-tapping screws in pilot holes and tighten.
6. Attach magnetically-held nomenclature panel to front of carrier.

### At rear of cabinet:

7. Install eight grounding jumpers from the adjacent backplane to the new carrier backplane wiring (Figures 7-16 and 7-17).
8. Connect a 9-pin D-subminiature plug on right side of cabinet to P1 connector on carrier. To get enough slack in the cable, cut the tie wrap holding the intercabinet cable to the upright in the area of the carrier being installed.
9. Connect the TDM bus cable to the newly installed port carrier (Figure 7-18, 7-19, 7-20, or 7-21 and Table 7-B).

### At front of cabinet:

10. Install a 631AR, 631WA1, 631DA1, or 644A power unit in the leftmost slot and a 631BR, 631WB1, 631DB1 or 645B power unit in the rightmost slot of installed port carrier as follows:
  - a. See Figure 7-22. Operate circuit breaker on power unit to be added to OFF position.

---

## 5. Add Port Carriers (G3i Multi-Carrier Cabinet Only)

- b. Turn power unit on side and ensure rocker switches 1 through 4 on DIP switch are as follows (see Note):

Switch	631BR, 631WB1, 631DB1 Position	631AR, 631WA, 631DA1 Position
1	Open	Open
2	Closed	Closed
3	Open	Open
4	Open	Closed

**Note:** In the open position, the rocker is down on the side opposite the number. In the closed position, the rocker is down on the side adjacent to the number.

- c. Move locking slide on power unit to its leftmost position (see Figure 7-22) and open lever.
- d. Align and slide power unit into slot in carrier until some resistance is felt.
- e. Lift locking lever upward until it latches.
- f. Move locking slide on power unit to its rightmost position (see Figure 7-22).
- g. Connect a power cord inside the cabinet to outlet on power unit.
- h. Operate circuit breaker on power unit to ON position.
11. Install a TN736 power converter in slot next to the 631AR power converter or a TN752 power converter in slot next to the 631WA1 power converter on left side of carrier.

**Note:** The TN736 is not required when the 631DB1 power unit is used in the J58890BB-2 or J58890BB-3 port carriers. It is required in the J58890BB-1 port carrier regardless of which 631 power unit is provided. Use the TN752 or TN755 if the system is equipped with neon message waiting.

12. Install port packs in carrier.
13. Connect AC/DC power cords located inside cabinet to the power units.

### At rear of cabinet:

14. Install rear panels around port carrier.
15. Install cables from port carrier to cross-connect field and cable access panel, as required.

## Power Up System

1. At the EPN, if provided, on the power distribution unit, set the main circuit breaker to ON.
2. At the PPN, on the power distribution unit, set the main circuit breaker to ON.
3. The system now goes through the rebooting process, loading the system program and default translations from the tape. Rebooting requires several minutes. Refer to the “System Reboot Indications” section in *DEFINITY® Communications System Generic 1 and Generic 3i—Maintenance, 555-204-105*, for circuit pack LED indications and G1 Manager I or G3-MT terminal displays that occur during system reboot.
4. After the system reboot is finished and all trouble cleared, verify the EMERGENCY TRANSFER CONTROL switch is set to AUTO. This restores the system to the normal operating mode.

## Enter Added Translations

Enter added translation data as applicable using *DEFINITY® Communications System Generic 3i—Implementation, 555-230-650*.

## Save Translations

1. Enter `save translations`, and press the `(Return)`. This command instructs the system to take all translation information in memory and write it onto the tape.
2. If the system is equipped with a TN750B Announcement circuit pack, the recorded announcements can be saved by using the save announcements command. Enter `save announcements`, and press `(Return)`.
3. Update backup tape if required.

## Update Port Assignment Record

1. Update the customer's Port Assignment Records.

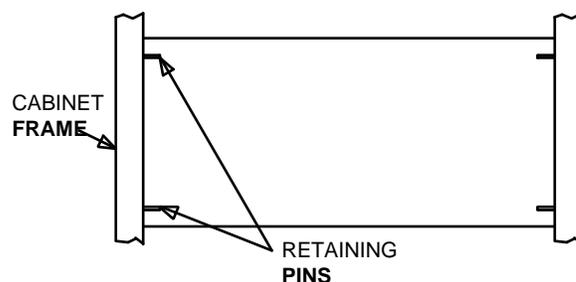
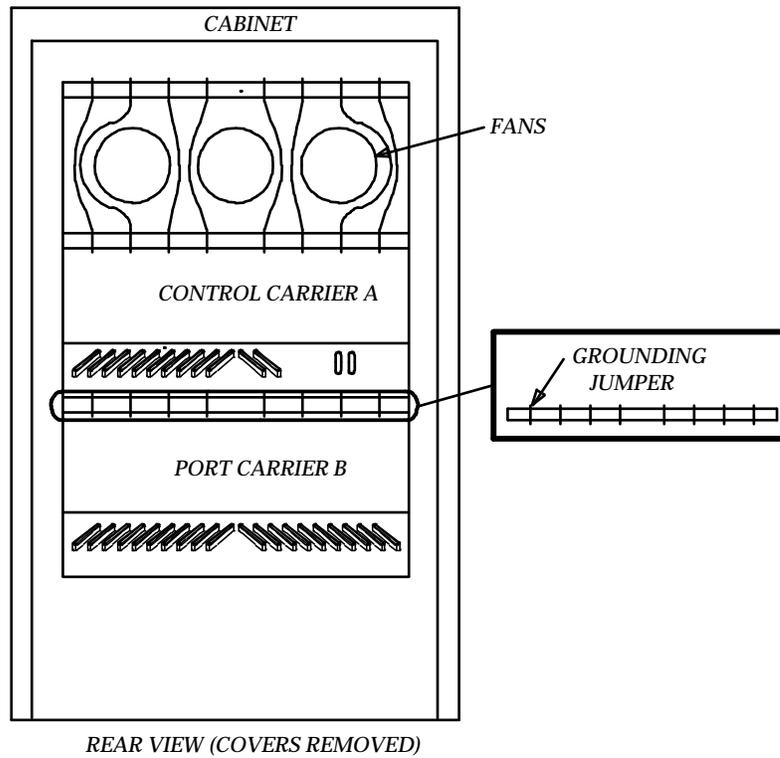


FIGURE 7-15. Blank Carrier Panel (Rear View)

5. Add Port Carriers (G3i Multi-Carrier Cabinet Only)



**FIGURE 7-16. Grounding Jumper Locations (1-Port Carrier)**

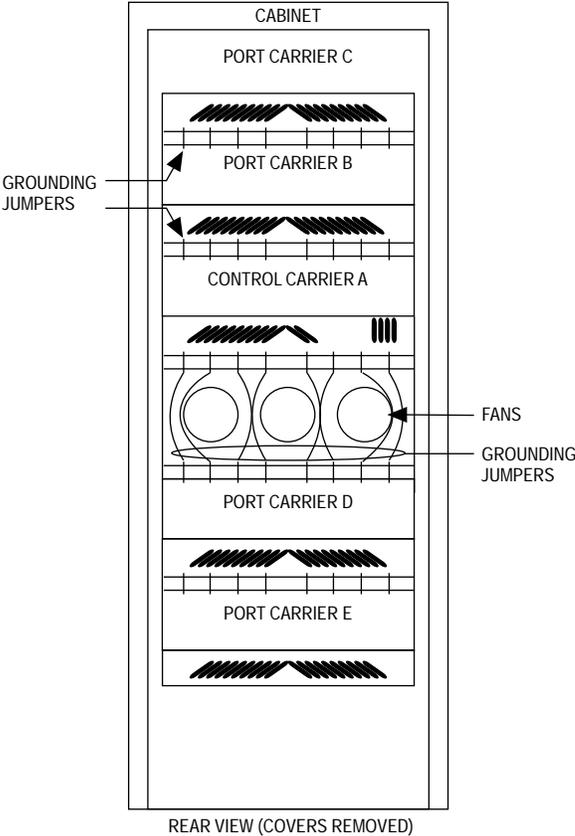
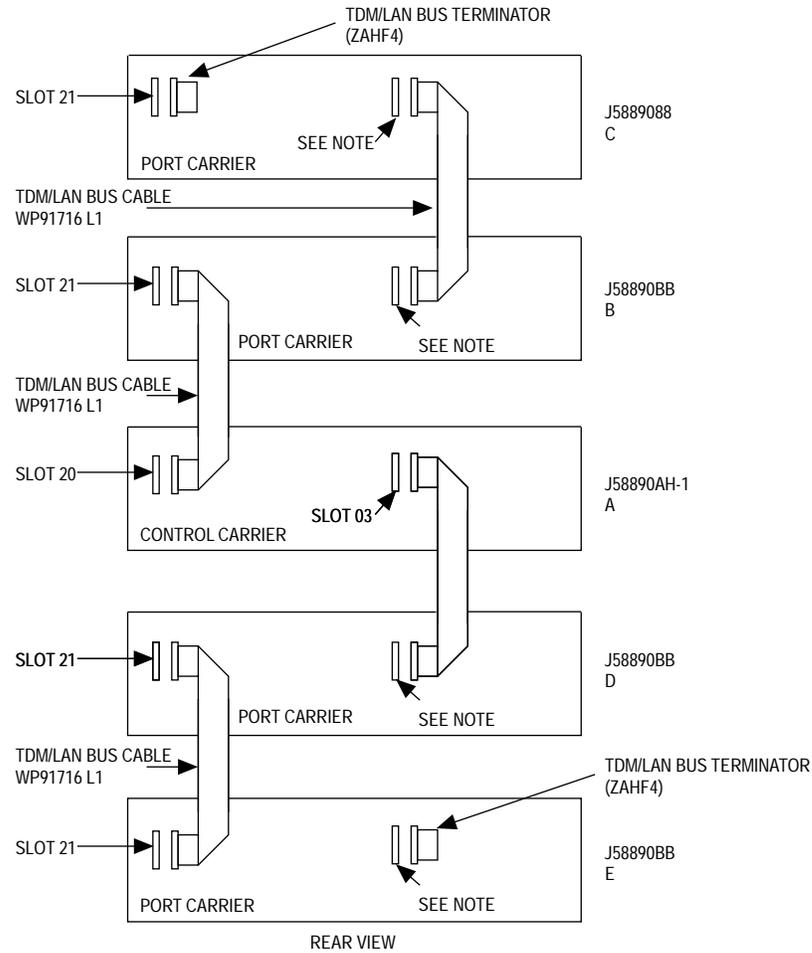


FIGURE 7-17. Grounding Jumper Locations (5-Port Carrier)

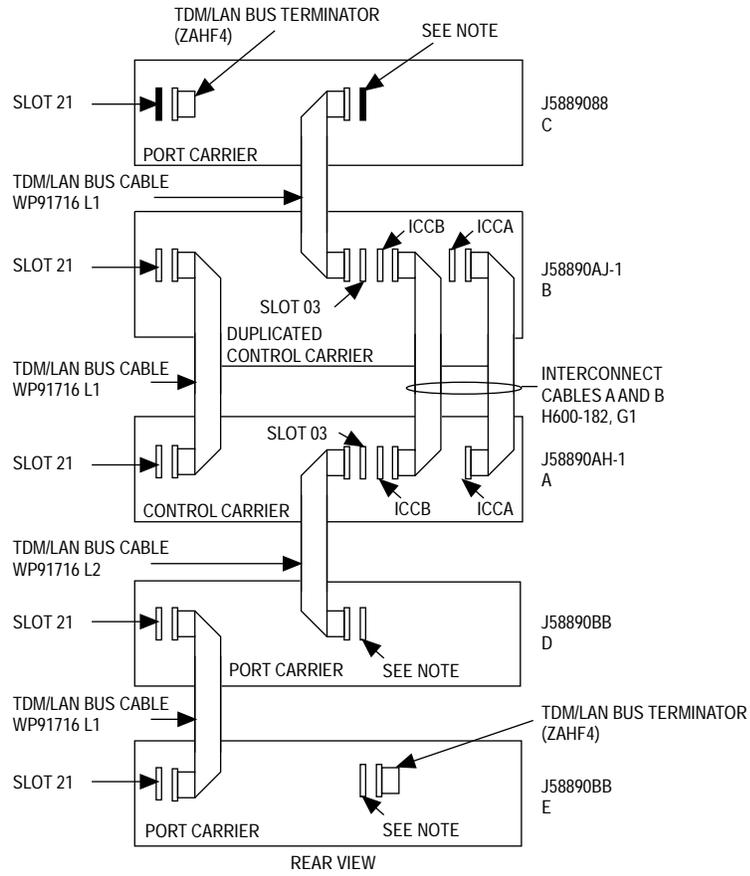
## 5. Add Port Carriers (G3i Multi-Carrier Cabinet Only)



**NOTE:**

ON PORT CARRIER J58890BB-1, CONNECT THE TDM CABLE OR TDM TERMINATOR TO SLOT 02. ON PORT CARRIERS J58890BB-2 OR J58890BB-3, CONNECT THE TDM CABLES OR TDM TERMINATOR TO SLOT 01. IF THE PORT CARRIER HAS J58890BB-1 AND J58890BB-2 STENCILLED ON IT, TREAT IT AS A J58890BB-1.

**FIGURE 7-18. PPN Without Duplication—TDM/LAN Bus Wiring Diagram**



NOTE:

ON PORT CARRIER J58890BB-1, CONNECT THE TDM CABLE OR TDM TERMINATOR TO SLOT 02. ON PORT CARRIERS J58890BB-2 AND J58890BB-3, CONNECT THE TDM CABLES OR TDM TERMINATOR TO SLOT 01. IF THE PORT CARRIER HAS J58890BB-1 AND J58890BB-2 STENCILLED ON IT, TREAT IT AS A J58890BB-1.

**FIGURE 7-19. PPN With Duplication—TDM/LAN Bus Wiring Diagram**

5. Add Port Carriers (G3i Multi-Carrier Cabinet Only)

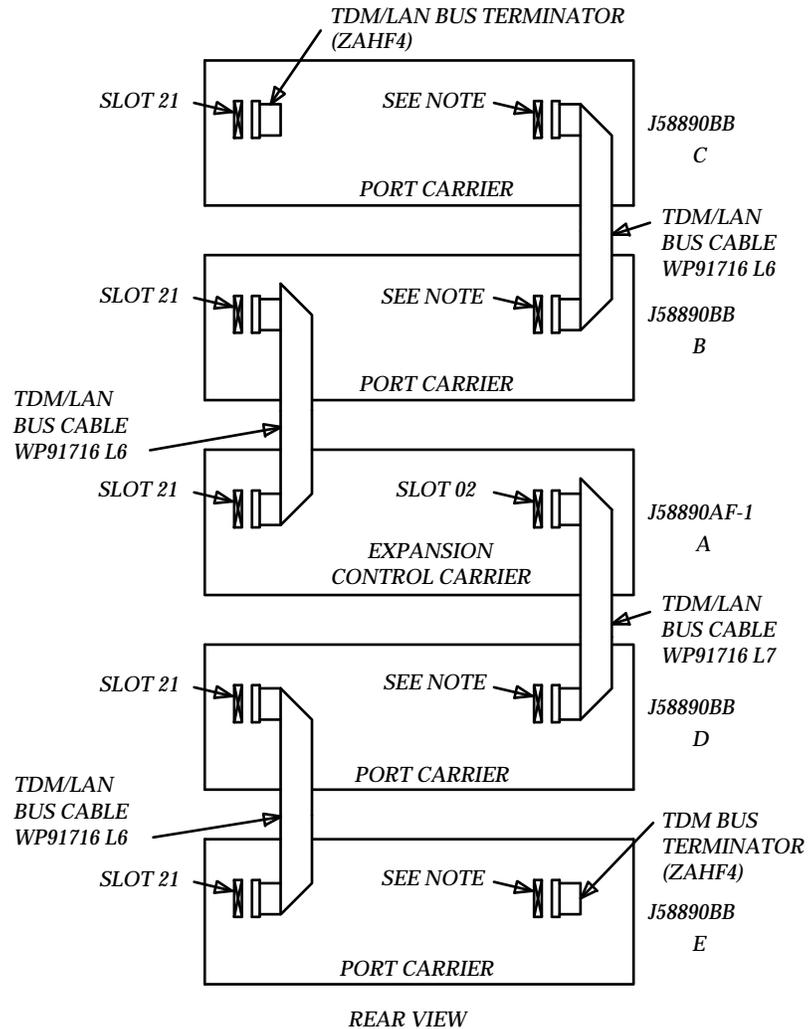
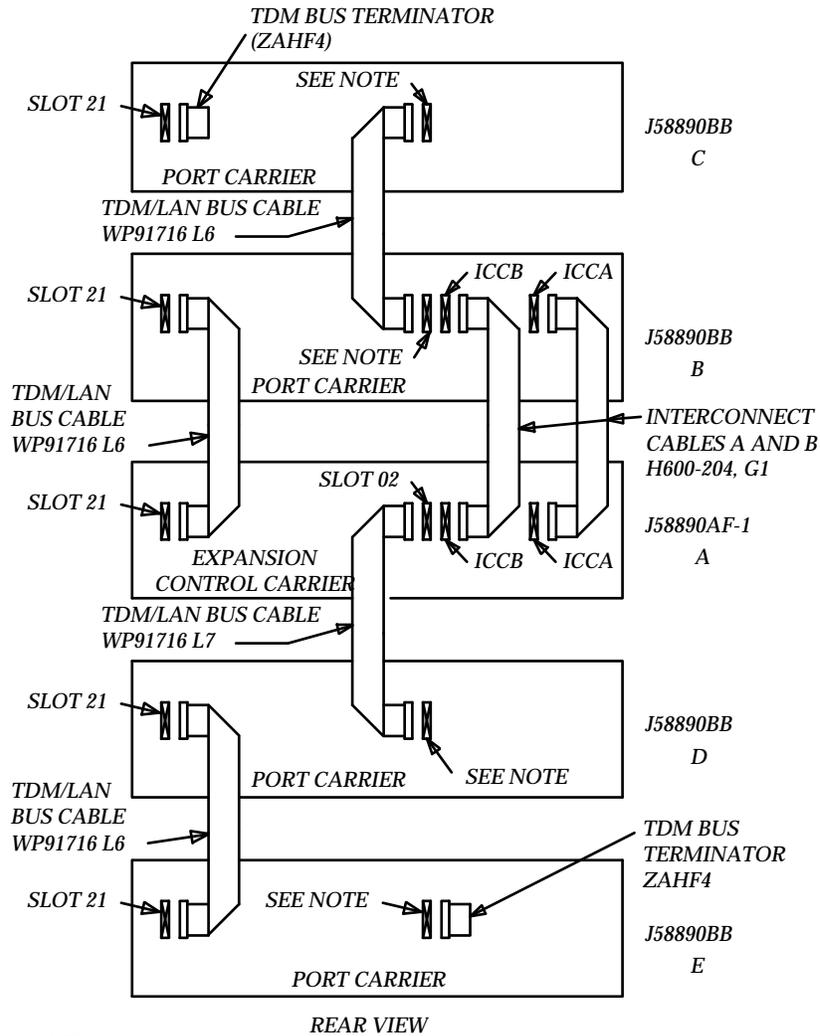


FIGURE 7-20. EPN Without Duplication—TDM/LAN Bus Wiring Diagram



NOTE:  
 ON PORT CARRIER J58890BB-1, CONNECT TDM CABLE ADAPTER OR TDM TERMINATOR TO SLOT 02. ON PORT CARRIERS J58890BB-2 AND J58890BB-3, CONNECT THE TDM CABLE ADAPTERS OR TDM TERMINATOR TO SLOT 01.

FIGURE 7-21. EPN With Duplication—TDM/LAN Bus Wiring Diagram

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5. Add Port Carriers (G3i Multi-Carrier Cabinet Only)

**TABLE 7-B. TDM/LAN Cable Connections**

<b>“J” Number</b>	<b>Carrier Type</b>	<b>LHS Slot</b>	<b>RHS Slot</b>
J58890BB-1	Port	21	02
J58890BB-2	Port	21	01
J58890BB-3	Port	21	01
J58890AH-1	PPN Control “A”	20	03
J58890AJ-1	PPN Control “B”	20	03
J58890AF-1	EPN Control “A”	21	02

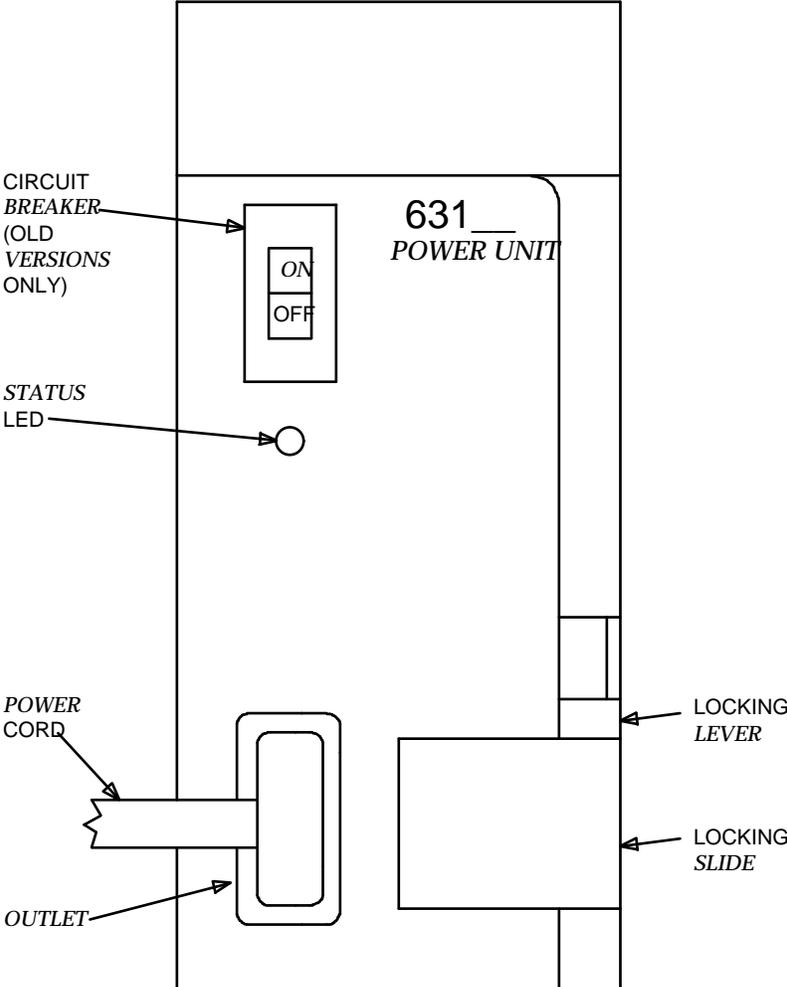


FIGURE 7-22. 631-Type Power Unit

## 6. Add Circuit Packs

When installing additional features or equipment, it may be necessary to install additional port circuit packs. This is a general procedure that must be used when adding features or equipment that requires adding circuit packs. Refer to Tables 7-C, 7-D, 7-E, and 7-F for circuit pack locations for a multi-carrier cabinet. Refer to Tables 7-G, 7-H, 7-I, and 7-J for circuit pack locations for a single-carrier cabinet.

1. See WARNING. Lift up on bottom of circuit pack blank and pull forward.

**WARNING:** To prevent static electricity damage to the circuit pack, a wrist strap must always be worn and the clip must be grounded to the carrier frame being worked on before inserting or removing any circuit pack.

2. Align and slide circuit pack with latch lever opened into slot in carrier until some resistance is felt.
3. Lift locking lever upward until latch pin engages (see Figure 7-23).

**TABLE 7-C. J58890AH-1 (G3i Multi-Carrier Cabinet)  
Control Carrier Circuit**

<b>Description</b>	<b>Code</b>	<b>Slot Position</b>	<b>Note</b>
Duplication Interface	TN772	DUPLICATION INTERFACE	1
Processor	TN773	PROCR	
Memory	TN770	MEM 1	2
Memory	TN770	MEM 2	2
Processor Interface	TN765	PROCR INTFC 1	
Processor Interface	TN765	PROCR INTFC 3	
Network Control	TN777	NETWORK CONTROL	
Packet Control	TN778	PACKET CONT	3
Tone-Clock	TN768	TONE CLOCK	
Tone-Clock	TN780	TONE CLOCK	4
Call Classifier	TN744	1-9	5
Expansion Interface	TN776	1/EXPNSN INTFC	6
Expansion Interface	TN776	2/EXPNSN INTFC	7
Expansion Interface	TN570	1/EXPNSN INTFC	8
Expansion Interface	TN570	2/EXPNSN INTFC	9
CO Trunk	TN747B	1-9	
DID Trunk	TN753	1-9	
Tie Trunk	TN760C	1-9	
Auxiliary Trunk	TN763C	1-9	
Digital Line	TN754B	1-9	
Hybrid Line	TN762B	1-9	
Analog Line 8 Port	TN742B	1-9	
Analog Line 8 Port	TN769	1-9	
Analog Line 16 Port	TN746	1-9	
MET Line	TN735	1-9	

**TABLE 7-C (continued).**  
**J58890AH-1 (G3i Multi-Carrier Cabinet)**  
**Control Carrier Circuit**

Description	Code	Slot Position	Note
Pooled Modem	TN758	1-9	
Data Line	TN726	1-9	
Speech Synthesizer	TN725B	1-9	
Announcement	TN750B	1-9	
Tone Detector	TN748C	1-9	
DS1 Interface	TN767	1-9	
ISDN line	TN556	1-9	
Power Unit	TN755B	8-9	10

- Note:**
1. Required only if system is equipped with Duplication.
  2. When upgrading to a G3i system, all TN770 Memory circuit packs in the system must be of vintage 3 or greater.
  3. Required to activate Packet Bus.
  4. Required when using Stratum 3 clock. Special connections are required; see "Add Stratum 3 Clock" later in this chapter.
  5. Required with OCM feature.
  6. Required if system without Packet Bus is equipped with one EPN.
  7. Required if system without Packet Bus is equipped with two EPNs.
  8. Required if system with Packet Bus is equipped with one EPN.
  9. Required if system with Packet Bus is equipped with two EPNs.
  10. Required when system is equipped with neon message waiting lamps.

**TABLE 7-D. J58890AJ-1 (G3i Multi-Carrier Cabinet) Duplicated Control Carrier Circuit Pack Locations**

Description	Code	Slot Position	Note
Duplication Interface	TN772	DUPLICATION INTERFACE	
Processor	TN773	PROCR	
Memory	TN770	MEM 1	1
Memory	TN770	MEM 2	1
Processor Interface	TN765	PROCR INTFC 2	
Processor Interface	TN765	PROCR INTFC 3	
Network Control	TN777	NETWORK CONTROL	
Packet Control	TN778	PACKET CONT	2
Tone-Clock	TN768	TONE CLOCK	
Tone-Clock	TN780	TONE CLOCK	3
Call Classifier	TN744	1-9	4
Expansion Interface	TN776	1/EXPNSN INTFC	5
Expansion Interface	TN776	2/EXPNSN INTFC	6
Expansion Interface	TN570	1/EXPNSN INTFC	7
Expansion Interface	TN570	2/EXPNSN INTFC	8
CO Trunk	TN747B	1-9	
DID Trunk	TN753	1-9	
Tie Trunk	TN760C	1-9	
Auxiliary Trunk	TN763C	1-9	
Digital Line	TN754B	1-9	
Hybrid Line	TN762B	1-9	
Analog Line 8 Port	TN742B	1-9	
Analog Line 8 Port	TN769	1-9	
Analog Line 16 Port	TN746	1-9	
MET Line	TN735	1-9	

**TABLE 7-D (continued).**  
**J58890AJ-1 (G3i Multi-Carrier Cabinet) Duplicated Control  
Carrier Circuit Pack Locations**

Description	Code	Slot Position	Note
Pooled Modem	TN758	1-9	
Data Line	TN726	1-9	
Speech Synthesizer	TN725B	1-9	
Announcement	TN750B	1-9	
Tone Detector	TN748C	1-9	
DS1 Interface	TN767	1-9	
ISDN Line	TN556	1-9	
Power Unit	TN755B	8-9	9

- Note:**
1. When upgrading to a G3i system, all TN770 Memory circuit packs in the system must be of vintage 3 or greater.
  2. Required to activate Packet Bus.
  3. Required when using Stratum 3 clock. Special connections are required; see "Add Stratum 3 Clock" later in this chapter.
  4. Required with OCM feature.
  5. Required if system without Packet Bus is equipped with one EPN.
  6. Required if system without Packet Bus is equipped with two EPNs.
  7. Required if system with Packet Bus is equipped with one EPN.
  8. Required if system with Packet Bus is equipped with two EPNs.
  9. Required when system is equipped with neon message waiting lamps.

**TABLE 7-E. J58890AF-1 (G3i Multi-Carrier Cabinet) Expansion Control Carrier Circuit Pack Locations**

Description	Code	Slot Position	Note
Maintenance	TN775	MAINTENANCE	
Tone-Clock	TN768	TONE CLOCK	
Expansion Interface	TN776 INTFC	1/EXPNSN	1
Expansion Interface	TN776 INTFC	2/EXPNSN	2
Expansion Interface	TN570 INTFC	1/EXPNSN	3
Expansion Interface	TN570 INTFC	2/EXPNSN	4
CO Trunk	TN747B	2-19	
DID Trunk	TN753	2-19	
Tie Trunk	TN760B	2-19	
Auxiliary Trunk	TN763C	2-19	
Digital Line	TN754B	2-19	
Hybrid Line	TN762B	2-19	
Analog Line 8 Port	TN742B	2-19	
Analog Line 8 Port	TN769	2-19	
Analog Line 16 Port	TN746	2-19	
MET Line	TN735	2-19	
Pooled Modem	TN758	2-19	
Data Line	TN726	2-19	
Speech Synthesizer	TN725B	2-19	
Announcement	TN750B	2-19	
Tone Detector	TN748C	2-19	
Call Classifier	TN744	2-19	5
ISDN Line	TN556	2-19	
DS1 Interface	TN767	2-19	
Power Unit	TN755B	18-19	6

- Note:**
1. Required in systems without Packet Bus when connecting to EPN1.
  2. Required in systems without Packet Bus when connecting to EPN2.
  3. Required in systems with Packet Bus when connecting to EPN1.
  4. Required in systems with Packet Bus when connecting to EPN2.
  5. Required for OCM.
  6. Required when system is equipped with neon message waiting lamps.

TABLE 7-F. J58890BB (G3i Multi-Carrier Cabinet) Port Carrier Circuit Pack Locations

Description	Code	Slot Position	Note
Power Unit	TN755B	POWER UNIT	1
Tone Clock	TN768	See Note 2	2
Expansion Interface	TN776	EXPNSN INTFC	3
Expansion Interface	TN570	EXPNSN INTFC	4
Tone Detector	TN748C	1-20	
CO Trunk	TN747B	1-20	
DID Trunk	TN753	1-20	
Tie Trunk	TN760C	1-20	
Auxiliary Trunk	TN763C	1-20	
Digital Line	TN754B	1-20	
Hybrid Line	TN762B	1-20	
Analog Line (8 Ports)	TN742	1-20	
Analog Line (8 Ports)	TN769	1-20	
Analog Line (16 Ports)	TN746B	1-20	
DS1 Interface	TN767	1-20	
ISDN Line	TN556	1-20	
MET Line	TN735	1-20	
Pooled Modem	TN758	1-20	
Data Line	TN726	1-20	
Speech Synthesizer	TN725B	1-20	
Announcement	TN750B	1-20	

**TABLE 7-F (continued).**  
**J58890BB (G3i Multi-Carrier Cabinet) Port Carrier Circuit Pack Locations**

- Note:**
- 1. Required when the system is equipped with neon message waiting lamps.
  - 2. Required when the system is equipped with duplication. TN768 is required only if the port carrier installed in position B of an EPN cabinet. It is always shipped in Port Slot 1, but can be placed in any port slot.
  - 3. Required in systems without Packet Bus in slot position 2 when port carrier is in an EPN with duplication.
  - 4. Required in systems with Packet Bus in slot position 2 when port carrier is in an EPN with duplication.

**TABLE 7-G. J58890L-1 (G3i Single-Carrier Cabinet) Basic Control Cabinet Circuit Pack Locations**

Description	Code	Slot Position	Note
Tape Drive	TN774	TAPE DRIVE	1
Duplication Interface	TN772	DUPLICATION INTERFACE	
Processor	TN773	PROCR	1
Memory	TN770	MEM 1	1
Memory	TN770	MEM 2	1
Network Control	TN777	NETWORK CONTROL	1
Processor Interface	TN765	PROCR INTFC	
Tone-Clock	TN768	TONE-CLOCK	
Tone-Clock	TN780	TONE-CLOCK	2
Packet Control	TN778	PACKET CONT	3
Expansion Interface	TN776	1/EXPNSN INTFC	4
Expansion Interface	TN776	2/EXPNSN INTFC	5
Expansion Interface	TN570	1/EXPNSN INTFC	6
Expansion Interface	TN570	2/EXPNSN INTFC	7
Maintenance/Test	TN771B	1/EXPNSN INTFC	8
Maintenance/Test	TN771B	2/EXPNSN INTFC	9
Tone Detector	TN748C	1-10	
CO Trunk	TN747B	1-10	
DID Trunk	TN753	1-10	
Tie Trunk	TN760C	1-10	
Auxiliary Trunk	TN763C	1-10	
DS1 Tie Trunk (ISDN)	TN767	1-10	
ISDN	TN556	1-10	
Digital Line	TN754B	1-10	
Hybrid Line	TN762B	1-10	
Analog Line (8)	TN742	1-10	

**TABLE 7-G (continued).**  
**J58890L-1 (G3i Single-Carrier Cabinet) Basic Control Cabinet**  
**Circuit Pack Locations**

Description	Code	Slot Position	Note
Analog Line (16)	TN746B	1-10	
Analog Line (neon)	TN769	1-10	
Met Line	TN735	1-10	
Pooled Modem	TN758	1-10	
Data Line	TN726	1-10	
Speech Synthesizer	TN725B	1-10	
Announcement	TN750B	1-10	
Power Unit	TN755B	9,10	

- Note:**
1. One always required.
  2. Required to activate Packet Bus.
  3. Required for Stratum 3 clock. Special connections are required; see “Add Stratum 3 Clock” later in this chapter.
  4. Required when system without Packet Bus is equipped with one EPN.
  5. Required when system without Packet Bus is equipped with two EPNs.
  6. Required when system with Packet Bus is equipped with one EPN.
  7. Required when system with Packet Bus is equipped with two EPNs.
  8. Provided in Port Slot in systems without EPN. Any slot in A carrier.
  9. Provided in Port Slot 2 in systems with one EPN. Provided in Port Slot 3 in systems with two EPNs. Any slot in A carrier.

**WARNING:** When upgrading to a G3i system, all TN770 Memory circuit packs in the system must be of vintage 3 or greater.

**TABLE 7-H. J58890H-1 (G3i Single-Carrier Cabinet) Port Cabinet Circuit Pack Locations**

Description	Code	Slot Position	Note
Tone Detector	TN748C	1,2	1
CO Trunk	TN747B	1-18	2
DID Trunk	TN753	1-18	2
Tie Trunk	TN760C	1-18	2
Auxiliary Trunk	TN763C	1-18	2
ISDN Line	TN556	1-18	2
DS1 Interface (ISDN)	TN767	1-18	2
Digital Line	TN754B	1-18	2
Hybrid Line	TN762B	1-18	2
Analog Line (8)	TN742	1-18	2
Analog Line (16)	TN746B	1-18	2
Analog Line (neon)	TN769	1-18	2
MET Line	TN735	1-18	2
Pooled Modem	TN758	1-18	2
Data Line	TN726	1-18	2
Speech Synthesizer	TN725B	1-18	2
Announcement Circuit Pack	TN750B	1-18	2
Tone-Clock	TN768	1	3
Expansion Interface	TN776	4	4
Expansion Interface	TN570	4	5
Power Unit	TN755B	1	2

- Note:**
1. One always required if the cabinet is the first or second port cabinet in the system. Locate in slot 2 if TN755 is required. Not required if cabinet is the third port cabinet in the system.
  2. Provided as required.
  3. Required when the cabinet is equipped for duplication or equipped with TN722B DS1 Tie Trunk TN722B or TN767 DS1 Interface.

**TABLE 7-H (continued).**  
**J58890H-1 (G3i Single-Carrier Cabinet) Port Cabinet**  
**Circuit Pack Locations**

- 4. Required in systems without Packet Bus when connecting to the Expansion Control Cabinet.
- 5. Required in systems with Packet Bus when connecting to the ECC.

**TABLE 7-I. J58890M-1 (G3i Single-Carrier Cabinet) Duplicated Control Carrier Circuit Pack Locations**

Description	Code	Slot Position	Note
Tape Drive	TN774	TAPE DRIVE	1
Duplication Interface	TN772	DUPN INTFC	1
Processor	TN773	PROCR	1
Memory	TN770	MEM 1	1
Memory	TN770	MEM 2	1
Network Control	TN777	NETWORK CONTROL	1
Processor Interface	TN765	PROCR INTFC	2
Packet Control	TN778	PACKET CON	3
Tone-Clock	TN768	TONE-CLOCK	1
Tone-Clock	TN780	TONE-CLOCK	4
Expansion Interface	TN776	1/EXPNSN INTFC	5
Expansion Interface	TN776	2/EXPNSN INTFC	6
Expansion Interface	TN570	1/EXPNSN INTFC	7
Expansion Interface	TN570	2/EXPNSN INTFC	8
Tone Detector	TN748C	1-10	1
CO Trunk	TN747B	1-10	2
DID Trunk	TN753	1-10	2
Tie Trunk	TN760C	1-10	2
Auxiliary Trunk	TN763C	1-10	2
Call Classifier	TN744	1-10	2
DS1 Interface (ISDN)	TN767	1-10	2
Digital Line	TN754B	1-10	2
Hybrid Line	TN762B	1-10	2
Analog Line (8)	TN742	1-10	2
Analog Line (16)	TN746B	1-10	2
Analog Line (neon)	TN769	1-10	2

**TABLE 7-1 (continued).**  
**J58890M-1 (G3i Single-Carrier Cabinet) Duplicated Control  
 Carrier Circuit Pack Locations**

Description	Code	Slot Position	Note
Met Line	TN735	1-10	2
Pooled Modem	TN758	1-10	2
Data Line	TN726	1-10	2
Speech Synthesizer	TN725B	1-10	2
Announcement	TN750B	1-10	2
ISDN Line	TN556	1-10	2
Power Unit	TN755B	9,10	2

- Note:**
1. One always required.
  2. Provided as required.
  3. Required to activate Packet Bus.
  4. Required with Stratum 3 clock. Special connections are required; see “Add Stratum 3 Clock” later in this chapter.
  5. Required with systems without Packet Bus with one EPN.
  6. Required with systems without Packet Bus with two EPNs.
  7. Required with systems with Packet Bus with one EPN.
  8. Required with systems with Packet Bus with two EPNs.

**WARNING:** When upgrading to a G3i system all TN770 Memory circuit packs in the system must be of vintage 3 or greater.

**TABLE 7-J. J58890N-1 (G3i Single-Carrier Cabinet) Expansion Control Cabinet Circuit Pack Locations**

<b>Description</b>	<b>Code</b>	<b>Slot Position</b>	<b>Note</b>
Maintenance	TN775	MAINTENANCE	1
Tone-Clock	TN768	TONE-CLOCK	1
Tone-Clock	TN780	TONE-CLOCK	2
Expansion Interface	TN776	1/EXPNSN INTFC	3
Expansion Interface	TN776	2/EXPNSN INTFC	4
Expansion Interface	TN570	1/EXPNSN INTFC	5
Expansion Interface	TN570	2/EXPNSN INTFC	6
Tone Detector	TN748C	1-17	
CO Trunk	TN747B	1-17	
DID Trunk	TN753	1-17	
Tie Trunk	TN760C	1-17	
Auxiliary Trunk	TN763C	1-17	
ISDN Line	TN556	1-17	
DS1 Interface (ISDN)	TN767	1-17	
Digital Line	TN754B	1-17	
Hybrid Line	TN762B	1-17	
Analog Line (8)	TN742	1-17	
Analog Line (neon)	TN769	1-17	
MET Line	TN735	1-17	
Pooled Modem	TN758	1-17	
Data Line	TN726	1-17	
Speech Synthesizer	TN725B	1-17	
Announcement Circuit Pack	TN750B	1-17	
Power Unit	TN755B	16,17	

**TABLE 7-J (continued).**  
**J58890N-1 (G3i Single-Carrier Cabinet) Expansion Control Cabinet**  
**Circuit Pack Locations**

- Note:**
1. One always required.
  2. Required for Stratum 3 clock. Special connections are required; see “Add Stratum 3 Clock” later in this chapter.
  3. Required if system without Packet Bus is equipped with one EPN.
  4. Required if system without Packet Bus is equipped with two EPNs.
  5. Required if system with Packet Bus is equipped with one EPN.
  6. Required if system with Packet Bus is equipped with two EPNs.

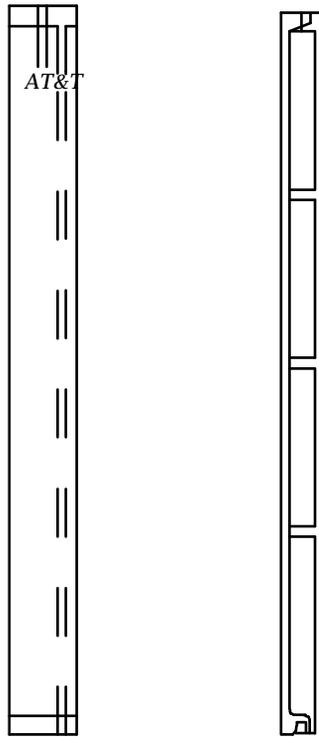


FIGURE 7-23. Blank Circuit Pack Faceplate

## 7. Add Attendant Console

### Requirements

The attendant console is connected to an information outlet (modular wall connecting block) the same as any other voice terminal.

Power for two consoles **only** can be provided by the switch cabinet through the auxiliary cable located in the trunk/auxiliary field. Whenever possible, power for the primary attendant console should be provided by the switch cabinet. The primary console is fully operational during short power outages if it is connected in the control carrier. Additional attendant consoles are powered by power units located at the cross-connect field, 258A-type adapters, or information outlets.

The maximum cabling distance for the attendant console powered from the switch cabinet is 350 feet. Maximum cabling distances for additional attendant consoles is 2400 feet for 25-AWG wire and 1500 feet for 26-AWG wire.

### Installation

1. Unpack the attendant console and inspect for damage. Report any damage for appropriate action per local procedures.
2. Determine the port assignment of the console from Attendant Console Form.

EXAMPLE:	Port Number/ Port Network	A	04	06
		Carrier/ Cabinet	Slot	Circuit

3. Connect a modular line cord from the information outlet to the attendant console.
4. Install powering for the attendant console; refer to *DEFINITY® Communications System Generic 1 and Generic 3i—Wiring, 555-204-111*, for detailed information.
5. Install labels per Attendant Console Form and Display Module Form Assignments.
6. Install the handset bracket on the left or right side of the console, as desired.
7. Insert the handset adapter on the same side of the handset bracket. A bracket is not required for a headset.

**Note:** The handset adapter is available in two models: 854A-03 (black) or 854A-143 (burgundy).

8. Connect the handset cord to the jack on the same side of the console as the handset bracket.
9. See “6. Add Circuit Packs” earlier in this chapter, and install a TN754 Digital Line circuit pack in the assigned carrier slot (if additional circuit pack is required).
10. Administer forms listed under Attendant Console in *DEFINITY® Communications System Generic 3i—Implementation, 555-230-650*.

## 8. Add Selector Console

### Requirements

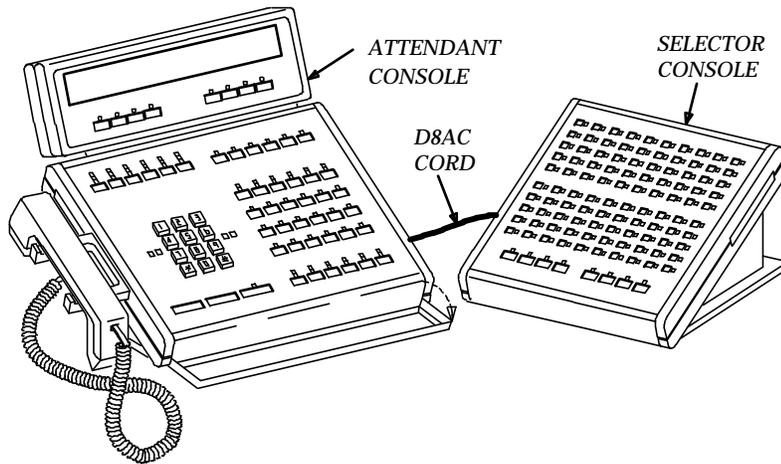
The selector console is connected to the attendant console by a 3-foot D8AC cord provided with the selector console (see Figure 7-24).

### Installation

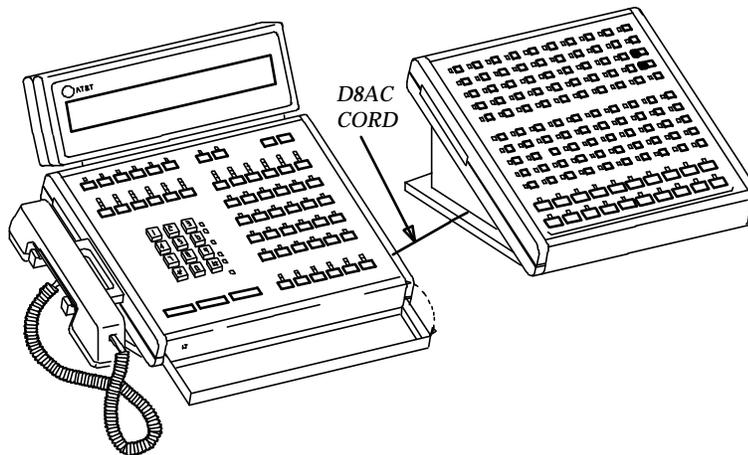
1. Run and connect a 3-foot D8AC cord between the DXS/BLF jack on the bottom of the attendant console and the modular jack on the bottom of the selector console.

**Note:** These jacks are located on the bottom of the consoles.

2. Install labels per Attendant Console Form.
3. Administer forms listed under “Attendant Direct Extension Selection With Busy Lamp Field” section in *DEFINITY® Communications System Generic 3i—Implementation, 555-230-650*.



**FIGURE 7-24. 301B1A Console and 24A1 Selector Console**



**FIGURE 7-25. 302A Console and 27A1 Selector Console**

## 9. Add CO, FX, WATS, and PCOL Trunks

### Requirements

Central Office (CO), Foreign Exchange (FX), Wide Area Telecommunications Service (WATS), or Personal Central Office (PCOL) trunks are connected to a TN747 or TN747B CO Trunk circuit pack. A maximum of eight trunks can be connected to the TN747 or TN747B CO Trunk circuit pack. To add these trunks, do the following.

### Installation

1. Determine port assignment of trunk from Trunk Group Form.

EXAMPLE:	Port Number/ Port Network	A	07	01
		Carrier/ Cabinet	Slot	Circuit

2. See “6. Add Circuit Packs” earlier in this chapter, and install TN747 or TN747B CO Trunk circuit pack in assigned carrier slot (if an additional circuit pack is required).
3. Administer forms listed in the CO, FX, WATS, or PCOL Trunk Group section in *DEFINITY® Communications System Generic 3i—Implementation, 555-230-650*.

Detailed descriptions for installing wiring are contained in *DEFINITY® Communications System Generic 1 and Generic 3i—Wiring, 555-204-111*.

## 10. Add DID Trunks

### Requirements

Direct Inward Dial (DID) trunks are connected to a TN753 DID Trunk circuit pack. A maximum of eight trunks can be connected to the TN753 DID Trunk circuit pack. To add these trunks, do the following.

### Installation

1. Determine port assignment of trunk from Trunk Group Form.

EXAMPLE:	Port Number/ Port Network	A	07	01
		Carrier/ Cabinet	Slot	Circuit

2. See “6. Add Circuit Packs” earlier in this chapter, and install TN753 DID Trunk circuit pack in assigned carrier slot (if an additional circuit pack is required).
3. Administer forms listed in the “DID Trunk Group” section in *DEFINITY® Communications System Generic 3i—Implementation, 555-230-650*.

Detailed descriptions for installing wiring are contained in *DEFINITY® Communications System Generic 1 and Generic 3i—Wiring, 555-204-111*.

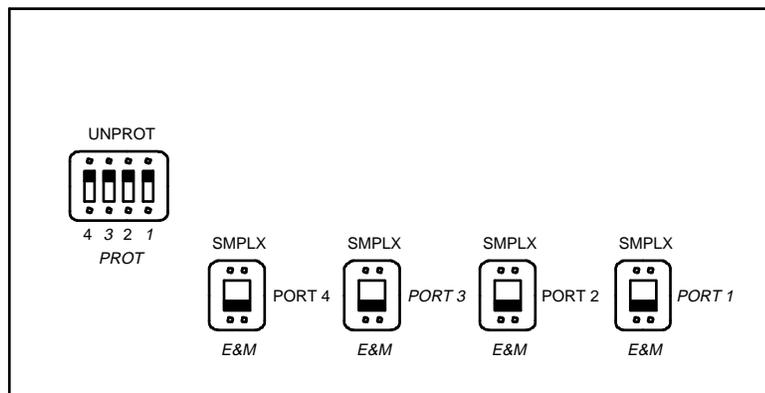


FIGURE 7-26. TN760B Tie Trunk Circuit Pack (Component Side)

## 11. Add TIE Trunks

### Requirements

Tie trunks are connected to a TN760 or TN760B Tie Trunk circuit pack. A maximum of four trunks can be connected to the Tie Trunk circuit pack. To add these trunks, do the following.

### Installation

1. Determine port assignment of trunk from Trunk Group Form.

EXAMPLE:	Port Number/ Port Network	A	02	01
		Carrier/ Cabinet	Slot	Circuit

2. See Add Circuit Packs and install TN760 or TN760B Tie Trunk circuit pack in assigned carrier slot (if an additional circuit pack is required).
3. The TN760B circuit pack provides additional signaling capabilities. Use Figure 7-25 and Table 5-K to choose the preferred signaling format, set switches on the TN760B circuit pack, and administer the port.
4. Administer forms listed in the “Tie Trunk Group” section in *DEFINITY® Communications System Generic 3i—Implementation, 555-230-650*.

Detailed descriptions for installing wiring are contained in *DEFINITY® Communications System Generic 1 and Generic 3i—Wiring, 555-204-111*.

**TABLE 7-K. TN760B Option Switch Settings and Administration**

DEFINITY G3i Installation Situation		Preferred Signaling Format		Set E&M/ SMPLX Option Switch	Set Prot/ Unprot Option Switch	Administer The Port
Circumstance	To	DEFINITY	Far-End			
Collocated	DEFINITY Sys75/75XE Sys85 Sys25	Simplex Type 5	Simplex Type 5	SMPLX	Either	Type 5
Inter-Bldg.	DEFINITY Sys75/75XE Sys85 Sys25	Simplex Type 5	Simplex Type 5	SMPLX	Either	Type 5
Collocated	DIMENSION® PBX	E&M Type 1 Compatible	E&M Type 1 Standard	E&M	Unprot	Type 1 Compatible
Inter-Bldg.	DIMENSION PBX	Prot. Type 1 Compatible	Prot. Type 1 Standard	E&M	Prot	Type 1 Compatible
Collocated	Other	E&M Type 1 Compatible	E&M Type 1 Standard	E&M	Unprot	Type 1 Compatible
Inter-Bldg.	Other	Prot. Type 1 Compatible	Prot. Type 1 Std. Plus Protection Unit	E&M	Prot	Type 1 Compatible
Collocated	Net Int.	E&M Type 1 Standard	Don't Care	E&M	Unprot	Type 1

## 12. Add DS1 TIE, CO, and FX Trunk, WATS, and OPS Service

The TN722B DS1 Tie Trunk and TN767 DS1 Interface circuit packs provide connection capability to a 1.544 Mbps DS1 facility as 24 independent trunks. The TN767 also allows the ISDN PRI 1.451 signaling to be carried transparently on any of the 24 ports of the trunk between the TDM bus and the DS1 facility. Each trunk can provide 64 kbps transmission. The data transmission formats are specified by the signaling on a per trunk basis for automatic, immediate-start, delay-dial, or release-link trunks.

When upgrading from a TN722 to a TN767:

- Remove all TN722 trunk members from affected trunk groups.
- Enter `remove ds1 PCSS` (PCSS is the slot in which the TN722 is located).
- Remove the TN722 circuit pack.
- Put the TN767 circuit pack into the same slot.
- Wait until the red LED goes off. The hardware tests take 12 to 20 seconds to run. When the red LED goes off, the tests have completed.

If the red LED stays on, reseal the board and repeat this step.

- Enter `add ds1 PCSS`.
- Continue with appropriate procedures to set up members of trunk groups.

### Service Interruption

The addition of DS1 Tie Trunk Service requires service interruption. The customer should be notified in advance when the addition is going to be done.

### Verify System Status

The system should be examined for alarms before proceeding, and all problems should be corrected. The system must be alarm-free.

### Save Translations

1. Login to the G1 Manager I or G3-MT terminal.
2. Enter `save translations`, and press `Return`. This command instructs the system to take all translation information in memory and write it onto the tape.
3. If the system is equipped with a TN750B Announcement circuit pack, the recorded announcements can be saved by using the save announcements command. Enter `save announcements`, and press `Return`.

## Power Down System

**Note:** The system will need to be powered down only if it is a Simplex system and the Tone-Clock is being replaced.

1. At the PPN, on the power distribution unit, set the main AC circuit breaker to OFF.
2. At the EPN, if provided, on the power distribution unit, set the main AC circuit breaker to OFF.

## Add Circuit Packs

1. Determine port assignment of circuit packs to be added.
2. See “6. Add Circuit Packs” earlier in this chapter, and install the TN722B DS1 Trunk or the TN767 DS1 Interface circuit pack in assigned carrier slot.
3. For single carrier systems only, see “6. Add Circuit Packs” earlier in this chapter, and install the TN768 Tone-Clock circuit pack and the TN748 Tone Detector circuit pack in assigned carrier slots. These circuit packs replace the TN756 or TN741 Tone-Clock circuit pack when DS1 Tie Trunk circuit packs are used.

## Install Cables

Install cables from cabinet to cross-connect field as required.

Detailed descriptions for installing wiring are contained in *DEFINITY® Communications System Generic 1 and Generic 3i—Wiring, 555-204-111*.

## Power Up System

1. At the power distribution unit, set the main AC circuit breaker to ON.
2. The system now goes through the rebooting process, loading the system translations from the tape. Rebooting requires several minutes. Refer to the “System Reboot Indications” section in *DEFINITY® Communications System Generic 1 and Generic 3i—Maintenance, 555-204-105*, for circuit pack LED (light-emitting diode) indications and G1 Manager I or G3-MT terminal displays that occur during system reboot.
3. After the system reboot is finished and all trouble is cleared, verify the EMERGENCY TRANSFER CONTROL switch is set to AUTO. This restores the system to the normal mode.

## Enter Added Translations

1. Administer forms listed in the “DS1 Tie Trunk Service” section in *DEFINITY® Communications System Generic 1 and Generic 3i—Implementation, 555-204-655*.

### Save Translations

1. Enter `save translations`, and press `Return`. This command instructs the system to take all translation information in memory and write it onto the tape.
2. If the system is equipped with a TN750B Announcement circuit pack, the recorded announcements can be saved by using the `save announcements` command. Enter `save announcements`, and press `Return`.
3. Update backup tape, if required.

## 13. Add Speech Synthesis

### Requirements

The TN725(B) Speech Synthesizer circuit pack is required when the Voice Message Retrieval, Automatic Wakeup, or Do Not Disturb features are activated. The TN725(B) circuit pack does not require administration.

### Installation

1. Determine port assignment for the Speech Synthesizer circuit pack being added.
2. See “6. Add Circuit Packs” earlier in this chapter, and install the TN725(B) Speech Synthesizer circuit pack in the designated carrier slot.

## **14. Add Code Calling Access**

The tones for the Code Calling feature are generated by the TN741 (Simplex option) or the TN768 (Duplication option) Tone-Clock circuit packs in the G3i switch cabinet. This feature allows attendants, voice terminal users, and trunk users to page with coded signals. The feature is administered on the Loudspeaker Paging and Code Calling IDs Forms.

### **Requirements**

A TN763 or TN763B Auxiliary Trunk circuit pack must be connected and installed for Loudspeaker Paging. The Code Calling Access feature shares the same ports used for loudspeaker paging. The TN763 or TN763B provides four ports for Loudspeaker Paging and Code Calling Access.

### **Installation**

1. Administer the forms listed in the “Loudspeaker Paging and Code Calling Access” section in *DEFINITY® Communications System Generic 3i—Implementation, 555-230-650*.

## 15. Add Pooled Modem

### Requirements

There are two types of conversion resources for Modem Pooling: integrated conversion resources and combined conversion resources.

The integrated type requires a TN758 Pooled Modem circuit pack for each two conversion resources provided.

The combined type requires a port on a TN754 Digital Line circuit pack and a port on a TN742 or TN769 Analog Line circuit pack for each conversion resource provided.

### Installation

1. Determine port assignment of circuit pack(s) to be added (if required).
2. See “6. Add Circuit Packs” earlier in this chapter, and install the appropriate circuit pack(s) in assigned carrier slot (if required).
3. Administer the forms listed in the “Modem Pooling” section in *DEFINITY® Communications System Generic 3i—Implementation, 555-230-650*.

## 16. Add Off-Premises and Out-of-Building Terminals

### Requirements—Off-Premises Terminals

Off-premises terminals are those extensions that are not physically located in the same building as the switch, and their location is separated by public right-of-ways. The off-premises terminals can only be an analog type (for example, a 2500). The cabling outside the building must be engineered and provided by the telephone company. The off-premises terminal appearances are on the information outlet (RJ21X interface facility). The TN742, TN769 (8-port), or TN746B (16-port) circuit packs can be used for off-premises terminals. The neon message waiting capability provided by the TN769 and TN746B cannot be used off-premises. The TN746 (16-port) circuit pack does not support off-premises terminals.

### Requirements—Out-of-Building Terminals

Out-of-building terminals are those extensions not physically located in the same building as the equipment room but located on the same property. Carbon block, or equivalent, protection must be provided at both building entrances. The TN742, TN769 (8-port), or TN746B (16-port) circuit packs can be used for out-of-building terminals. The TN746 (16-port) circuit pack does not support out-of-building terminals.

### Installation

1. Determine port assignment of terminal from Station Record Form:

EXAMPLE:	Port Number/ Port Network	B	07	01
		Carrier/ Cabinet	Slot	Circuit

2. Connect modular line cord from information outlet to off-premises terminal.
3. See “6. Add Circuit Packs” earlier in this chapter and install the TN742, TN769, or TN746B Analog Line circuit pack in assigned carrier slot (if an additional circuit pack is required).
4. Administer the appropriate Voice Terminal form per *DEFINITY® Communications System Generic 3i—Implementation, 555-230-650*.

Detailed descriptions for installing wiring are contained in *DEFINITY® Communications System Generic 1 and Generic 3i—Wiring, 555-204-111*.

## 17. Add External Ringing

### Requirements

External ringing is provided by a device, such as a gong, chime, or bell, connected to an information outlet (modular wall connecting block). The switch side of the cross-connect field is connected to a TN742 or TN769 Analog Line circuit pack located in a port carrier. The TN742 and TN769 circuit packs contain a maximum of eight ports.

The maximum number of devices that can be connected to one TN742 or TN769 circuit pack cannot exceed three ringer equivalences.

### Installation

1. Determine port assignment of Trunk Answer From Any Station (Call Answer From Any Voice Terminal) feature from Console Parameters Form:

EXAMPLE:	Port Number/ Port Network	B	07	01
		Carrier/ Cabinet	Slot	Circuit

2. See “6. Add Circuit Packs” earlier in this chapter, and install the TN742 or TN769 Analog Line circuit pack in assigned carrier/cabinet slot (if an additional circuit pack is required).
3. Administer External Alert Port number on the Console Parameters form per *DEFINITY® Communications System Generic 3i—Implementation, 555-230-650*.

Detailed descriptions for installing wiring are contained in *DEFINITY® Communications System Generic 1 and Generic 3i—Wiring, 555-204-111*.

## 18. Add Queue Warning Indicator

### Requirements

An AC indicator (lamp) such as a 21C49 is optional for use as a queue warning indication in a Uniform Call Distribution (UCD)/Direct Department Calling (DDC) queue. The lamp is connected to an information outlet (modular wall connecting block). The switch side of the cross-connect field is connected to a TN742 or TN769 Analog Line circuit pack. The TN742 and TN769 circuit packs contain a maximum of eight ports.

### Installation

1. Determine port assignment for queue warning lamp from Hunt Group Form:

EXAMPLE:	Port Number/ Port Network	B	07	01
		Carrier/ Cabinet	Slot	Circuit

2. See “6. Add Circuit Packs” earlier in this chapter, and install the TN742 or TN769 Analog Line circuit pack in assigned carrier slot (if an additional circuit pack is required).
3. Administer the fields on the Hunt Group form listed in the “Queue Status Indications” section in *DEFINITY® Communications System Generic 3i—Implementation, 555-230-650*.

Detailed descriptions for installing wiring are contained in *DEFINITY® Communications System Generic 1 and Generic 3i—Wiring, 555-204-111*.

## 19. Add Loudspeaker Paging Access

### Requirements

Access to loudspeaker paging is provided by an information outlet (modular wall connecting block). A TN763 or TN763B Auxiliary Trunk circuit pack must be installed for Loudspeaker Paging. A TN763 or TN763B circuit pack contains a maximum of four ports.

### Installation

1. Determine port assignment of paging zone(s) from Loudspeaker Paging Form:

EXAMPLE:	Port Number/ Port Network	B	02	01
		Carrier/ Cabinet	Slot	Circuit

2. See “6. Add Circuit Packs” earlier in this chapter, and install the TN763 or TN763B Auxiliary Trunk circuit pack in assigned carrier slot (if an additional circuit pack is required).
3. Administer the forms listed in the “Loudspeaker Paging Access” section in *DEFINITY® Communications System Generic 3i—Implementation, 555-230-650*.

Detailed descriptions for installing the wiring are contained in *DEFINITY® Communications System Generic 1 and Generic 3i—Wiring, 555-204-111*.

## 20. Add PagePac® Paging System

### Requirements

The PagePac paging systems use a single port of a system circuit pack to provide single or multi-zone loudspeaker paging. A PagePac system may be used in addition to the standard loudspeaker paging and code-calling capabilities of the system. A TN763B Auxiliary Trunk circuit pack is used for PagePac paging equipment.

Three models are available:

- PagePac 20
- PagePac VS
- PagePac 50/100/200.

### PagePac 20

The PagePac is a 20-watt amplifier that can be used alone to provide a single zone of paging or it can be equipped with a ZoneMate 9 or 34 to provide multiple paging zones.

### PagePac VS

The PagePac VS is a 35-watt amplifier that provides up to three paging zones. This unit is wall mountable. The optional feature cards (to provide music or talkback) are plugged into the lower half of the unit.

### PagePac 50/100/200

The 50/100/200 PagePac Paging system will mount directly on the wall or on a 23-inch relay rack by using the appropriate adapters.

The unit provides three wattages: 50, 100, and 200. The PagePac amplicenter can be used alone to provide a single zone of paging or add-on units can be provided to create a paging system with up to 24 paging zones.

**Installation**

- 1. Determine port assignment of paging zone(s) from Loudspeaker Paging Form:

EXAMPLE:	Port Number/ Port Network	B	02	01
		Carrier/ Cabinet	Slot	Circuit

- 2. See “6. Add Circuit Packs” earlier in this chapter, and install the TN763B Auxiliary Trunk circuit pack in assigned carrier slot (if an additional circuit pack is required).
- 3. Administer forms listed in the “Loudspeaker Paging Access” section in *DEFINITY® Communications System Generic 3i—Implementation, 555-230-650*.

Detailed descriptions for installing wiring are contained in *DEFINITY® Communications System Generic 1 and Generic 3i—Wiring, 555-204-111*.

## 21. Add Music-on-Hold Access

### Requirements

Access to the music source is provided by an information outlet.

A TN763 or TN763B Auxiliary Trunk circuit pack must be installed for Music-on-Hold. A TN763 or TN763B circuit pack contains a maximum of four ports.

### Installation

1. Determine port assignment of feature from Feature-Related System Parameters Form:

EXAMPLE:	Port Number/ Port Network	B	02	01
		Carrier/ Cabinet	Slot	Circuit

2. See “6. Add Circuit Packs” earlier in this chapter, and install the TN763 or TN763B Auxiliary Trunk circuit pack in assigned carrier slot (if an additional circuit pack is required).
3. Administer the forms listed in the “Music-on-Hold Access” section in *DEFINITY® Communications System Generic 3i—Implementation, 555-230-650*.

Detailed descriptions for installing wiring are contained in *DEFINITY® Communications System Generic 1 and Generic 3i—Wiring, 555-204-111*.

## 22. Add Loudspeaker Paging With Background Music

### Requirements

Background music may be added after installing the Loudspeaker Paging and Music-on-Hold features. The music source and loudspeaker equipment may be provided by the customer.

### Installation

1. The music source is connected to the M1 and M2 terminals on the Loudspeaker Paging Access 278A adapter and from the adapter's CT and CR terminals to the loudspeaker paging equipment.

Detailed descriptions for installing wiring are contained in *DEFINITY® Communications System Generic 1 and Generic 3i—Wiring, 555-204-111*.

## 23. Add Analog Recorded Announcement

### Requirements

Access for customer-provided analog recorded announcement equipment is provided by an information outlet.

A Cook Electric 1-channel or 5-channel Digital Announcer is available and provides recorded announcements for the Intercept Treatment—Recorded Announcement feature. Both models require an AC adapter for 115-volt AC power.

A TN742 or TN769 Analog Line circuit pack must be installed for Recorded Announcement. The TN742 or TN769 circuit pack contains a maximum of eight ports.

### Installation

1. Determine port assignment of feature from Announcement Form:

EXAMPLE:	Port Number/ Port Network	B	02	01
		Carrier/ Cabinet	Slot	Circuit

2. See “6. Add Circuit Packs” earlier in this chapter, and install the TN742 or TN769 Analog Line circuit pack in assigned carrier slot (if an additional circuit pack is required).
3. Administer the forms listed in the “Recorded Announcements” section in *DEFINITY® Communications System Generic 3i—Implementation, 555-230-650*.

Detailed descriptions for installing wiring are contained in *DEFINITY® Communications System Generic 1 and Generic 3i—Wiring, 555-204-111*.

## 24. Add Integrated Recorded Announcement

### Requirements

The TN750B Announcement circuit pack provides an integrated means of digitally recording announcements that can then be played back on demand from call processing as part of a calling feature. The announcements are backed up on the system tape.

The TN750B has 16 channels allowing access to 16 recorded announcements. Since the integrated announcement is recorded onto the circuit pack, no announcement equipment is required. The TN750B cannot be used for the Automatic Wakeup feature.

### Installation

1. See “6. Add Circuit Packs” earlier in this chapter, and install the TN750B Announcement circuit pack in assigned carrier/cabinet slot.
2. Administer the forms listed in the “Recorded Announcements” section in *DEFINITY® Communications System Generic 3i—Implementation, 555-230-650*.

## 25. Add Recorded Telephone Dictation Access

### Requirements

Access for recorded telephone dictation equipment is provided by an information outlet.

For analog trunk access, a TN742 or TN769 Analog Line circuit pack is required.

For auxiliary trunk access, a TN763 or TN763B Auxiliary Trunk circuit pack is required.

### Installation

1. Determine port assignment of feature from the Station Record Form when a TN742 or TN769 circuit pack is used or from the Trunk Group Form For Customer Provided Equipment when a TN763 or TN763B circuit pack is used.

EXAMPLE:	Port Number/ Port Network	B	02	01
		Carrier/ Cabinet	Slot	Circuit

2. See “6. Add Circuit Packs” earlier in this chapter, and install the TN742, TN769, TN763, or TN763B circuit pack in assigned carrier slot [if additional circuit pack(s) is required].
3. Administer the forms listed in the “Recorded Telephone Dictation Access” section in *DEFINITY® Communications System Generic 3i—Implementation, 555-230-650*.

Detailed descriptions for installing wiring are contained in *DEFINITY® Communications System Generic 1 and Generic 3i—Wiring, 555-204-111*.

## 26. Add INADS Interface

### Requirements

The interface between G3i and the Initialization and Administration System (INADS) is through a two-way loop start trunk and the Processor circuit pack.

### Installation

1. The INADS trunk should be specified to appear on the twenty-fifth pair of an RJ21X network interface jack. The INADS trunk is connected to the TN773 Processor circuit pack through the Trunk/Auxiliary field.

Detailed descriptions for installing wiring are contained in *DEFINITY® Communications System Generic 1 and Generic 3i—Wiring, 555-204-111*.

2. On the Maintenance-Related System Parameters Form, add the Private Branch Exchange (PBX) or Product Identification, the OSS (INADS) telephone number, and set Alarm Origination Activated field to “y”. The PBX or Product Identification and the OSS telephone number must be obtained from the NTSO or the TSC.

## 27. Add Applications Processor Interface

**Note:** AP16 is not supported by G3i.

### Requirements

The interface between G3i and the AP/Adjunct or Applications Processor/Terminal is through modular processor data modules (MPDMs).

The TN765 Processor Interface circuit pack is required for this feature.

MPDMs are connected to TN754 Digital Line circuit packs and are mounted individually or in a 71A data mounting. MPDM installation and testing information is contained in *System 85 Processor Data User's Guide, 999-700-028*. Information for connecting the MPDMs to the AP and setting the MPDM option switches is contained in *System 85 Applications Processor Installation, Administration, and Installation Tests, 999-700-461*.

### Service Interruption

The addition of DCS requires service interruption. The customer should be notified in advance when the addition is going to be done.

### Verify System Status

The system should be examined for alarms before proceeding, and all problems should be corrected. The system must be alarm-free.

### Save Translations

1. Login at the G1 Manager I or G3-MT terminal.
2. Enter `save translations`, and press `Return`. This command instructs the system to take all translation information in memory and write it onto the tape.
3. If the system is equipped with a TN750B Announcement circuit pack, the recorded announcements can be saved by using the save announcements command. Enter `save announcements`, and press `Return`.

### Power Down System

1. At the PPN, on the power distribution unit, set the main AC circuit breaker to OFF.
2. At the EPN, if provided, on the power distribution unit, set the main AC circuit breaker to OFF.

### Add Circuit Packs

1. Determine port assignment of circuit packs to be added.
2. Install circuit pack(s) in assigned cabinet slot (as required).

The TN765 Processor Interface circuit pack is required.

A vacant port is required on a TN754 Digital Line circuit pack.

### Install Cables

Install cables from cabinet to cross-connect field as required.

Detailed descriptions for installing wiring are contained in *DEFINITY® Communications System Generic 1 and Generic 3i—Wiring, 555-204-111*.

### Power Up System

1. At the EPN, if provided on the power distribution unit, set the main AC circuit breaker to ON.
2. At the PPN, on the power distribution unit, set the main AC circuit breaker to ON.
3. The system now goes through the rebooting process, loading the system translations from the tape. Rebooting requires several minutes. Refer to the “System Reboot Indications” section in *DEFINITY® Communications System Generic 1 and Generic 3i—Maintenance, 555-204-105*, for circuit pack LED indications and G1 Manager I or G3-MT terminal displays that occur during system reboot.
4. After the system reboot is finished and all trouble is cleared, verify the EMERGENCY TRANSFER CONTROL switch is set to AUTO. This restores the system to the normal mode.

### Enter Added Translations

On the Feature Related System Parameters Form, set the AP connected field to “y” to enable the feature.

Administer the other required translation data using the forms listed in the “AP Interface and Assignments” section in *DEFINITY® Communications System Generic 3i—Implementation*, 555-230-650.

### Save Translations

1. Enter `save translations`, and press . This command instructs the system to take all translation information in memory and write it onto the tape.
2. If the system is equipped with a TN750B Announcement circuit pack, the recorded announcements can be saved by using the save announcements command. Enter `save announcements`, and press .
3. Update backup tape, if required.

## 28. Add Station Message Detail Recording Interface

### Requirements

Four methods of access for SMDR equipment are available:

- For G3i direct access using an EIA cord connected to the Data Communication Equipment (DCE) connector at the rear of the control cabinet.
- Access through an MPDM or modular trunk data modular (MTDM) requires a TN754 Digital Line circuit pack.
- Access through a 212-type modem and requires a TN742 or TN769 Analog Line circuit pack. The TN758 Pooled Modem circuit pack or external modem pool must also be provided.
- Access through a TN726(B) Data Line circuit pack. A Z3A Asynchronous Data Unit (ADU) is required at the SMDR output receiving device. The TN727 Network Control circuit pack must also be provided.

### Installation

1. For the direct access method, connect EIA cord to the DCE connector at rear of control cabinet (see Figure 7-26). For other methods, see *DEFINITY® Communications System Generic 1 and Generic 3i—Wiring, 555-204-111*.
2. Determine port assignment of circuit packs to be added (if required).

EXAMPLE:	Port Number/ Port Network	B	06	01
		Cabinet/ Cabinet	Slot	Circuit

3. See “6. Add Circuit Packs” earlier in this chapter, and install the appropriate circuit pack(s) in assigned carrier slot [if additional circuit pack(s) is required].
4. Administer the forms listed in the “Station Message Detail Recording (SMDR)” section in *DEFINITY® Communications System Generic 3i—Implementation, 555-230-650*.

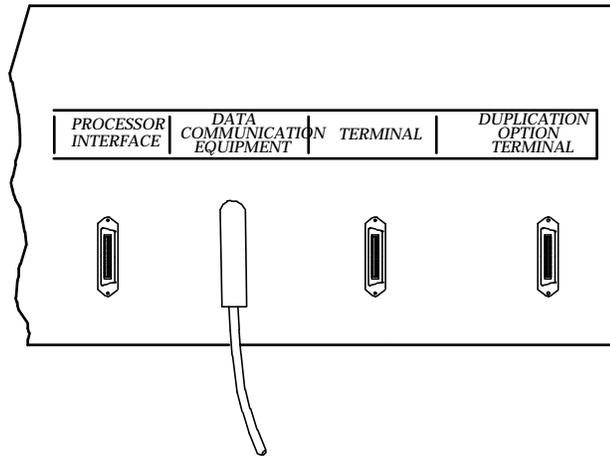


FIGURE 7-27. SMDR Connection to Control Cabinet

## 29. Add Emergency Transfer

### Requirements

Two emergency transfer panels are available:

- 808A Emergency Transfer Panel—Each unit serves up to five Power Failure Transfer terminals. The unit provides automatic ground start and "restore after busy," which means that an emergency call proceeds in normal fashion even when the PBX is restored to normal operation.
- PORTA-SYSTEMS™ Model 575-5 Panel—Each unit serves up to five Power Failure Transfer terminals. The unit provides automatic ground start.

Only 500- or 2500-type voice terminals can be used for emergency transfer. Both the 500- and 2500-type terminals can be used as normal G3i stations.

For detailed wiring information, refer to *DEFINITY® Communications System Generic 1 and Generic 3i—Wiring, 555-204-111*. Additionally, refer to *AT&T 808A Emergency Transfer Panel Installation Instructions, 846-774-701* for detailed instructions on installing the 808A Emergency Transfer Panel.

## 30. Add Information System Network Interface

### Requirements

The interface between G3i and the Information Systems Network (ISN) is through an ADU. The ADU connects to an ISN concentrator. This allows G3i and the ISN to share data capabilities.

### Installation

1. Determine port assignment of ISN from Data Module Form:

EXAMPLE:	Port Number/ Port Network	B	02	01
		Carrier/ Cabinet	Slot	Circuit

2. See “6. Add Circuit Packs” earlier in this chapter, and install the TN726 Data Line circuit pack in assigned carrier slot (if additional circuit pack is required).
3. Administer the forms listed in the “Information System Network (ISN) Interface” section in *DEFINITY® Communications System Generic 3i—Implementation, 555-230-650*.

Detailed descriptions for installing wiring are contained in *DEFINITY® Communications System Generic 1 and Generic 3i—Wiring, 555-204-111*.

## 31. Add 3270 Data Module

### Requirements

The 3270 Data Module consists of a family of protocol converters that allow 3270-type terminals to communicate with a host computer through the G3i. The three types of 3270 Data Modules are 3270A, 3270C, and 3270T. The 3270 data modules are connected to the TN754 Digital Line circuit pack.

### Installation

1. Determine port assignment of 3270 Data Module from Data Module Form:

EXAMPLE:	Port Number/ Port Network	B	02	01
		Carrier/ Cabinet	Slot	Circuit

2. See “6. Add Circuit Packs” earlier in this chapter, and install the TN754 Digital Line circuit pack in assigned carrier slot (if an additional circuit pack is required).
3. Administer the 3270 Data Module form per *DEFINITY® Communications System Generic 3i—Implementation, 555-230-650*.

Detailed descriptions for installing wiring are contained in *DEFINITY® Communications System Generic 1 and Generic 3i—Wiring, 555-204-111*.

## 32. Add Integrated Services Digital Network-Primary Rate Interface

The ISDN-PRI is a 1.544 Mbps digital interface that consists of a 1.536 Mbps signal multiplexed with a 8 kbps framing channel. The 1.536 Mbps is divided into 24 channels of 64 kbps each (23 "B" voice or data channel and 1 "D" signaling channel). The "D" channel multiplexes signaling messages for the 23 "B" channels.

A TN767 DS1 circuit pack is required for the assignment of a signaling link and up to 23 ISDN-PRI Trunk Group members. The DS1 provides 24 ports. A TN768 Tone-Clock circuit pack is required to provide synchronization for the DS1 circuit pack. A TN765 Processor Interface circuit pack is required for use with the TN767 DS1 circuit pack when PRI is to be activated.

### Service Interruption

The addition of ISDN-PRI requires service interruption. The customer should be notified in advance when the addition is going to be done.

### Verify System Status

The system should be examined for alarms before proceeding, and all problems should be corrected. The system must be alarm-free.

### Save Translations

1. Login at the G1 Manager I or G3-MT terminal.
2. Enter `save translations`, and press `(Return)`. This command instructs the system to take all translation information in memory and write it onto the tape.
3. If the system is equipped with a TN750B Announcement circuit pack, the recorded announcements can be saved by using the `save announcements` command. Enter `save announcements`, and press `(Return)`.

### Power Down System

1. At the PPN, on the power distribution unit, set the main AC circuit breaker to OFF.
2. At the EPN, on the power distribution unit, set the main AC circuit breaker to OFF.

### Add Circuit Packs

1. Determine port assignment of circuit packs to be added.
2. See “6. Add Circuit Packs” earlier in this chapter, and install the TN767 DS1 Interface circuit pack in assigned carrier slot.
3. Remove the TN756 circuit pack and install the TN768 Tone-Clock circuit pack in assigned carrier slots, if required.
4. See “6. Add Circuit Packs” earlier in this chapter, and install a TN765 Processor Interface circuit pack if required.
5. See “6. Add Circuit Packs” earlier in this chapter, and install a TN748 Tone Detector circuit pack if required.

### Install Cables

Install cables from cabinet to cross-connect field as required.

Detailed descriptions for installing wiring are contained in *DEFINITY® Communications System Generic 1 and Generic 3i—Wiring, 555-204-111*.

### Power Up System

1. At the EPN, on the power distribution unit, set the main AC circuit breaker to ON.
2. At the PPN, on the power distribution unit, set the main AC circuit breaker to ON.
3. The system now goes through the rebooting process, loading the system translations from the tape. Rebooting requires 15 to 20 minutes. Refer to the “System Reboot Indications” section in *DEFINITY® Communications System Generic 1 and Generic 3i—Maintenance, 555-204-105*, for circuit pack LED indications and G1 Manager I or G3-MT terminal displays that occur during system reboot.
4. After the system reboot is finished and all trouble is cleared, verify the EMERGENCY TRANSFER CONTROL switch is set to AUTO. This restores the system to the normal mode.

### Enter Added Translations

1. Administer forms listed in the “DS1 Tie Trunk Service” section in *DEFINITY® Communications System Generic 3i—Implementation, 555-230-650*.

### Save Translations

1. Enter `save translations`, and press `Return`. This command instructs the system to take all translation information in memory and write it onto the tape.
2. If the system is equipped with a TN750B Announcement circuit pack, the recorded announcements can be saved by using the save announcements command. Enter `save announcements`, and press `Return`.
3. Update backup tape, if required.

### 33. Add Call Management System (CMS) Interface

#### Requirements

The interface between G3i and the CMS is through an MPDM or MTDM. The G3i without duplication can be connected to the CMS with the direct PI EIA connector on the back of the cabinet.

The MPDM or MTDM is connected to a TN754 Digital Line circuit pack and is mounted individually or in a 71A multiple data mounting. MPDM or MTDM installation and testing information is contained in *System 85 Processor Data User's Guide, 999-700-028*, or *System 85 Data Module Trunk: Data Module Operations User's Guide, 999-700-029*.

The communications interface for the G3i is provided by the TN765 Processor Interface circuit pack.

#### Service Interruption

The addition of CMS requires service interruption. The customer should be notified in advance when the addition is going to be done.

#### Verify System Status

The system should be examined for alarms before proceeding, and all problems should be corrected. The system must be alarm-free.

#### Save Translations

1. Login at the G1 Manager I or G3-MT terminal.
2. Enter `save translations`, and press `Return`. This command instructs the system to take all translation information in memory and write it onto the tape.
3. If the system is equipped with a TN750B Announcement circuit pack, the recorded announcements can be saved by using the save announcements command. Enter `save announcements`, and press `Return`.

#### Power Down System

1. At the PPN, on the power distribution unit, set the main AC circuit breaker to OFF.
2. At the PPN, on the power distribution unit, set the main AC circuit breaker to OFF.

### Add Circuit Packs

1. Determine port assignment of circuit packs to be added.

EXAMPLE:	Port Number/ Port Network	B	02	01
		Carrier/ Cabinet	Slot	Circuit

2. See “6. Add Circuit Packs” earlier in this chapter, and install the appropriate circuit pack(s) in assigned carrier slot (as required).

The TN765 Processor Interface circuit pack is required.

A vacant port is required on a TN754 Digital Line circuit pack.

### Install Cables

Install cables from cabinet to cross-connect field as required.

Detailed descriptions for installing wiring are contained in *DEFINITY® Communications System Generic 1 and Generic 3i—Wiring, 555-204-111*.

### Power Up System

1. At the EPN, on the power distribution unit, set the main AC circuit breaker to ON.
2. At the PPN, on the power distribution unit, set the main AC circuit breaker to ON.
3. The system now goes through the rebooting process, loading the system translations from the tape. Rebooting requires several minutes. Refer to the “System Reboot Indications” section in *DEFINITY® Communications System Generic 1 and Generic 3i—Maintenance, 555-204-105*, for circuit pack LED indications and G1 Manager I or G3-MT terminal displays that occur during system reboot.
4. After the system reboot is finished and all trouble is cleared, verify the EMERGENCY TRANSFER CONTROL switch is set to AUTO. This restores the system to the normal mode.

### Enter Added Translations

Administer the required translation data using the forms listed in the “Audio Information Exchange (AUDIX) Interface and Assignments” section in *DEFINITY® Communications System Generic 3i—Implementation, 555-230-650*.

### Save Translations

1. Enter `save translations`, and press `Return`. This command instructs the system to take all translation information in memory and write it onto the tape.
2. If the system is equipped with a TN750B Announcement circuit pack, the recorded announcements can be saved by using the save announcements command. Enter `save announcements`, and press `Return`.
3. Update backup tape, if required.

## 34. Add Audio Information Exchange (AUDIX) Interface

### Requirements

The interface between G3i and the AUDIX is through an MPDM. The AUDIX can be connected to the PI connector on the back of the control carrier on systems without duplication.

The MPDM is connected to a TN754 Digital Line circuit pack and is mounted individually or in a 71A multiple data mounting. MPDM installation and testing information is contained in *System 85 Processor Data Module, 999-700-028*.

For G3i, the communications interface is provided by the TN765 Processor Interface circuit pack.

Sixteen ports on TN742, TN746B, or TN769 Analog Line circuit packs are also required for voice retrieval.

### Service Interruption

The addition of AUDIX requires service interruption. The customer should be notified in advance when the addition is going to be done.

### Verify System Status

The system should be examined for alarms before proceeding, and all problems should be corrected. The system must be alarm-free.

### Save Translations

1. Login at the G1 Manager I or G3-MT terminal.
2. Enter `save translations`, and press `Return`. This command instructs the system to take all translation information in memory and write it onto the tape.
3. If the system is equipped with a TN750B Announcement circuit pack, the recorded announcements can be saved by using the save announcements command. Enter `save announcements`, and press `Return`.

### Power Down System

1. At the PPN, on the power distribution unit, set the main AC circuit breaker to OFF.
2. At the EPN, if provided, on the power distribution unit, set the main AC circuit breaker to OFF.

### Add Circuit Packs

1. Determine port assignment of circuit packs to be added.

EXAMPLE:	Port Number/ Port Network	B	02	01
		Carrier/ Cabinet	Slot	Circuit

2. See “6. Add Circuit Packs” earlier in this chapter, and install the appropriate circuit pack(s) in assigned cabinet slot (as required).

The TN765 Processor Interface circuit pack is required.

Sixteen ports on TN742, TN746B, or TN769 Analog Line circuit packs are required.

A vacant port is required on a TN754 Digital Line circuit pack.

### Install Cables

Install cables from cabinet to cross-connect field as required.

Detailed descriptions for installing wiring are contained in *DEFINITY® Communications System Generic 1 and Generic 3i—Wiring, 555-204-111*.

### Power Up System

1. At the EPN, if provided, on the power distribution unit, set the main AC circuit breaker to ON.
2. At the PPN, on the power distribution unit, set the main AC circuit breaker to ON.
3. The system now goes through the rebooting process, loading the system translations from the tape. Rebooting requires several minutes. Refer to the “System Reboot Indications” section in *DEFINITY® Communications System Generic 1 and Generic 3i—Maintenance, 555-204-105*, for circuit pack LED indications and G1 Manager I or G3-MT terminal displays that occur during system reboot.
4. After the system reboot is finished and all trouble is cleared, verify the EMERGENCY TRANSFER CONTROL switch is set to AUTO. This restores the system to the normal mode.

### Enter Added Translations

Administer the required translation data using the forms listed in the “Audio Information Exchange (AUDIX) Interface and Assignments” section in *DEFINITY® Communications System Generic 3i—Implementation, 555-230-650*.

### Save Translations

1. Enter `save translations`, and press `Return`. This command instructs the system to take all translation information in memory and write it onto the tape.
2. If the system is equipped with a TN750B Announcement circuit pack, the recorded announcements can be saved by using the save announcements command. Enter `save announcements`, and press `Return`.
3. Update backup tape, if required.

## 35. Add Property Management System (PMS) Access

### Requirements

The interface between G3i and the PMS is through an MPDM and a port on TN754 Digital Line circuit pack or directly from a port on a TN726 Data Line circuit pack using an asynchronous data line.

MPDM installation and testing information is contained in *Processor Data Module, 999-700-028*.

### Installation

1. Determine port assignment from Data Module Form:

EXAMPLE:	Port Number/ Port Network	B	02	01
		Carrier/ Cabinet	Slot	Circuit

2. See “6. Add Circuit Packs” earlier in this chapter, and install the TN754 Digital Line circuit pack or the TN726 Data Line circuit pack in assigned carrier slot (if an additional circuit pack is required).
3. Administer the forms listed in the “Property Management System Interface” section in *DEFINITY® Communications System Generic 3i—Implementation, 555-230-650*.

Detailed descriptions for installing wiring are contained in *DEFINITY® Communications System Generic 1 and Generic 3i—Wiring, 555-204-111*.

## 36. Add 16-Port Analog Line Circuit Pack to Replace Two 8-Port Analog Line Circuit Packs

### 36. Add 16-Port Analog Line Circuit Pack to Replace Two 8-Port Analog Line Circuit Packs

#### Requirements

When there is a need for more lines and the carrier port slots are full, this change-out will free a slot to add another circuit pack.

The TN746B can replace the 8-port packs with no limitations while the TN746 (16-port) circuit pack has some limitations that must be considered when replacing the 8-port TN742, TN746B, or TN769 circuit pack. The limitations are as follows:

- Cannot be used for off-premises or out-of-building extensions
- Cannot be used for bridging
- Does not support voice terminals or modems or other vendor equipment requiring 48 volts. The TN746 provides a 24-volt battery feed circuit and will support only 500-series and 2500-series voice terminals with no adjuncts.

The TN746B can be used off premises with no limitations, but will not support neon message waiting.

#### Installation

1. For all stations, external alerting devices, announcements, etc., that are assigned ports from a slot that currently has a TN742 or TN769 board administered, change the port assignments to temporary ports. These temporary ports may be spare ports from real analog boards or from spare slots that are administered as having analog boards. If there are no spare analog ports or spare slots, the stations must be removed from the system.
2. See WARNING. Remove the two circuit packs to be replaced.

**WARNING: A wrist strap must always be worn and the clip must be grounded to the carrier frame being worked on before inserting or removing any circuit pack.**

3. Determine slot (any port slot) for TN746, and align and slide circuit pack with latch lever opened into slot until some resistance is felt.
4. Lift locking lever upward until latch pin engages.
5. At rear of carrier, disconnect B25A cables from both slots.

6. Connect single end of 853B (Y) adapter cable to TN746 slot on carrier.
7. Connect the two B25A cables to the double end of the 853B adapter cable.
8. At the cross-connect field, change jumper wires or patch cords as required. Detailed descriptions for installing wiring are contained in *DEFINITY® Communications System Generic 1 and Generic 3i—Wiring, 555-204-111*.
9. Readminister the stations from Step 1 with the same ports that were taken away.
10. Administer the second eight ports on the TN746 or TN746B as required in *DEFINITY® Communications System Generic 3i—Implementation, 555-230-650*.
11. Type in a **list configuration board** command or a **display circuit-packs** command to verify that the resident board is recognized as a TN746 or TN746B. If the board still appears as a TN742, reseal the board, and repeat this step.

### 37. Add Distributed Communications System (DCS) Interface

The DCS switches are interconnected by tie trunks for voice communications and data links for control and feature information. The data links, also called DCS signaling links, support the feature transparency.

For the G3i, the interface is provided by the TN765 Processor Interface circuit pack. The TN760B or TN722B DS1 Tie Trunk circuit packs are required for voice communications. In addition, a vacant port is required on a TN754 Digital Line circuit for each DCS link, or the TN722B DS1 Tie Trunk circuit pack may be used for the data link. The direct PI on the back of the cabinet can also be used for the data link on systems without duplication.

For further information about DCS, refer to the following documents:

- *AT&T System 75/85—Network and Data Services Reference Manual, 555-025-201*
- *DEFINITY® Communications System Generic 1 and Generic 3i—Feature Description, 555-230-201*
- *System 75 Application Notes—Network Services, 555-209-002.*

#### Service Interruption

The addition of DCS requires service interruption. The customer should be notified in advance when the addition is going to be done.

#### Verify System Status

The system should be examined for alarms before proceeding, and all problems should be corrected. The system must be alarm-free.

### Save Translations

1. Login at the G1 Manager I or G3-MT terminal.
2. Enter `save translations`, and press `Return`. This command instructs the system to take all translation information in memory and write it onto the tape.
3. If the system is equipped with a TN750B Announcement circuit pack, the recorded announcements can be saved by using the `save announcements` command. Enter `save announcements`, and press `Return`.

### Power Down System

1. At the PPN, on the power distribution unit, set the main circuit breaker to OFF.
2. At the EPN, if provided, on the power distribution unit, set the main circuit breaker to OFF.

### Add Circuit Packs

1. Determine port assignment of circuit packs to be added.
2. See “6. Add Circuit Packs” earlier in this chapter, and install the appropriate circuit pack(s) in assigned cabinet slot (as required).

The TN765 Processor Interface circuit pack(s) is required.

TN760B or TN722B DS1 Tie Trunk circuit packs are required.

A vacant port is required on a TN754 Digital Line circuit pack for each DCS link, or the TN722B DS1 Tie Trunk may be used for the data link.

When the TN722B DS1 Tie Trunk circuit packs are used, the system must be equipped with a TN768 Tone-Clock circuit pack.

### Install Cables

Install cables from cabinet to cross-connect field as required.

Detailed descriptions for installing wiring are contained in *DEFINITY® Communications System Generic 1 and Generic 3i—Wiring, 555-204-111*.

### Power Up System

1. At the EPN, if provided, on the power distribution unit, set the main AC circuit breaker to ON.
2. At the PPN, on the power distribution unit, set the main AC circuit breaker to ON.
3. The system now goes through the rebooting process, loading the system translations from the tape. Rebooting requires several minutes. Refer to the “System Reboot Indications” section in *DEFINITY® Communications System Generic 1 and Generic 3i—Maintenance, 555-204-105*, for circuit pack LED indications and G1 Manager I or G3-MT terminal displays that occur during system reboot.
4. After the system reboot is finished and all trouble is cleared, verify the EMERGENCY TRANSFER CONTROL switch is set to AUTO. This restores the system to the normal mode.

### Enter Added Translations

On the System Parameters-Customer Options Form, set the DCS field to “y” to enable the feature.

Administer the other required translation data using the forms listed in the “DCS” section in *DEFINITY® Communications System Generic 3i—Implementation, 555-230-650*.

### Save Translations

1. Enter `save translations`, and press . This command instructs the system to take all translation information in memory and write it onto the tape.
2. If the system is equipped with a TN750B Announcement circuit pack, the recorded announcements can be saved by using the save announcements command. Enter `save announcements`, and press .
3. Update backup tape, if required.

### **38. Add Customer-Provided Equipment (CPE)**

A major, minor, and warning alarm is provided by the system to a customer-provided device such as a lamp or bell.

The CPE Alarm Activation Level field on the System-Parameters Maintenance Form must be administered to indicate which level of alarm (major, minor, warning, or none) should activate the CPE device.

Detailed descriptions for installing wiring are contained in *DEFINITY® Communications System Generic 1 and Generic 3i—Wiring, 555-204-111*.

## 39. Add Packet Bus

### Add Packet Bus Without Duplication

1. Perform a “save translation.”
2. Power down the PPN, then EPN1, and then EPN2 as required.
3. At the PPN, install the appropriate circuit packs using Table 7-L.

**TABLE 7-L. PPN Packet Bus Circuit Pack Locations**

Pack	Qty.	Carrier	Slot
TN778	1	A	PACCON
TN570	1/2 (Note)	A	01
TN771	1	A	03

**Note:** Number of this circuit pack should equal the number of EPN(s).

4. At the EPN(s), install the appropriate circuit packs using Table 7-M.

**TABLE 7-M. EPN Packet Bus Circuit Pack Locations**

Pack	Qty.	Carrier	Slot
TN570	1/2 (Note)	A	01 02
TN771	1	A	03

**Note:** Number of this circuit pack should equal the number of EPN(s).

5. Power up EPN2, then EPN1, then the PPN as required.
6. Perform tests.

**Add Packet Bus With Duplication**

1. Perform a “save translation.”
2. Power down the PPN, then EPN 1, then EPN2 as required.
3. At the PPN, install the appropriate circuit packs using Table 7-N.

**TABLE 7-N. PPN Packet Bus Circuit Pack Locations**

Pack	Qty.	Carrier	Slot
TN778	2	A B	PACCON PACCON
TN570	2/4 (Note)	A B	01 02
TN771	1	A	03

**Note:** Number of this circuit pack should equal the number of EPN(s).

4. At the EPN(s), install the appropriate circuit packs using Table 7-O.

**TABLE 7-O. EPN Packet Bus Circuit Pack Locations**

Pack	Qty.	Carrier	Slot
TN570	2/4 (Note)	A	02 03
		B	02 03
TN771	1	A	03

**Note:** Number of this circuit pack should equal the number of EPN(s).

5. Power up EPN2, then EPN1, then the PPN, as required.
6. Perform tests.

## 40. Add CallVisor™ Adjunct Switch Applications Interface (ASAI)

### Requirements

CallVisor ASAI provides an ISDN-based interface between the G3i switch and one or more adjuncts. Through the services provided by the CallVisor ASAI, the adjunct(s) improves the switch efficiency by initiating, receiving, and controlling calls on behalf of system users.

### Service Interruption

The addition of CallVisor ASAI requires service interruption. The customer should be notified in advance when the addition is going to be done.

### Verify System Status

The system should be examined for alarms before proceeding, and all problems should be corrected. The system must be alarm-free.

### Enter Added Translations

On the System-Parameters Customer-Options Form, be certain that the CPN/BN option is disabled, and enable the CallVisor ASAI Interface option. Either CallVisor ASAI or CPN/BN may exist on the switch, but never both. Also, the Packet Bus Activated option must be enabled on the System-Parameters Maintenance. See *DEFINITY® Communications System Generic 3i—Implementation, 555-230-650*, for details on disabling and enabling options on these forms.

### Save Translations

1. Login at the G1 Manager I or G3-MT terminal.
2. Enter `save translations`, and press `(Return)`. This command instructs the system to take all translation information in memory and write it onto the tape.
3. If the system is equipped with the TN750B Announcement Circuit Pack, enter `save announcements`, and press `(Return)`.

### Power Down System

1. At the PPN, on the power distribution unit, set the main AC circuit breaker to OFF.
2. At the EPN, if provided, on the power distribution unit, set the main AC circuit breaker to OFF.

### Add Circuit Packs

1. Determine port assignment of circuit packs to be added.
2. See “6. Add Circuit Packs” earlier in this chapter, and install the appropriate circuit pack(s) in assigned cabinet slot (as required).

EXAMPLE:	Port Number/ Port Network	B	02	01
		Carrier/ Cabinet	Slot	Circuit

The TN748C or TN744 Call Classifier circuit pack is required. The TN744 is required for those customers who desire switch call classification.

A vacant port is required on a TN556 ISDN-BRI circuit pack.

3. Packet Bus is required with CallVisor ASAI. If the system isn't equipped with Packet Bus, see “39. Add Packet Bus” earlier in this chapter.

### Install Cables

Install cables from cabinet to cross-connect field as required.

Detailed descriptions for installing wiring are contained in *DEFINITY® Communications System Generic 1 and Generic 3i—Wiring, 555-204-111*.

### Power Up System

1. At the EPN, if provided, on the power distribution unit, set the main AC circuit breaker to ON.
2. At the PPN, on the power distribution unit, set the main AC circuit breaker to ON.
3. The system now goes through the rebooting process, loading the system translations from the tape. Rebooting requires several minutes. Refer to the “System Reboot Indications” section in *DEFINITY® Communications System Generic 1 and Generic 3i—Maintenance, 555-204-105*, for circuit pack LED indications and G1 Manager I or G3-MT terminal displays that occur during system reboot.
4. After the system reboot is finished and all trouble is cleared, verify the EMERGENCY TRANSFER CONTROL switch is set to AUTO. This restores the system to the normal mode.

### Enter Added Translations

Administer the required translation data using the forms listed in the “CallVisor Adjunct Switch Applications Interface (ASAI) Link” section in *DEFINITY® Communications System Generic 3i—Implementation, 555-230-650*.

### Save Translations

1. Enter `save translations`, and press `Return`. This command instructs the system to take all translation information in memory and write it onto the tape.
2. If the system is equipped with the TN750B Announcement Circuit Pack, enter `save announcements`, and press `Return`.
3. Update backup tape, if required.

## 41. Add Stratum 3 Clock

The DEFINITY G3i can be equipped with Stratum 3 synchronization by using an external Stratum 3 clock and interface circuit packs. Stratum 3 clock synchronization can be used on systems with or without duplication.

The external clock is mounted at the cross connect field. One TN780 Tone-Clock circuit pack is required for systems without duplication, two for systems with duplication. Each TN780 must be associated with a connector on the carrier rear connector panel. Some backplane wiring changes may have to be made on the carrier in which the TN780 is installed. A port circuit pack will require moving to another slot if these wiring changes are required. Steps are included in the following procedure to make these changes. Read through the following procedures, and be sure you understand them before starting.

### Service Interruption

The addition of Stratum 3 clock requires service interruption. The customer should be notified in advance when the addition is going to be done.

### Verify System Status

The system should be examined for alarms before proceeding, and all problems should be corrected. The system must be alarm-free.

### Save Translations

1. Login at the G1 Manager I or G3-MT terminal.
2. Enter `save translations`, and press `Return`. This command instructs the system to take all translation information in memory and write it onto the tape.
3. If the system is equipped with a TN750B Announcement circuit pack, enter `save announcements`, and press `Return`.

### Power Down System

1. At the PPN, on the power distribution unit, set the main AC circuit breaker to OFF.
2. At the EPN, on the power distribution unit, set the main AC circuit breaker to OFF.

### Install the Clock Unit

1. Install the External Clock. See *DEFINITY® Communications System Generic 1 and Generic 3i—Installation and Test, 555-230-104*, for the installation information.

## Install Circuit Packs

1. See WARNING. At the TONE-CLOCK slot of the appropriate carrier, remove the TN768 Tone-Clock circuit pack and replace it with a TN780 Tone-Clock circuit pack. See Table 7-P.

**WARNING:** A wrist strap must always be worn and the clip must be grounded to the carrier frame being worked on before inserting or removing any circuit pack.

2. If the system is duplicated, repeat Step 1 for the duplicated portion of the system.

**TABLE 7-P. TN780 Locations**

System	Carrier	Slot
MCC	J58890AH	09
	J58890AJ	09
SCC	J58890L	11 (Unduplicated)
		12 (Duplicated)
	J58890M	12

## Backplane Wiring Changes

The TN780 must be connected to the cross-connect field. Some of the slots the TN780 was installed in are not equipped with the proper backplane wiring. Use the following steps and Table 7-Q to move the circuit pack and to make the appropriate backplane wiring changes.

1. See Note. Remove the port circuit pack from the slot identified in Table 7-Q, if required.

**Note:** This port circuit pack will have to be moved to another slot and readministered. See *DEFINITY® Communications System Generic 1 and Generic 3i—Wiring, 555-200-111*, for the required cross-connect information and *DEFINITY® Communications System Generic 3i—Implementation, 555-230-650*, for the administration information.

2. See CAUTION. On the carrier backplane at the rear of the slot the port circuit pack was removed from in step 1, disconnect the carrier cable assembly from the carrier backplane. Do not disconnect the cable assembly from the connector panel. (See Table 7-Q).

**CAUTION:** Exercise extreme care to ensure that no damage is done to the backplane pins or cable assembly.

3. See CAUTION. Connect the carrier cable assembly to the backplane connector associated with slot that contains the TN780. (See Table 7-Q).

**CAUTION:** The backplane pins can be bent very easily when connecting the cable. Use extreme caution to ensure the pins aren't bent. Double check all connections to verify pins aren't bent.

4. Repeat Steps 1 through 3 for all TN780s in the system. See Table 7-Q.
5. At the rear connector panel, install the "TONE CLOCK" label above the 25-pair connector associated with the slot that the TN780 is in.
6. Install the "SERVICE" label on the slot from which the port circuit pack was removed.
7. Close all doors.

**TABLE 7-Q. Backplane Wiring Changes**

Carrier	Slot Port Pack is Removed From	Disconnect Cable Assembly From Slot	Connect Cable Assembly To Slot
J58890AH	09	12	09
J58890AJ	09	12	09
J58890L	12 (Unduplicated) 11 (Duplicated)	N/A	N/A
J58890M	12	N/A	N/A

### Install Cables

Install cables from cabinet to cross-connect field as required.

Detailed descriptions for installing wiring are contained in *DEFINITY® Communications System Generic 1 and Generic 3i—Wiring, 555-204-111*.

When connecting the cable, use extreme caution to avoid bending the backplane pins. Double check all connections to ensure pins are not bent.

### Power Up System

1. At the EPN, on the power distribution unit, set the main AC circuit breaker to ON.
2. At the PPN, on the power distribution unit, set the main AC circuit breaker to ON.
3. The system now goes through the rebooting process, loading the system translations from the tape. Rebooting requires 15 to 20 minutes. Refer to the “System Reboot Indications” section in *DEFINITY® Communications System Generic 1 and Generic 3i—Maintenance, 555-204-105*, for circuit pack LED indications and G1 Manager I or G3-MT terminal displays that occur during system reboot.
4. After the system reboot is finished and all trouble is cleared, verify the EMERGENCY TRANSFER CONTROL switch is set to AUTO. This restores the system to the normal mode.

### Enter Added Translations

1. Administer forms listed in the “DS1 Tie Trunk Service” section in *DEFINITY® Communications System Generic 3i—Implementation, 555-230-650*.

### Save Translations

1. Enter `save translations`, and press `Return`. This command instructs the system to take all translation information in memory and write it onto the tape.
2. If the system is equipped with a TN750B Announcement circuit pack, Enter `save announcements`, and press `Return`.
3. Update backup tape, if required.

## 42. Add Integrated Services Digital Network-Basic Rate Interface (ISDN-BRI)

### Requirements

BRI provides an ISDN-based interface between the G3i switch and one or more stations or voice terminals.

### Service Interruption

The addition of BRI requires service interruption. The customer should be notified in advance when the addition is going to be done.

### Verify System Status

The system should be examined for alarms before proceeding, and all problems should be corrected. The system must be alarm-free. Of particular concern is that there be no packet faults.

### Save Translations

1. Login at the G1 Manager I or G3-MT terminal.
2. Enter `save translations`, and press `Return`. This command instructs the system to take all translation information in memory and write it onto the tape.
3. If the system is equipped with the TN750B Announcement Circuit Pack, enter `save announcements`, and press `Return`.

### Power Down System

1. At the PPN, on the power distribution unit, set the main AC circuit breaker to OFF.
2. At the EPN, if provided, on the power distribution unit, set the main AC circuit breaker to OFF.

### Add Circuit Packs

1. Determine port assignment of circuit packs to be added.
2. See “6. Add Circuit Packs” earlier in this chapter, and install the appropriate circuit pack(s) in assigned cabinet slot (as required).

EXAMPLE:	Port Number/ Port Network	B	02	01
		Carrier/ Cabinet	Slot	Circuit

The TN778 Packet Control circuit pack and the TN556 ISDN BRI circuit pack are required. The TN778 Packet Control circuit pack should be added first.

If an EPN is present, a TN570 Expansion Interface circuit pack is required.

3. Packet Bus is required with BRI. If the system isn't equipped with Packet Bus see “39. Add Packet Bus” earlier in this chapter.

### Install Cables

Install cables from cabinet to cross-connect field as required.

Detailed descriptions for installing wiring are contained in *DEFINITY® Communications System Generic 1 and Generic 3i—Wiring, 555-204-111*.

**Note:** BRI requires a 12 port backplane cable terminator (breakout connector). This terminator is connected to the 25 pair cable. This is different from the 8 port connector used for DCP.

### Power Up System

1. At the EPN, if provided, on the power distribution unit, set the main AC circuit breaker to ON.
2. At the PPN, on the power distribution unit, set the main AC circuit breaker to ON.
3. The system now goes through the rebooting process, loading the system translations from the tape. Rebooting requires several minutes. Refer to the “System Reboot Indications” section in *DEFINITY® Communications System Generic 1 and Generic 3i—Maintenance, 555-204-105*, for circuit pack LED indications and G1 Manager I or G3-MT terminal displays that occur during system reboot.
4. After the system reboot is finished and all trouble is cleared, verify the EMERGENCY TRANSFER CONTROL switch is set to AUTO. This restores the system to the normal mode.

### Enter Added Translations

Administer the required translation data using the forms listed in the 7500D Voice Terminals and 8500 Voice Terminals section in *DEFINITY® Communications System Generic 3i—Implementation, 555-230-650*.

### Save Translations

1. Enter `save translations`, and press `Return`. This command instructs the system to take all translation information in memory and write it onto the tape.
2. If the system is equipped with the TN750B Announcement Circuit Pack, enter `save announcements`, and press `Return`.
3. Update backup tape, if required.

## 43. Add ISDN Voice Terminals

ISDN-BRI voice terminals can be added to the system as endpoints. The DEFINITY G3i supports the 7505, 7506, 7507, and 8503T Voice Terminals.

For instructions on adding the 7505, 7506, 7507, or 8503T Voice Terminals, see *DEFINITY® Communications System Generic 1 and Generic 3i—Installation and Test, 555-230-104*.

## **44. Add Integrated Services Digital Network Voice Terminals**

ISDN-BRI voice terminals can be added to the system as endpoints. The DEFINITY G3i supports the 7505, 7506, 7507, and 8503T Voice Terminals.

For instructions on adding the 7505, 7506, 7507, or 8503T Voice Terminals, see *Installation and Test*, 555-230-104.

## 45. Add 715 BCS Terminal for G1 Manager I or G3-MT

G3i supports the use of the 715 Business Communications System (BCS) Terminal as a G1 Manager I or G3-MT terminal. To connect the 715 BCS, see the *AT&T Information Systems 715 BCS User's Guide and Service Manual*. Also, note the following conditions:

- P2 is the Main Port, not P1. P1 can be used as the Main Port, but P2 is recommended. If P1 is used to connect to the G3i:
  - A null modem must be used. See Figure 7-27 for the schematic for the null modem connection.
  - The parallel printer port must be used because P2 only supports Host operations. If the parallel port is used, it must be enabled in the User Preferences sub-menu.
- Changing the font size option setting on the 715 BCS from Normal to Large improves the readability of the display.
- Changing the autowrap option setting on the PRIMARY/WINDOW 1 and WINDOW 2 from on to off on the 715 BCS makes the power-up option settings compatible with the G3i. The customer will not have to change any option settings on the 715 BCS after powering up.



## CHAPTER 8. TESTS

The tests in this manual are performed after the customer's translations have been entered and all wiring and connections have been made.

The following tests are in the nature of acceptance tests or sanity tests, and the assumption is that the system will perform properly after installation and administration. If problems occur or more extensive or specific tests are required, refer to *DEFINITY® Communications System Generic 1 and Generic 3i—Maintenance, 555-204-105*.

## Make Test Call (Single-Cabinet Switch)

### Description

Make two calls from one telephone/voice terminal to another telephone/voice terminal. Make the first call by dialing an extension number, and make the second call by dialing a trunk access code and a listed directory number (LDN).

### Procedure

1. Select a working telephone/voice terminal for the test terminal, and go off-hook.

**Requirement:** Dial tone is heard.

2. Dial the extension number of a working telephone/voice terminal.

**Requirement:** Ringback is heard through earpiece of test terminal.

3. At called telephone/voice terminal, go off-hook. Conversation is satisfactory; go on-hook at both telephones/voice terminals.

4. At test terminal, go off-hook.

**Requirement:** Dial tone is heard.

5. Dial trunk access code.

**Requirement:** Dial tone is heard.

6. Dial LDN for a working telephone/voice terminal.

**Requirement:** Ringback is heard through earpiece of test terminal.

7. At called telephone/voice terminal, go off-hook. Conversation is satisfactory; go on-hook at both telephones/voice terminals.

## Make Test Call (Two-Cabinet Switch)

### Description

To test a two-cabinet switch, make the following calls:

- Make a call from a telephone/voice terminal associated with a line port in the PPN to an extension number associated with a line port in the PPN.
- Make a call from a telephone/voice terminal associated with a line port in the PPN to an extension number associated with a line port in the EPN.
- Make a call from a telephone/voice terminal associated with a line port in the PPN to an LDN.
- Make a call from a telephone/voice terminal associated with a line port in the EPN to an extension number associated with a line port in the EPN.
- Make a call from a telephone/voice terminal associated with a line port in the EPN to an extension number associated with a line port in the PPN.
- Make a call from a telephone/voice terminal associated with a line port in the EPN to an LDN.

### Procedure

1. Select a working telephone/voice terminal (associated with a line port in the PPN) for the test terminal, and go off-hook.

**Requirement:** Dial tone is heard.

2. Dial the extension number of a working telephone/voice terminal associated with a line port in the PPN.

**Requirement:** Ringback is heard through earpiece of test terminal.

3. At called telephone/voice terminal, go off-hook. Conversation is satisfactory; go on-hook at both telephones/voice terminals.

4. At test terminal, go off-hook.

5. Dial the extension number of a working telephone/voice terminal associated with a line port in the EPN.

**Requirement:** Ringback is heard through earpiece of test terminal.

6. At called telephone/voice terminal, go off-hook. Conversation is satisfactory; go on-hook at both telephones/voice terminals.

7. At test terminal, go off-hook.

**Requirement:** Dial tone is heard.

8. Dial trunk access code.

**Requirement:** Dial tone is heard.

9. Dial an LDN for a working telephone/voice terminal.

**Requirement:** Ringback is heard through earpiece of test terminal.

10. At called telephone/voice terminal, go off-hook. Conversation is satisfactory; go on-hook at both telephones/voice terminals.

11. Select a working telephone/voice terminal (associated with a line port in the EPN) for the test terminal, and go off-hook.

**Requirement:** Dial tone is heard.

12. Dial the extension number of a working telephone/voice terminal associated with a line port in the EPN cabinet.

**Requirement:** Ringback is heard through earpiece of test terminal.

13. At called telephone/voice terminal, go off-hook. Conversation is satisfactory; go on-hook at both telephones/voice terminals.

14. At test terminal, go off-hook.

15. Dial the extension number of a working telephone/voice terminal associated with a line port in the PPN.

**Requirement:** Ringback is heard through earpiece of test terminal.

16. At called telephone/voice terminal, go off-hook. Conversation is satisfactory; go on-hook at both telephones/voice terminals.

17. At test terminal, go off-hook.

**Requirement:** Dial tone is heard.

18. Dial trunk access code.

**Requirement:** Dial tone is heard.

19. Dial an LDN for a working telephone/voice terminal.

**Requirement:** Ringback is heard through earpiece of test terminal.

20. At called telephone/voice terminal, go off-hook. Conversation is satisfactory; go on-hook at both telephones/voice terminals.

## Make Test Call (Three-Cabinet Switch)

### Description

To test a three-cabinet switch, make the following calls:

- Make a call from a telephone/voice terminal associated with a line port in the PPN to an extension number associated with a line port in the PPN.
- Make a call from a telephone/voice terminal associated with a line port in the PPN to an extension number associated with a line port in EPN1.
- Make a call from a telephone/voice terminal associated with a line port in the PPN to an extension number associated with a line port in EPN2.
- Make a call from a telephone/voice terminal associated with a line port in the PPN to an LDN.
- Make a call from a telephone/voice terminal associated with a line port in EPN1 to an extension number associated with a line port in EPN1.
- Make a call from a telephone/voice terminal associated with a line port in EPN1 to an extension number associated with a line port in EPN2.
- Make a call from a telephone/voice terminal associated with a line port in EPN1 to an extension number associated with a line port in the PPN.
- Make a call from a telephone/voice terminal associated with a line port in EPN1 to an LDN.
- Make a call from a telephone/voice terminal associated with a line port in EPN2 to an extension number associated with a line port in EPN2.
- Make a call from a telephone/voice terminal associated with a line port in EPN2 to an extension number associated with a line port in EPN1.
- Make a call from a telephone/voice terminal associated with a line port in EPN2 to an extension number associated with a line port in the PPN.
- Make a call from a telephone/voice terminal associated with a line port in EPN2 to an LDN.

### Procedure

1. Select a working telephone/voice terminal (associated with a line port in the PPN) for the test terminal, and go off-hook.

**Requirement:** Dial tone is heard.

2. Dial the extension number of a working telephone/voice terminal associated with a line port in the PPN.

**Requirement:** Ringback is heard through earpiece of test terminal.

3. At called telephone/voice terminal, go off-hook. Conversation is satisfactory; go on-hook at both telephones/voice terminals.
4. At test terminal, go off-hook.
5. Dial the extension number of a working telephone/voice terminal associated with a line port in EPN1.

**Requirement:** Ringback is heard through earpiece of test terminal.

6. At called telephone/voice terminal, go off-hook. Conversation is satisfactory; go on-hook at both telephones/voice terminals.
7. At test terminal, go off-hook.
8. Dial the extension number of a working telephone/voice terminal associated with a line port in EPN2.

**Requirement:** Ringback is heard through earpiece of test terminal.

9. At called telephone/voice terminal, go off-hook. Conversation is satisfactory; go on-hook at both telephones/voice terminals.
10. At test terminal, go off-hook.

**Requirement:** Dial tone is heard.

11. Dial trunk access code.

**Requirement:** Dial tone is heard.

12. Dial an LDN for a working telephone/voice terminal.

**Requirement:** Ringback is heard through earpiece of test terminal.

13. At called telephone/voice terminal, go off-hook. Conversation is satisfactory; go on-hook at both telephones/voice terminals.
14. Select a working telephone/voice terminal (associated with a line port in EPN1) for the test terminal, and go off-hook.

**Requirement:** Dial tone is heard.

15. Dial the extension number of a working telephone/voice terminal associated with a line port in the EPN1 cabinet.

**Requirement:** Ringback is heard through earpiece of test terminal.

16. At called telephone/voice terminal, go off-hook. Conversation is satisfactory; go on-hook at both telephones/voice terminals.
17. At test terminal, go off-hook.
18. Dial the extension number of a working telephone/voice terminal associated with a line port in EPN2.

**Requirement:** Ringback is heard through earpiece of test terminal.

19. At called telephone/voice terminal, go off-hook. Conversation is satisfactory; go on-hook at both telephones/voice terminals.
20. At test terminal, go off-hook.
21. Dial the extension number of a working telephone/voice terminal associated with a line port in the PPN.

**Requirement:** Ringback is heard through earpiece of test terminal.

22. At called telephone/voice terminal, go off-hook. Conversation is satisfactory; go on-hook at both telephones/voice terminals.
23. At test terminal, go off-hook.

**Requirement:** Dial tone is heard.

24. Dial trunk access code.

**Requirement:** Dial tone is heard.

25. Dial an LDN for a working telephone/voice terminal.

**Requirement:** Ringback is heard through earpiece of test terminal.

26. At called telephone/voice terminal, go off-hook. Conversation is satisfactory; go on-hook at both telephones/voice terminals.
27. Select a working telephone/voice terminal (associated with a line port in EPN2) for the test terminal, and go off-hook.

**Requirement:** Dial tone is heard.

28. Dial the extension number of a working telephone/voice terminal associated with a line port in EPN2 cabinet.

**Requirement:** Ringback is heard through earpiece of test terminal.

29. At called telephone/voice terminal, go off-hook. Conversation is satisfactory; go on-hook at both telephones/voice terminals.
30. At test terminal, go off-hook.
31. Dial the extension number of a working telephone/voice terminal associated with a line port in EPN1.

**Requirement:** Ringback is heard through earpiece of test terminal.

32. At called telephone/voice terminal, go off-hook. Conversation is satisfactory; go on-hook at both telephones/voice terminals.
33. At test terminal, go off-hook.
34. Dial the extension number of a working telephone/voice terminal associated with a line port in PPN.

**Requirement:** Ringback is heard through earpiece of test terminal.

35. At called telephone/voice terminal, go off-hook. Conversation is satisfactory; go on-hook at both telephones/voice terminals.
36. At test terminal, go off-hook.

**Requirement:** Dial tone is heard.

37. Dial trunk access code.

**Requirement:** Dial tone is heard.

38. Dial an LDN for a working telephone/voice terminal.

**Requirement:** Ringback is heard through earpiece of test terminal.

39. At called telephone/voice terminal, go off-hook. Conversation is satisfactory; go on-hook at both telephones/voice terminals.

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## Test Attendant Console

### Description

Check that all lamps are operational, and call another voice terminal in the system.

### Procedure

1. Open front panel of console, press and hold **Test** or **Self-Test** switch.
2. Verify that all lamps on display light and remain lighted. Each row of lamps on the console lights and goes dark in sequence from top to bottom.
3. Press **Start** .  
Listen for dial tone.  
**Atnd** or green lamp associated with idle call appearance button lights.  
**Pos Avail** or **Avail** lamp goes dark.
4. Dial number associated with a working voice terminal.  
Audible ringing tone is heard in ear piece.
5. Press **Release** .  
Audible ringing tone is silenced.  
**Atnd** or green lamp goes dark.  
**Pos Avail** or **Avail** lamp lights.

## Test Selector Console

### Description

Check that all selector console lamps are operational. Make a call to a voice terminal in the system.

### Procedure

1. Open front panel of attendant console, press and hold **Test** or **Self-Test** switch.
2. Each row of lamps on the selector console lights and goes dark in sequence from top to bottom.
3. Press hundreds group select button.  
Hundreds group select lamp lights, and any lamps associated with busy voice terminal light.
4. Press Direct Extension Selection (DXS) button for the desired extension.  
Audible ringing tone is heard in ear piece on attendant console.
5. On attendant console, press **Release**.  
Audible ringing tone is silenced.

## Test External Ringing

### Description

Make test call to attendant console to verify that ringing device sounds when **Night** lamp on console is lighted. If ringing device has not yet been installed by customer, connect spare voice terminal to information outlet reserved for ringing device and make test call.

### Procedure—Ringing Device Installed

1. On attendant console, press **Night** .
2. Verify that **Night** lamp lights.
3. Select working voice terminal as test terminal.
4. At test terminal, go off-hook and dial trunk access code and listed directory number for attendant console.
5. Verify that ringing device sounds.
6. At test terminal, go on-hook.
7. On attendant console, press **Night** .
8. Verify that **Night** lamp goes dark.

### Procedure—Ringing Device Not Installed

1. Connect spare 2500-type voice terminal to information outlet.
2. On attendant console, press **Night** .
3. Verify that **Night** lamp lights.
4. Select working voice terminal as test terminal.
5. At test terminal, go off-hook, and dial trunk access code and listed directory number for attendant console.
6. Verify that ringing is heard on spare voice terminal.
7. At test terminal, go on-hook.
8. Disconnect spare voice terminal from information outlet.
9. Press **Night** on attendant console.
10. Verify that **Night** lamp goes off.
11. Notify customer that installation is complete and that external ringing device can be installed.

## Test Queue Warning Indicator

### Description

Make test call to an extension associated with UCD or DDC group, and verify that the queue warning indicator lamp lights. If queue warning indicator has not yet been installed by customer, connect spare voice terminal to information outlet reserved for queue warning indicator and make test call.

### Procedure—Queue Warning Indicator Installed

1. Record old Queue Warning number, then Administer Queue Warning Indicator number to 0 on Hunt Group Form.
2. Make sure all terminals in the group are disconnected or are “busy.”
3. Select working voice terminal as test terminal.
4. At test terminal, go off-hook and dial number associated with UCD or DDC group.
5. Verify that lamp lights (see Note).

**Note:** Delay Recorded Announcement is heard if it is administered for this group. The delay announcement is followed by music if Music-on-Hold is administered.

6. At test terminal, go on-hook.
7. Administer queue warning threshold number to number changed in Step 1.
8. Restore service to all terminals made busy or disconnected in Step 2.

### Procedure—Queue Warning Indicator Not Installed

1. Administer Queue Warning Indicator number to 0 on Hunt Group Form. Record old number.
2. Make sure all terminals in the group are disconnected or are “busy.”
3. Connect spare 2500-type voice terminal to information outlet.
4. Select working voice terminal as test terminal.
5. At test terminal, go off-hook and dial number associated with UCD or DDC group.
6. Verify that ringing is heard on spare voice terminal (see Note).

**Note:** Delay Recorded Announcement is heard at test terminal if it is administered for this group. The delay announcement is followed by music if Music-on-Hold is administered.

7. At test terminal, go on-hook.

8. Disconnect spare voice terminal from information outlet.
9. Administer queue warning threshold number to number changed in Step 1.
10. Restore service to all terminals made busy or disconnected in Step 2. Notify customer that the installation is complete and that the queue warning indicator lamp can be installed.

## Test Recorded Intercept Announcement

### Description

Make call using a trunk access code and an invalid extension number to verify that recorded announcement is heard. If recorded announcement equipment has not been installed by customer, this feature cannot be tested.

### Procedure—Recorded Announcement Equipment Installed

1. Select working voice terminal as test terminal.
2. At test terminal, go off-hook and dial trunk access code and invalid extension number. The first number of the extension number must agree with the first digit in the system dial plan.

**Requirement:** Recorded statement is heard.

## Test Integrated Announcement

### Description

The TN750B Announcement circuit pack provides the ability to store messages. The messages can be recorded from voice terminals, on or off premises, and have flexible message lengths.

### *Record Announcement*

1. Dial access code followed by the integrated announcement extension number.

**Requirement:** Dial Tone is heard.

2. Press **1** .

**Requirement:** Short burst of tone is heard, and recording begins.

3. When recording is complete, press **#** if using hybrid voice terminal or hang up if using analog or digital voice terminal.

**Requirement:** Recording stops, and dial tone is heard.

### *Playback Announcement*

1. Dial access code followed by the integrated announcement extension number.

**Requirement:** Dial Tone is heard.

2. Press **2** .

**Requirement:** Announcement is heard, and dial tone is heard at completion of announcement.

### *Delete Announcement*

1. Dial access code followed by the integrated announcement extension number.

**Requirement:** Dial Tone is heard.

2. Press **3** .

**Requirement:** Confirmation tone is heard, and announcement is deleted.

## Test Recorded Telephone Dictation Access

### Description

Make call to verify that dial dictation equipment can be accessed. If the dial dictation equipment has not been installed by customer, this feature cannot be tested.

### Procedure—Dial Dictation Equipment Installed

1. Select working voice terminal as test terminal, and go off-hook.
2. Dial access code and number associated with dial dictation trunk.

**Requirement:** Ready or talk-down tone is heard.

## Test Loudspeaker Paging

### Description

Make a call to each paging zone to verify that loudspeaker paging equipment can be accessed.

### Procedure

1. Select a working telephone/voice terminal, and go off-hook.
2. Go off-hook, and dial trunk access code for a particular paging zone.

**Requirement:** Confirmation tone is heard.

3. Speak into transmitter.

**Requirement:** At loudspeaker(s), announcement is heard.

4. At telephone/voice terminal, go on-hook.
5. Repeat Steps 1 through 4 for each paging zone.

## Test Loudspeaker Paging—Deluxe

### Description

Establish a call between two test stations, park the call, make a test call to each paging zone to verify that loudspeaker equipment can be accessed. Respond to the page and verify the parked call can be accessed.

### Procedure

1. Select working voice terminal as test terminal A.
2. Select working voice terminal as test terminal B.
3. Establish a call between terminal A and terminal B.
4. At terminal A, press **Recall** or flash the switchhook.

**Requirement:** Terminal B is placed on hold and recall dial tone is heard.

5. At test terminal A, dial trunk access code for a particular zone.

**Requirement:** Dial tone is heard.

6. Press **#** to park the call on test terminal A or park the call at any working extension by dialing that extension number.

**Requirement:** Confirmation tone is heard, and the call is temporarily parked.

7. Make the announcement.

**Requirement:** At loudspeaker(s), announcement is heard.

8. Press **Recall** before the administered loudspeaker paging timeout interval expires, and go on hook.

9. At test terminal A, go off-hook.

**Requirement:** Dial tone heard.

10. Dial the answer-back feature access code.

**Requirement:** Dial tone heard.

11. Press **#** if you are at the extension is parked, or dial the extension number of the terminal where the call is parked if at another terminal.

**Requirement:** All parties associated with the parked call receive confirmation tone, and the answer-back and parked parties are connected.

12. Repeat the procedure for all loudspeaker zones.

## Test Code Calling

### Description

Make test call using trunk access codes to verify that loudspeaker equipment in each zone can be accessed.

### Procedure

1. Select working voice terminal as test terminal.
2. At test terminal, go off-hook and dial trunk access code for a particular zone.

**Requirement:** Dial tone is heard.

3. Dial the extension number for a working voice terminal that is listed on Code Calling IDs Form.

**Requirement:** At loudspeaker(s), chimes are heard.

4. At test terminal, go on-hook.
5. Repeat Steps 1 through 4 for all zones provided.

## Test Music-on-Hold

### Description

Verify that music is provided to a held party during any hold interval.

### Procedure

1. Select working voice terminal as test terminal.
2. At test terminal, go off-hook and press **[0]** for the attendant console.
3. At attendant console, answer call by pressing call appearance button ("a" through "f") associated with flashing **Atnd** lamp.

**Requirement:** Audible alert stops. **Atnd** lamp lights steadily.

4. Press **[Hold]** at attendant console.

**Requirement:** **Hold** lamp associated with the call appearance button lights.

5. Verify that music is heard at test terminal.
6. At test terminal, go on-hook.

## Test Emergency Transfer

### Description

Put system in emergency transfer mode, and make call using emergency transfer terminal.

There may be one, two, or three Emergency Transfer switches, depending on the system configuration. The switch is located on the Processor circuit pack in the PPN control carrier or cabinet (XE), and the switch is located on the Maintenance circuit pack in the EPN control carrier or cabinet (XE). A system without duplication and without EPN has one switch. A system with duplication and without EPN has two switches. A system with duplication and with EPN has three switches. The EPN cabinets may be tested separately from the PPN cabinets in a duplicated or non-duplicated system, but the PPN cabinets in a duplicated system must have both switches set to the ON position to invoke Emergency Transfer.

### Procedure

1. At control carrier or cabinet (XE), set **Emergency Transfer** switch(es) to ON position. See Note.

**Note:** Pull out on Switches to overcome detents.

2. At emergency transfer voice terminal, go off-hook and press Ground Start , if so equipped.

**Requirement:** Dial tone is heard.

3. Dial number associated with an outside number.

**Requirement:** Audible ringing or busy tone is heard.

4. Go on-hook.
5. At control carrier or cabinet (XE), set **Emergency Transfer** switch(es) to AUTO (center) position.

## Test INADS Interface

### Description

Test the communication link between the G3i and INADS, and verify the alarm notification process. Make a remote test from INADS to the system and a local test from the system to INADS.

### Procedure—Remote Test

1. Call INADS center.
2. Request INADS personnel to call system, and login and display the System Parameters Maintenance form.

**Requirement:** Login is successful.

**Requirement:** Product Identification on the System Parameters form must match the Product Identification administered by the local technician.

3. INADS personnel enters **test inads-link** command, terminates login, and hangs up.
4. INADS personnel then checks the appropriate trouble ticket. The trouble ticket should show “INADS,n,MINOR” in the description field to indicate that a minor off-board alarm was reported to INADS. There may be additional text in the description field if other resolved alarms were reported.
5. INADS personnel makes second call and login to system and checks the error log to verify no problems. See *DEFINITY® Communications System Generic 1 and Generic 3i—Maintenance, 555-204-105*, for error log and error code information.
6. INADS personnel terminates login and hangs up.

### Procedure—Local Test

1. Login and enter **test inads-link** command.
2. Request INADS personnel to verify that a trouble ticket was created.
3. Check error log to verify no problems.
4. Terminate login.

## Test Basic Rate Interface (BRI)

### Description

Check for normal voice terminal function (dial tone, ability to make and receive calls). Check for the correct Service Profile Identifier (SPID) on a display terminal and the G1 Manager I or G3-MT terminal.

### Procedure—Dial Tone

1. Lift handset of voice terminal, and listen for dial tone.

**Requirement:** Dial tone is heard.

### Procedure—Make and Receive Calls

1. Select a working voice terminal with display, and dial that terminal from the test terminal.

**Requirement:** Working voice terminal rings.

2. Answer the call on the working voice terminal and verify a good connection.
3. Verify the extension of the test terminal on the display of the working voice terminal.

**Requirement:** Extension is correct.

4. Call the test terminal from the working voice terminal, and verify that the test terminal rings.

**Requirement:** Test terminal rings.

5. Verify that the name and extension of the test terminal is correct as displayed on the working terminal.

**Requirement:** Name and extension are correct.

### Procedure—Checking the SPID

This test requires an ISDN voice terminal with display at the test terminal station.

1. Using a 7500 series voice terminal as display terminal, press **Shift/Select** or **Select** . On an 8503T, press **Program** .

Message lamp comes on.

2. Press **Mute** followed by key pad digits **I** and **D** ( **4** and **3** , respectively).

The present value of the SPID is shown on the display.

3. Verify that the SPID is correct.
4. Press **#** .

**Requirement:** SPID is correct.

5. Use the **Status BRI-Port** command to verify that the SPID administered for the switch for the test terminal station matches the SPID on the voice terminal display. If the SPIDs do not match, the field showing the extension for that station will be blank when you use the **Status BRI-Port** command.

**Requirement:** The SPIDs match.

## Test CallVisor ASAI Link to Host

### Description

From the G1 Manager I or G3-MT terminal, use the Status Station, Status Bri-Port, Test Port, Display Alarms, and Display Errors commands to verify a healthy CallVisor ASAI link.

**Note:** The test for the CallVisor ASAI link is also the test for the Conversant link to the host.

### Procedure—Status Station Command

1. At the G1 Manager I or G3-MT terminal, enter the **status station** command.

**Requirement:** The Service State field says "in-service/idle".

2. Enter the **status bri-port** command.

**Requirement:** The Layer 1 State field says "activated".

**Requirement:** The Layer2 State column says "I3-established" in the Link1 row.

3. Enter the **test port** command.

**Requirement:** All tests say "PASS".

4. Enter the **display alarms** command.

5. Tab to the Port field, and enter the port number, then press .

**Requirement:** No alarms against the port.

6. Enter the **display errors** command.

7. Tab to the Port field, and enter the port number, then press .

**Requirement:** No errors listed for the port.

### Procedure—Checking the SPID

This test requires an ISDN voice terminal with display at the test terminal station.

1. If using a 7500 series voice terminal as display terminal, press **Shift/Select** or **Select** . On an 8503T, press **Program** .

Message lamp comes on.

2. Press **Mute** followed by key pad digits **I** and **D** ( **4** and **3** , respectively).

The present value of the SPID is shown on the display.

3. Verify that the SPID is correct.
4. Press **#** .

**Requirement:** SPID is correct.

5. Use the **Status BRI-Port** command to verify that the SPID administered for the switch for the test terminal station matches the SPID on the voice terminal display. If the SPIDs do not match, the field showing the extension for that station will be blank when you use the **Status BRI-Port** command.

**Requirement:** The SPIDs match.

## Test Tie Trunks

### Description

The four basic tie trunk modes of operation are the following:

- Automatic Outgoing
- Dial Repeating Outgoing
- Automatic Incoming
- Dial Repeating Incoming.

These modes can be mixed for the two directions of a two-way trunk. The following four procedures test access for each of the four modes. Test each trunk in the outgoing mode before testing in the incoming mode. A Facilities Access Test is available to access specific trunks. See *DEFINITY® Communications System Generic 1 and Generic 3i—Maintenance, 555-204-105* for the Facility Access Test.

### Procedure—Automatic Outgoing Tie Trunk

1. Select working voice terminal as test terminal.
2. At test terminal, go off-hook and dial trunk access code for tie trunk.

**Note:** Audible ringing tone may or may not be heard from terminating equipment.

3. At distant called terminal, go off-hook.
4. Verify that ringing tone is silenced at distant end and conversation is good.
5. At test terminal, go on-hook.
6. At distant terminal, go on-hook.

**Requirement:** Circuit is released.

### Procedure—Dial Repeating Outgoing Tie Trunk

1. Select working voice terminal as test terminal.
2. At test terminal, go off-hook and dial trunk access code for tie trunk.

**Requirement:** Dial tone is heard. This dial tone is provided by the system and is not from the distant end.

3. Dial distant terminal number over tie trunk.

**Requirement:** Ringing tone is heard at distant terminal.

4. At distant called terminal, go off-hook.
5. Verify that ringing tone is silenced at distant end and conversation is good.
6. At test terminal, go on-hook.
7. At distant terminal, go on-hook.

**Requirement:** Circuit is released.

### **Procedure—Automatic Incoming Tie Trunk**

1. At distant terminal, go off-hook and access tie trunk.

**Requirement:** Audible ringing tone is heard at distant terminal. Ringing is heard at test terminal.

2. At test terminal, go off-hook.

**Requirement:** Tones are silenced, and conversation is good.

3. At test terminal, go on-hook.
4. At distant terminal, go on-hook.

**Requirement:** Circuit is released.

### **Procedure—Dial Repeating Incoming Tie Trunk**

1. At distant terminal, go off-hook and access tie trunk.

**Requirement:** Dial tone is heard.

2. Dial test terminal number over tie trunk.

**Requirement:** Audible ringing tone is heard at distant terminal. Ringing is heard at test terminal.

3. At test terminal, go off-hook.

**Requirement:** Tones are silenced, and conversation is good.

4. At test terminal, go on-hook.
5. At distant terminal, go on-hook.

**Requirement:** Circuit is released.

## Test Direct Inward Dialing (DID) Trunks

### Description

Verify that an incoming call can be completed over a DID trunk to a test terminal.

### Procedure

1. Select a working voice terminal as a test terminal.
2. Arrange an incoming call to the test terminal on the DID trunk to be tested.

**Requirement:** Ringing is heard at test terminal.

3. At the test terminal, go off-hook.

**Requirement:** Ringing is silenced, and conversation is good.

4. Instruct the distant party to go on-hook.
5. At test terminal, go on-hook.

**Requirement:** Circuit is released.

## Test Central Office (CO) Trunk

### Description

Verify that an outgoing and an incoming call can be completed over a CO trunk to a test terminal. Test a trunk in the outgoing mode before testing the trunk in the incoming mode. A Facilities Access Trunk (FAT) Test is available to access specific trunks. See *DEFINITY® Communications System Generic 1 and Generic 3i—Maintenance, 555-204-105* for the Facilities Access Test.

### Procedure—Outgoing CO Trunk

1. Select a working voice terminal as a test terminal.
2. At test terminal, go off-hook and dial trunk access code for CO trunk.

**Requirement:** Dial tone is heard. This dial tone is provided by the system and not from the CO.

3. Dial number of desired trunk party.

**Requirement:** Dial tone is silenced.

4. At distant party, go off-hook.
5. Verify that ringing tone is silenced at distant end and conversation is good.
6. At distant end, go on-hook.
7. At test terminal, go on-hook.

**Requirement:** Circuit is released.

**Procedure—Incoming CO Trunk**

1. Select a working voice terminal as a test terminal.
2. Arrange an incoming call to the test terminal over a CO trunk.

**Requirement:** Ringing is heard at test terminal.

3. At the test terminal, go off-hook.

**Requirement:** Ringing is silenced, and conversation is good.

4. Instruct the distant party to go on-hook.
5. At test terminal, go on-hook.

**Requirement:** Circuit is released.

## Test Duplication Option Processing Element (PE) Interchange

### Description

The process of the standby PE taking over for the active PE is referred to as a PE Interchange. This interchange should not be performed immediately after powering up the system. Wait a few minutes to allow the system to complete its internal tests. The system default is **PE\_B** after powering up the system, so the active PE should be the B processor for this test, and the interchange should make **PE\_A** the active PE. Verify that the system can successfully perform a PE interchange.

### Procedure

1. At the G1 Manager I or G3-MT terminal, verify that the screen displays **PE\_B** in the upper right corner.
2. Enter **check status** command. Verify **PE\_B** is in the standby mode. If it is, proceed to Step 4. If it is not, proceed to Step 3.
3. Enter **refresh-spr-standby** command.
4. Enter **reset system interchange** command. The G1 Manager I or G3-MT terminal will be logged off, and a beep will be heard.
5. Login and verify that the screen displays **PE\_A** in the upper right corner.

**Requirement:** Processor A's amber light is on, and its green light is off.  
Processor B's amber and green lights are off.  
The system is alarm free.

6. Make system test call (see Make System Test Call procedure).

**Requirement:** Call completes, and conversation is good.

## Terminating Trunk Transmission Test

The Terminating Trunk Transmission Test provides for extension number access to three tone sequences that can be used for trunk transmission testing from the distant end of the trunks.

The three test types must have extension numbers assigned on the System-Parameters Maintenance form:

Test Type 100: \_\_\_\_\_ Test Type 102: \_\_\_\_\_ Test Type 105: \_\_\_\_\_.

Test type 100 provides:

- 5.5 seconds of 1004 Hz tone at 0dB
- Quiet until disconnect; disconnect is forced after one minute

Test Type 102 provides:

- 9 seconds of 1004 Hz tone at 0dB
- 1 second of silence
- cycle is repeated until disconnect, which is forced after 24 hours

Test Type 105 provides:

- 9 seconds of 1004 Hz tone at -16dB
- 1 second of silence
- 9 seconds of 404 Hz tone at -16dB
- 1 second of silence
- 9 seconds of 2804 Hz tone at -16dB
- 30 seconds of silence
- 0.5 seconds of test progress tone (2225 Hz)
- approximately 5 seconds of silence
- forced disconnect

## Test Stratum 3 Clock

### Description

To test the ability of the Stratum 3 clock to correctly provide timing and alarms to the PBX, perform the following verification tests:

- Check for red LEDs
- Verify timing to the PBX
- Verify loss of power supply alarms to the PBX
- Verify loss of DS1 reference alarms to the PBX

**CAUTION:** This procedure is destructive to DS1 data and should not be attempted while there are DS1 facilities in active use.

### Procedure—Check for red LEDs

1. Turn on the Stratum 3 clock and wait 40 to 50 seconds to allow the system to complete the on-board diagnostics before looking at the LEDs.
2. If there are any red LEDs, follow the procedures in Table 8-A:

**TABLE 8-A. Synchronization Clock Card LED Indicators**

Card	LED Label	Procedure
PAI	REF A	Check that the CI card on the left is inserted properly. Check wiring for DS1 in carrier A which connects the Switch cabinet to the CSU and the External Synchronization Clock at the cross-connect field through a Y-cable assembly. If all else fails to clear the LED, then replace the card.
PAI	REF B	Check that the CI card on the right is inserted properly. Check wiring for DS1 in carrier B which connects the Switch cabinet to the CSU and the External Synchronization Clock at the cross-connect field through a Y-cable assembly. If all else fails to clear the LED, then replace the card.
PAI	ST A	Replace the ST3 card.
PAI	ST B	Replace the ST3 card.
CI	FAIL	Check wiring for its associated DS1 reference, and replace the card if necessary.
ST3	FAIL	Replace the card.
ST3	LOCK	Ignore this LED.
ST3	HOLDOVER	Ignore this LED.
ST3	FREE RUN	Ignore this LED.
TOCA	FAIL	Replace the card.
TOCA	PORT ALM	Replace the card if necessary.

**Procedure—Verify Timing to the PBX**

1. Administer the Stratum 3 clock by issuing the **change synchronization** command at the G1 Manager I or G3-MT terminal.
2. Type a 3 in the `stratum` field.
3. Type the port network number where the TN780(s) reside in the `port network` field.

**Note:** Wait one minute for the software to reconfigure the system synchronization.

4. Verify results of Test 649. If test 649 fails with a code of 2101, then check the wiring for **EXTSYN0** and **EXTSYN1** (Tables 8-B, 8-C and 8-D).
5. If test 649 is successful, then the system is getting correct timing from the Stratum 3 clock. Proceed to the next verification.

**TABLE 8-B. Signal Name Definitions**

<b>External Synchronization Clock Signals</b>				
<b>Name</b>	<b>Terminal</b>	<b>Name</b>	<b>Terminal</b>	<b>Comment</b>
TREF1	02	RREF1	01	Incoming DS1 reference signal "1"
TREF2	04	RREF2	03	Incoming DS1 reference signal "2"
BCLKRTN	13	BCLKLST	14	"Both S3 clock fail" alarm leads
BPWRRTN	17	BPWRLST	18	"Both power fail" alarm leads
REF2RTN	07	REF2LST	08	"Reference 2 fail" alarm leads
SCLKRTN	11	SCLKLST	12	"Single S3 clock fail" alarm leads
SPWRRTN	15	SPWRLST	16	"Single power fail" alarm leads
REF1RTN	05	REF1LST	06	"Reference 1 fail" alarm leads
CCA01T	20	CCA01R	19	Composite clock timing output
CCB01T	22	CCB01R	21	Composite clock timing output
CCA02T	24	CCA02R	23	Composite clock timing output
CCB02T	26	CCB02R	25	Composite clock timing output
CCA03T	28	CCA03R	27	Composite clock timing output
CCB03T	30	CCB03R	29	Composite clock timing output
CCA04T	32	CCA04R	31	Composite clock timing output
CCB04T	34	CCB04R	33	Composite clock timing output
BREFRTN	09	BREFLST	10	"Both reference fail" alarm leads
<b>TN780 Tone/Clock Signals</b>				
<b>Name</b>	<b>Terminal</b>	<b>Name</b>	<b>Terminal</b>	<b>Comment</b>
ALRM5B	45	ALRM5A	46	"Both S3 clock fail" alarm leads
ALRM4B	21	ALRM4A	22	"Both power fail" alarm leads
ALRM3B	17	ALRM3A	18	"Reference 2 fail" alarm leads
ALRM2B	11	ALRM2A	12	"Single S3 clock fail" alarm leads
ALRM1B	31	ALRM1A	32	"Single power fail" alarm leads
ALRM0B	07	ALRM0A	08	"Reference 1 fail" alarm leads
EXTSYN0T	41	EXTSYN0R	42	Composite clock timing input
EXTSYN1T	35	EXTSYN1R	36	Composite clock timing input

**TABLE 8-C. Cross-Connections Block Positions for Simplex PBX**

From: Stratum 3 Clock			To: Y Cable Clock End (Primary)		
Lead Designation	Lead Color	Connecting Block Terminal	Lead Designation	Lead Color	Connecting Block Terminal
RREF1	W-BL	1		V-O	43
TREF1	BL-W	2		O-V	44
			<b>To: Y Cable Clock End (Secondary)</b>		
RREF2	W-O	3		V-O	43
TREF2	O-W	4		O-V	44
			<b>To: TN780 Carrier A</b>		
BCLKRTN	R-O	13	ALRM5B	V-G	45
BCLKLST	O-R	14	ALRM5A	G-V	46
BPWRRTN	R-BR	17	ALRM4B	BK-BL	21
BPWRLST	BR-R	18	ALRM4A	BL-BK	22
REF2RTN	W-BR	7	ALRM3B	R-BR	17
REF2LST	BR-W	8	ALRM3A	BR-R	18
SCLKRTN	R-BL	11	ALRM2B	R-BL	11
SCLKLST	BL-R	12	ALRM2A	BL-R	12
SPWRRTN	R-G	15	ALRM1B	Y-BL	31
SPWRLST	G-R	16	ALRM1A	BL-Y	32
REF1RTN	W-G	5	ALRM0B	W-BR	7
REF1LST	G-W	6	ALRM0A	BR-W	8
CCA01R	R-S	19	EXTSYN0T	V-BL	41
CCA01T	S-R	20	EXTSYN0R	BL-V	42
CCB01R	BK-BL	21	EXTSYN1T	Y-G	35
CCB01T	BL-BK	22	EXTSYN1R	G-Y	36

**TABLE 8-D. Cross-Connections Block Positions for Duplex PBX**

From: Stratum 3 Clock			To: Y Cable Clock End (Primary)					
Lead Designation	Lead Color	Connecting Block Terminal	Lead Designation	Lead Color	Connecting Block Terminal			
RREF1	W-BL	1		V-O	43			
TREF1	BL-W	2		O-V	44			
			To: Y Cable Clock End (Secondary)					
RREF2	W-O	3		V-O	43			
TREF2	O-W	4		O-V	44	Lead Designation	Lead Color	Connecting Block Terminal
			To: TN780 Carrier A			To: TN780 Carrier B		
BCLKRTN	R-O	13	ALRM5B	V-G	45	ALRM5B	V-G	45
BCLKLST	O-R	14	ALRM5A	G-V	46	ALRM5A	G-B	46
BPWRRTN	R-BR	17	ALRM4B	BK-BL	21	ALRM4B	BK-BL	21
BPWRLST	BR-R	18	ALRM4A	BL-BK	22	ALRM4A	BL-BK	22
REF2RTN	W-BR	7	ALRM3B	R-BR	17	ALRM3B	R-BR	17
REF2LST	BR-W	8	ALRM3A	BR-R	18	ALRM3A	BR-R	18
SCLKRTN	R-BL	11	ALRM2B	R-BL	11	ALRM2B	R-BL	11
SCLKLST	BL-R	12	ALRM2A	BL-R	12	ALRM2A	BL-R	12
SPWRRTN	R-G	15	ALRM1B	Y-BL	31	ALRM1B	Y-BL	31
SPWRLST	G-R	16	ALRM1A	BL-Y	32	ALRM1A	BL-Y	32
REF1RTN	W-G	5	ALRM0B	W-BR	7	ALRM0B	W-BR	7
REF1LST	G-W	6	ALRM0A	BR-W	8	ALRM0A	BR-W	8
CCA01R	R-S	19	EXTSYN0T	V-BL	41			
CCA01T	S-R	20	EXTSYN0R	BL-V	42			
CCB01R	BK-BL	21	EXTSYN1T	Y-G	35			
CCB01T	BL-BK	22	EXTSYN1R	G-Y	36			
CCA02R	BK-O	23				EXTSYN0T	V-BL	41
CCA02T	O-BK	24				EXTSYN0R	BL-V	42
CCB02R	BK-G	25				EXTSYW1T	Y-G	35
CCB02T	G-BK	26				EXTSYN1R	G-Y	36

**Procedure—Verify Loss of Power Supply Alarms to the PBX**

1. Remove the **-48 volt A** fuse.
2. Enter *test synchronization* at the G1 Manager I or G3-MT terminal.
3. If test 649 fails with a code of 2 then the system is successfully receiving this alarm from the Stratum 3 clock. Proceed to the next verification.
4. Remove the **-48 volt B** fuse.
5. Enter *test synchronization* at the G1 Manager I or G3-MT terminal.
6. If test 649 fails with a code of 16 then the system is successfully receiving this alarm from the Stratum 3 clock. Proceed to Step 8.
7. If test 649 does not fail with a code of 16, check the wiring for **ALARM4** (Tables 8-B, 8-C, and 8-D) after restoring the **-48 volt B** and **-48 volt A** fuses.
8. Restore the fuse and run the **test synchronization clear** command to clear the alarm. Proceed to the next verification.

**Procedure—Verify Loss of DS1 Reference Alarms to the PBX**

1. Disconnect incoming DS1 reference signal "1" at the cross-connect field, and enter `test synchronization` at the G1 Manager I or G3-MT terminal.
2. If test 649 fails with a code of 1 then the system is successfully receiving this alarm from the Stratum 3 clock. Proceed to the next verification.
3. Check the wiring for **ALRM0** (Table 8-B, 8-C, and 8-D) after reconnecting incoming DS1 reference signal "1" at the cross-connect field and running the **test synchronization clear** command to clear the alarm.
4. Disconnect incoming DS1 reference signal "2" at the cross-connect field, and enter `test synchronization` at the G1 Manager I or G3-MT terminal.
5. If test 649 fails with a code of 8 then the system is successfully receiving this alarm from the Stratum 3 clock. Proceed to the next verification.
6. Check the wiring for **ALRM3** (Tables 8-B, 8-C, and 8-D) after reconnecting incoming DS1 reference signal "2" at the cross-connect field and running the **test synchronization clear** command to clear the alarm.

After following these verification steps, check that the Stratum 3 clock has been restored by running the **test synchronization** command and ensuring that test 649 passes. If test 649 doesn't pass use the following table (Table 8-E) to troubleshoot:

**TABLE 8-E. Troubleshooting for Test 649**

<b>Test 649 Result</b>	<b>Troubleshooting Procedure</b>
1	Check wiring for ALRM0 as shown in Tables 8-B, 8-C, and 8-D.
2	Check wiring for ALRM1 as shown in Tables 8-B, 8-C, and 8-D.
4	Check wiring for ALRM2 as shown in Tables 8-B, 8-C, and 8-D.
8	Check wiring for ALRM3 as shown in Tables 8-B, 8-C, and 8-D.
16	Check wiring for ALRM4 as shown in Tables 8-B, 8-C, and 8-D.
32	Check wiring for ALRM5 as shown in Tables 8-B, 8-C, and 8-D.
2101	Check wiring for EXTSYN0 and EXTSYN1 as shown in Tables 8-B, 8-C, and 8-D.

## Test R2 Call Management System (CMS)

### Description

To test the R2 CMS link, use the *display communication interface links* and *status link* commands.

### Procedure —Test R2 CMS Link

1. If not already known, determine the number of the R2 CMS link by entering the *display communication interface links* command. The first column, labeled **Link**, tells you the number of the link. The last column, labeled **Identification**, should identify which link is for the R2 CMS interface.
2. Use the *status link* command for the R2 CMS link and check the **Link Status** field.

**Requirement:** The link status is **in-service**.



## CHAPTER 9. REFERENCES

The following is an abbreviated listing of DEFINITY Generic 1, Generic 3i, and System 75 documents. Included is a brief description of each document in the list. User instructions are also available for all terminals used with the systems.

To order copies of any of these documents, refer to the address on the back of the title page.

**Business Communications Systems Publications Catalog** **555-000-010**

Provides a list of publications that support AT&T business communications systems. Also provides a brief description of each publication listed.

**DEFINITY® Communications System and System 75 and System 85—Terminals and Adjuncts—Installation and Test** **555-015-104**

Provides procedures for installing and removing voice terminals (including Business Communications Terminal built-in voice terminals) and adding modules and adjuncts to voice terminals. Also shows how to provide auxiliary power for voice terminals and associated modules and adjuncts. Provides references to other documents that contain step-by-step instructions for making cross-connections.

**DEFINITY® Communications System and System 75 and System 85—Terminals and Adjuncts—Reference** **555-015-201**

Provides concise physical and functional descriptions of the peripheral equipment that can be used with DEFINITY Generic 1, DEFINITY Generic 2, Generic 3i, System 75, and System 85. It is intended as an aid for both AT&T and customer personnel in selecting appropriate components for these systems and in training and management.

**DEFINITY® Communications System and System 75 and System 85—DS1/DMI/ISDN-PRI—Reference** **555-025-101**

Provides a broad but detailed description of the DS1 Tie Trunk Service, Digital Multiplexed Interface (DMI), and Integrated Services Digital Network-Primary Rate Interface (ISDN-PRI) features. Introduces and defines concepts and terminology unique to DS1, DMI, and ISDN-PRI. Also includes applications, engineering procedures and considerations, cabling and connection arrangements, administration requirements, restrictions and limitations, etc.

**An Introduction to DEFINITY® Communications System Generic 1****555-200-024**

Provides an overview of DEFINITY Generic 1. Major hardware components, such as the switch, terminals, and software applications, are described to provide an understanding of the system's functional areas. Also provides an overview of System Management and data features and functions available with DEFINITY Generic 1.

**DEFINITY® Communications System Generic 1 Hospitality Services****555-200-026**

Provides an overview of DEFINITY Generic 1 Hospitality Services. Major hardware components, such as the system cabinet, and terminals are described to provide an understanding of the system's functional areas. Also provides an overview of the hospitality features available with the system, as well as other voice, data, and System Management features.

**AT&T System 75—Installation and Test****555-200-104**

Provides the information necessary to perform the tasks of installing and testing the system's common equipment. Includes a description of the necessary tools and equipment. Information in this document applies to both System 75 and System 75 XE.

**AT&T System 75 and System 75 XE—Maintenance****555-200-105**

Provides the information necessary for monitoring, testing, and maintaining the System 75 and System 75 XE. It is intended to cover many of the faults and troubles that can occur in the system.

**AT&T System 75—Upgrades and Additions****555-200-106**

Provides procedures and information required to upgrade an R1V1 system to an R1V2 system, upgrade an R1V1 or R1V2 system to an R1V3 system, and make additions to an operational System 75 or System 75 XE, after the initial switch installation.

**AT&T System 75—Wiring****555-200-111**

Provides an overview of the System 75 wiring plan. Included are:

- General guidelines on hardware selection
- Descriptions of cross-connect hardware and installation procedures
- Equipment room hardware and cabling instructions including the cross-connect field
- Instructions for station wiring and associated hardware installation, adjunct powering, and patch cord installation and administration
- Miscellaneous wiring installation procedures.

**AT&T System 75—System Description****555-200-200**

Provides a technical description of the system, hardware, environmental and space requirements, and parameters. Also provides a brief description of features and services.

**DEFINITY® Communications System Generic 1  
and Generic 3i—Feature Description****555-230-201**

Provides a technical description of the system features and parameters. For each feature, the following information is provided:

- Limitations and/or considerations
- Feature interactions
- Administration requirements
- Hardware and software requirements.

**DEFINITY® Communications System Generic 1  
and Generic 3i—Pocket Reference****555-200-202**

Provides the reader with a quick, pocket-sized reference to the benefits, requirements, limitations, parameters, features, and circuit packs associated with the system.

**DEFINITY® Communications System Generic 1 and System 75—  
Administration and Measurement Reports** **555-200-500**

Describes the management of the system's administration and operation for V1, V2, V3, G1, and G3i systems. Includes the guidelines for initialization, reconfiguration, backup procedures, monitoring system performance, and maintaining system security. Includes a description of the tasks that can be performed via the administration terminal and prerequisites for completion. Also included is a description of the Traffic Measurement Reports for the system.

**DEFINITY® Communications System Generic 1  
and Generic 3—Planning and Configuration** **555-230-600**

Provides information be used by the Account Team to determine the customer's requirements and to collect the information needed to estimate system hardware requirements.

**AT&T System 75—Implementation Manual—R1V1** **555-200-650**

Provides the procedures and associated forms for collecting system and terminal software information. This information is used to initialize the system using the System Access Terminal.

**AT&T System 75—Implementation—R1V2** **555-200-651**

Provides the procedures and associated forms for collecting system and terminal software information. This information is used to initialize the system using the System Access Terminal.

**AT&T System 75—Implementation—R1V3** **555-200-652**

Provides the procedures and associated forms for collecting system and terminal software information. This information is used to initialize the system using the System Access Terminal.

**AT&T DEFINITY Communications System  
Generic 1—Implementation—R1V2** **555-200-655**

Provides the procedures and associated forms for collecting system and terminal software information. This information is used to initialize the system using Manager I.

**DEFINITY® Communications System Generic 1 and System 75—Console Operations** **555-200-700**

Provides “how-to-operate” instructions for the attendant console. Serves as a reference when defining the console control keys and Incoming Call Identification requirements.

**DEFINITY® Communications System Generic 1 and System 75—Voice Terminal Operations** **555-200-701**

Describes all the voice features and provides the “how-to-operate” instructions for each voice terminal. Serves as a training guide for system users.

**AT&T System 75—Automatic Call Distribution—Agent Instructions** **555-200-722**

Provides information for use by agents after training is completed. The various ACD features are described and the procedures for using them are provided in this document. While directly supporting System 75 R1V3, these instructions apply to DEFINITY Communications System Generic 1 also.

**DEFINITY® Communications System Generic 1 and System 75—User’s Guide—Hospitality Operations** **555-200-723**

Contains procedures for using the Hospitality Services of DEFINITY Generic 1 and System 75 R1V3. These services include a group of system-based features that support the lodging and health industries.

**AT&T System 75—Automatic Call Distribution—Supervisor Instructions** **555-200-724**

Provides information for use by supervisors after training is completed. The various ACD features are described and the procedures for using them are provided in this document. While directly supporting System 75 R1V3, these instructions apply to DEFINITY Communications System Generic 1 also.

**AT&T System 75 XE—System Description** **555-201-200**

Provides a technical description of the system, hardware, environmental and space requirements, and parameters for System 75 XE, R1V2, and R1V3. Also provides a brief description of features and services.

**DEFINITY® Communications System Generic 1  
and Generic 3i—Installation and Test** **555-230-104**

Provides the information necessary to perform the tasks of installing and testing the system's common equipment. Includes a description of the necessary tools and equipment.

**DEFINITY® Communications System Generic 1  
and Generic 3i—Maintenance** **555-204-105**

Provides the information necessary for monitoring, testing, and maintaining DEFINITY Generic 1 and Generic 3i. It is intended to cover many of the faults and troubles that can occur in the system.

**DEFINITY® Communications System Generic 1  
and Generic 3i—Upgrades and Additions** **555-204-106**

Provides procedures and information required to upgrade a System 75 V1, V2, or V3 to a DEFINITY Generic 1 system or a DEFINITY Generic 1 system to a DEFINITY Generic 3i system and make additions to an operational system, after the initial switch installation.

**DEFINITY® Communications System Generic 1  
and Generic 3i—Wiring** **555-204-111**

Provides an overview of the DEFINITY Generic 1 and Generic 3i wiring plan. It contains the same type of information as *AT&T System 75—Wiring*, 555-200-111 (described previously).

**DEFINITY® Communications System Generic 1  
and Generic 3i—System Description** **555-230-200**

Provides a technical description of the system and its hardware, environmental and space requirements, and parameters. Also provides a brief description of features and services.

**DEFINITY® Communications System Generic 3i—  
Capabilities** **555-204-497**

Provides a description of the new capabilities, features, and enhancements available on DEFINITY Generic 3i systems that were not available on DEFINITY Generic 1 systems.

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**DEFINITY® Communications System Generic 1—  
System Management** **555-204-210**

Describes Manager I terminal types, function keys, and other Manager I operations. Also describes various administrative tasks such as logon/logoff, changing of password, remote administration, etc.

**DEFINITY® Communications System Generic 1—  
System Reports** **555-204-211**

Explains switch-based measurement, traffic, performance, and summary reports. Descriptions include the overall purpose and uses for each report, complete definitions for each field, correlations with other reports, and possible actions that can be taken to further diagnose situations and remedy unsatisfactory conditions.

**DEFINITY® Communications System Generic 1—  
Enhancements** **555-204-498**

Provides a description of the enhancements available on DEFINITY Generic 1.

**DEFINITY® Communications System Generic 3—  
Capabilities** **555-230-499**

Provides a description of the new capabilities, features, and enhancements available on DEFINITY Generic 3 systems that were not available on Generic 1.

**DEFINITY® Communications System Generic 1—  
Implementation** **555-204-654**

Provides the procedures and associated forms for collecting system and terminal software information for G1 systems. This information is used to initialize the system using the DEFINITY G1 Manager I Terminal.

**DEFINITY Communications System Generic G3i—  
Implementation** **555-230-650/650B**

Provides the procedures and associated forms for collecting system and terminal software information for G3i systems. This information is used to initialize the system using the DEFINITY G3-MT. Customers automatically receive the Blank Forms Package (555-230-650B) with the Implementation Manual. The Blank Forms Package may also be ordered separately.

**DEFINITY® Communications System Generic 1 and Generic 3— Basic Call Management System Operations** **555-230-703**

Describes all the features and provides the “how-to-operate” instructions for the Basic Call Management System (BCMS) feature.

**DEFINITY® Communications System Generic 1 and System 75—Application Notes—Automatic Call Distribution** **555-209-013**

Describes in detail the ACD feature of System 75 R1V3 and DEFINITY Generic 1 systems. Also described are the associated “embedded” features (such as Intraflow/Interflow, Queue Status Indications, Agent Call Handling, etc.) required for efficient operation and use of the ACD feature.

**DEFINITY® Communications System Generic 1— Application Notes—Outbound Call Management** **555-209-014**

Describes in detail the OCM feature of DEFINITY Generic 1 and provides information about system capabilities and requirements for implementing and using the feature.

**DEFINITY® Communications System Generic 1 and System 75—Application Notes—7400B Data Module** **555-209-017**

Provides guidelines for administering the 7400B Data Module in System 75 R1V1 through R1V3 and DEFINITY Communications System Generic 1.

**DEFINITY® Communications System Generic 1 and Generic 3—System Management** **555-230-500**

Describes Manager I terminal types, function keys, and other Manager I operations. Also describes various administrative tasks such as logon/logoff, changing of password, remote administration, etc.

**DEFINITY® Communications System Generic 1 and Generic 3i—System Reports** **555-230-510**

Explains switch-based measurement, traffic, performance, and summary reports. Descriptions include the overall purpose and uses for each report, complete definitions for each field, correlations with other reports, and possible actions that can be taken to further diagnose situations and remedy unsatisfactory conditions.

**AT&T CallVisor ISDN Gateway Release 1 Version 2  
Planning and Application Development**

**585-245-201**

Provides a description of the AT&T CallVisor ISDN Gateway and information on how to plan for it. It also contains information on CallVisor ISDN Gateway interfaces that can be used for software application development.

**AT&T 808A Emergency Transfer Panel  
Installation Instructions**

**846-774-701**

Provides a description of the AT&T 808A Emergency Transfer Panel and complete instructions for installation and wiring.



## CHAPTER 10. ABBREVIATIONS AND ACRONYMS

AAR	Automatic Alternate Routing
AC	Alternating Current
ACA	Automatic Circuit Assurance
ACD	Automatic Call Distribution
ACU	Automatic Call Unit
ACW	After Call Work
AD	Abbreviated Dialing
ADU	Asynchronous Data Unit
AIM	Asynchronous Interface Module
ALM-ACK	Alarm Acknowledge
AMW	Automatic Message Waiting
AN	Analog
ANI	Automatic Number Identification
AP	Applications Processor
APLT	Advanced Private Line Termination
ARS	Automatic Route Selection
ASAI	Adjunct-Switch Application Interface
ASCII	American Standard Code for Information Interchange
ATB	All Trunks Busy
AUDIX	Audio Information Exchange
AVD	Alternate Voice Data
AWT	Average Work Time
BCC	Bearer Capability Class
BCMS	Basic Call Management System
BCT	Business Communications Terminal
BDC	Business Communication Systems Design Center
BHCC	Busy Hour Calls Completions
BLF	Busy Lamp Field
BOS	Bit Oriented Signaling
BRI	Basic Rate Interface
BTU	British Thermal Unit
CACR	Cancellation of Authorization Code Request
CAMA	Centralized Automatic Message Accounting
CAS	Centralized Attendant Service
CBC	Call-by-Call
CCITT	Consultative Committee for International Telephone and Telegraph
CCMS	Common Channel Message Set
CCS	Hundred Call Seconds
CCSA	Common Control Switching Arrangement
CDM	Channel Division Multiplexing
CDOS	Customer-Dialed and Operator Serviced
CDDR	Call Detail Recording and Reporting

CDRU	Call Detail Recording Utility
CEM	Channel Expansion Multiplex
CI	Clock Input
CMDR	Centralized Message Detail Recorder
CMS	Call Management System
CO	Central Office
COR	Class of Restriction
COS	Class of Service
CP	Circuit Pack
CPE	Customer Premises Equipment
CPN/BN	Calling Party Numbers/Billing Number
CPTR	Call Progress Tone Receiver
CRC	Cyclical Redundancy Checking
CSA	Canadian Safety Association
CSD	Customer Service Document
CSM	Centralized System Management
CSU	Channel Service Unit
DC	Direct Current
DCE	Data Communications Equipment
DCP	Digital Communications Protocol
DCS	Distributed Communications System
DDC	Direct Department Calling
DDD	Direct Distance Dialing
DID	Direct Inward Dialing
DLC	Data Line Circuit
DLDM	Data Line Data Module
DMI	Digital Multiplexed Interface
DND	Do Not Disturb
DNIS	Dialed Number Identification Service
DOD	Direct Outward Dialing
DOSS	Delivery Operations Support System
DS1	Data Services Level 1
DSI	Digital Service Interface
DSU	Data Service Unit
DTDM	Digital Terminal Data Module
DTE	Data Terminal Equipment
DTGS	Direct Trunk Group Select
DTMF	Dual Tone Multifrequency
DXS	Direct Extension Selection
E&M	Ear and Mouth (Receive and Transmit)
EBCDIC	Extended Binary Coded Decimal Interexchange Code
EI	Expansion Interface
EIA	Electronic Industries Association
EMI	Electro-Magnetic Interference
EPN	Expansion Port Network
EPROM	Erasable Programmable Read Only Memory

EPSCS	Enhanced Private Switched Communications Services
ESF	Extended Superframe Format
ETN	Electronic Tandem Network
FAC	Feature Access Code
FAS	Facility Associated Signaling
FCC	Federal Communications Commission
FIC	Facility Interface Codes
FNPA	Foreign Numbering Plan Area Code
FRL	Facilities Restriction Level
FSAC	Field Support Administration Center
FX	Foreign Exchange
GPTR	General Purpose Tone Receiver
GRS	Generalized Route Selection
HNPA	Home Numbering Plan Area Code
IAS	Inter-PBX Attendant Service
IC	Inter-Cabinet
ICC	Inter Carrier Cable
ICI	Incoming Call Identifier
ICM	Inbound Call Management
IDDD	International Direct Distance Dialing
IE	Information Element
INADS	Initialization and Administration System
INS	ISDN Network Service
INWATS	Inward Wide Area Telephone Service
ISDN	Integrated Services Digital Network
ISN	Information Systems Network
ITP	Installation Test Procedure
IXC	Inter-Exchange carrier Code
KBPS	Kilo-Bits Per Second
LAN	Local Area Network
LAPD	Link Access Procedure D
LDN	Listed Directory Number
LED	Light-Emitting Diode
LSU	Local Storage Units
LWC	Leave Word Calling
MA-UUI	Message Associated User-to-User Signaling
M-Bus	Memory Bus
MBPS	Mega-Bits Per Second
MCC	Multi-Carrier Cabinet
MCS	Message Center Service
MDM	Modular Data Module

MDR	Message Detail Record
MET	Multibutton Electronic Telephone
MIS	Management Information System
MISCID	Miscellaneous Identification
MMS	Material Management Services
MOS	Message Oriented Signaling
MS	Message Server
MSA	Message Service Adjunct
MPDM	Modular Processor Data Module
MTDM	Modular Trunk Data Module
MTP	Maintenance Tape Processor
MTT	Multi-Tasking Terminal
MWL	Message Waiting Lamp
NAU	Network Access Unit
NCOSS	Network Control Operations Support Center
NCSO	National Customer Support Organization
NFAS	Non-Facility Associated Signaling
NID	Network Inward Dialing
NPA	Numbering Plan Area Code
NPE	Network Processing Element
NQC	Number of Queued Calls
NSE	Night Service Extension
NSU	Network Sharing Unit
NXX	Public Network Office Code
OCM	Outbound Call Management
OPS	Off-Premises Station
OQT	Oldest Queued Time
OSHA	Occupational Safety and Health Act
OSS	Operations Support System
PBX	Private Branch Exchange
PC	Personal Computer
PCOL	Personal Central Office Line
PCOLG	Personal Central Office Line Group
PCM	Pulse Code Modulated
PCS	Permanent Switched Calls
PDM	Processor Data Module
PDS	Premises Distribution System
PE	Processing Element
PGN	Partitioned Group Number
PIB	Processor Interface Board
PL	Private Line
PMS	Property Management System
PN	Port Network
PPN	Processor Port Network
PRI	Primary Rate Interface

PSC	Premises Service Consultant
PSDN	Packet Switch Public Data Network
PT	Personal Terminal
RAM	Random Access Memory
RCL	Restricted Call List
RHNPA	Remote Home Numbering Plan Area Code
RLT	Release Link Trunk
RNX	Private Network Office Code
RPN	Routing Plan Number
RSC	Regional Support Center
SAKI	Sanity and Control Interface
SCC	Single Carrier Cabinet
SCI	Switch Communications Interface
SCO	System Control Office
SDDN	Software Defined Data Network
SDN	Software Defined Network
SID	Station Identification Number
SIT	Special Information Tones
SMDR	Station Message Detail Recording
SPE	Switch Processing Element
SPID	Service Profile Identifier
SSI	Standard Serial Interface
STARLAN	Star-based Local Area Network
ST3	Stratum 3 Clock Board
TAAS	Trunk Answer From Any Station
TAC	Trunk Access Code
TC	Technical Consultant
TCM	Traveling Class Mark
TDM	Trunk Data Module
TEG	Terminating Extension Groups
TOD	Time of Day
TOP	Task Oriented Protocol
TSC	Technical Service Center
TTTN	Tandem Tie Trunk Network
TTY	Teletypewriter
UAP	Usage Allocation Plan
UCD	Uniform Call Distribution
UCL	Unrestricted Call List
UDP	Uniform Dial Plan
UPS	Uninterruptible Power Supply
VM	Voltmeter
WATS	Wide Area Telecommunications Service



## GLOSSARY

### A

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#### **Access Code**

A 1-, 2-, or 3-digit dial code used to activate or cancel a feature or, to access an outgoing trunk. The star (\*) and pound (#) can be used as the first digit of an access code.

#### **Access Endpoint**

Either a non-signaling channel on a DS1 interface or a non-signaling port on an Analog Tie Trunk circuit pack that is assigned a unique extension.

#### **Access Tie Trunks**

Tie trunks used to handle normal ETN calls between Main and Tandem switches.

#### **Adjunct-Switch Application Interface (ASAI)**

An AT&T recommendation for interfacing adjuncts and communications systems, based on the CCITT Q.932 specification for layer 3.

#### **Administer**

To access and change the parameters associated with the services or features of the system.

#### **Answer-Back Code**

A code dialed to retrieve a parked call.

#### **Appearance**

See Call Appearance.

#### **Asynchronous Data Transmission**

A scheme for transmitting data where each character is preceded by a start bit and followed by a stop bit, thus permitting data elements to occur at irregular intervals. This type transmission is advantageous when transmission is not regular (characters typed at a keyboard).

#### **Asynchronous Data Unit (ADU)**

A data communications equipment (DCE) type device that allows direct connection between EIA-232C equipment and the system digital switch.

**Attendant**

The operator of the console.

**Applications Processor**

A minicomputer used to support several user-controlled applications such as traffic analysis and electronic documentation.

**Attendant Console**

An electronic call-handling position with pushbutton control. Used by attendants to answer and place calls and to manage and monitor some of the system operations.

**Audio Information Exchange (AUDIX)**

A unit that provides voice mail service to users.

**Automatic Trunk**

A trunk that does not require the sending or receiving of digits. The destination is predetermined. A request for service on the trunk (called a seizure) is sufficient to route the call. The normal destination of an automatic trunk is the system attendant group.

**Automatic Restoration**

A service that restores disrupted connections between access endpoints (non-signaling trunks) and data endpoints (devices that connect the switch to data terminal/communications equipment). This restoration is achieved within seconds of a service disruption so that critical data applications can remain operational.

**B**

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**Barrier Code**

A security code used with the Remote Access feature to prevent unauthorized access to the system.

**Bit (Binary Digit)**

One unit of information in binary notation (having two possible states or values, zero or one).

**Bridge (Bridging)**

The appearance of a voice terminal's extension at one or more other voice terminals.

**Bridged Appearance**

A call appearance on a voice terminal that matches a call appearance on another voice terminal for the duration of a call.

**Buffer**

A circuit or component that isolates one electrical circuit from another. Typically, a buffer holds data from one circuit or process until another circuit or process is ready to accept the data.

**Bus**

A multi-conductor electrical path used to transfer information over a common connection from any of several sources to any of several destinations.

**Bus, Time Division Multiplex**

See Time Division Multiplex Bus.

**Business Communications Terminal**

An advanced series of semi-intelligent terminals.

**Bypass Tie Trunks**

One-way, outgoing tie trunks from a Tandem switch to a Main switch in an ETN. These trunks, provided in limited quantities, are used as a "last-choice" route when all trunks to another Tandem switch are busy. Bypass tie trunks are used only if all applicable inter-tandem trunks are busy.

**Byte**

A sequence of bits, 8 bits long, that is usually shorter than a word. A word is 16 bits long.

**C**

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**Call Appearance, Attendant Console**

Six buttons, labeled a through f, used to originate, receive, and hold calls. Each button has two associated lamps to show the status of the call appearance.

**Call Appearance, Voice Terminal**

A button labeled with an extension number used to place outgoing calls, receive incoming calls, or hold calls. Two lamps next to the button show the status of the call appearance or status of the call.

### **Call Management System (CMS)**

An adjunct processor that collects data from an ACD and generates reports concerning status of agents, splits, and trunks to be stored or displayed.

### **Callback Call**

A call that is automatically returned to a voice terminal user who activated the Automatic Callback or Ringback Queuing feature.

### **Call Vector**

A set of up to 15 vector commands to be performed for an incoming or internal call.

### **Call Waiting Ringback Tone**

A low-pitched tone identical to the ringback tone except the tone decreases the last 0.2 second. This tone notifies the attendant that the Attendant Call Waiting feature has been activated and that the called user is aware of the waiting call.

### **Call Work Code**

A number, up to 16 digits, entered by ACD agents to record the occurrence of customer-defined events (such as account codes, social security numbers, or phone numbers) on ACD calls.

### **Central Office (CO)**

The location housing telephone switching equipment that provides local telephone service and access to toll facilities for long-distance calling.

### **Central Office Codes**

The first three digits of a 7-digit public network telephone number. These codes are numbered from 200 through 999.

### **Central Office Trunk**

A telecommunications channel that provides access from the system to the public network through the local central office.

### **Channel**

A communications path for transmitting voice and data.

### **Class of Restriction (COR)**

A number (0 through 63) that specifies the restrictions assigned to voice terminals, voice terminal groups, data modules, and trunk groups.

**Class of Service (COS)**

A number (0 through 15) that specifies if voice terminal users can activate the Automatic Callback, Call Forwarding—All Calls, Data Privacy, or Priority Calling features.

**Common Control Switching Arrangement (CCSA)**

A private telecommunications network using dedicated trunks and a shared switching center for interconnecting company locations.

**Confirmation Tone**

Three short bursts of tone followed by silence; indicates that the feature activated, deactivated, or canceled has been accepted.

**Console**

See Attendant Console.

**Coverage Answer Group**

A group of up to eight voice terminals that ring simultaneously when a call is redirected to it by Call Coverage. Any one of the group can answer the call.

**Coverage Call**

A call that is automatically redirected from the called party's extension number to an alternate answering position when certain coverage criteria are met.

**Coverage Path**

The order in which calls are redirected to alternate answering positions.

**Coverage Point**

The attendant positions (as a group), Direct Department Calling group, Uniform Call Distribution group, Coverage Answer Group, a voice terminal extension, or Message Center Hunt Group designated as an alternate answering position in a coverage path.

**Covering User**

The person at an alternate answering position who answers a coverage call.

## D

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### **Data Channel**

A communications path between two points used to transmit digital signals.

### **Data Communications Equipment (DCE)**

The equipment on the network side of a communication link that provides all the functions required to make the binary serial data from the source or transmitter compatible with the communications channel.

### **Data Terminal Equipment (DTE)**

Equipment comprising the source or link of data, or both, that also provides communication control functions (protocol). DTE is any piece of equipment at which a communications path begins or ends.

### **Delay-Dial Trunk**

After a request for service (called a seizure) is detected on an incoming trunk, the system sends a momentary signal followed by a steady tone over the trunk. This informs the calling party that dialing can start. This type of trunk allows dialing directly into the system. That is, the digits are received as they are dialed.

### **Designated Voice Terminal**

The specific voice terminal to which calls, originally directed to a certain extension number, are redirected. Commonly used to mean the "forwarded-to" terminal when Call Forwarding All Calls is active.

### **Dial Repeating Tie Trunk**

A telecommunications channel between two private switching systems. The number dialed is repeated or dialed-in at the distant end.

### **Digital Communications Protocol (DCP)**

Defines the capability for providing simultaneous voice and data transmission over the same channel.

**Digital Data Endpoints**

In DEFINITY Generic 1, digital data endpoints include the following:

- 510D Personal Terminal or 515-Type Business Communications Terminal
- 7404D Terminals
- 7406D or 7407D Equipped With Optional Data Module Base
- Asynchronous Data Units
- Digital Terminal Data Modules
- (Modular) Processor Data Modules
- (Modular) Trunk Data Modules
- 3270 Data Modules
- Internal Data Channels

**Digital Multiplexed Interface (DMI)**

Specifies the remote interface requirements for multiplexed data communications between a host computer and a private switching system.

**Digital Terminal Data Module (DTDM)**

An adjunct to Model 7403D or 7405D voice terminals. Provides the required interface between the system and a data terminal such as a 513 Business Communications Terminal.

**Digital Trunk**

A circuit in a telecommunications channel designed to handle digital voice and data.

**Digit Conversion**

A process used to convert specific dialed numbers into other dialed numbers. ARS uses Digit Conversion to convert public network numbers (ARS) to private network numbers (AAR) in order to save toll charges. AAR uses Digit Conversion to convert private network numbers (ARS) to other private or public network numbers (AAR).

**Direct Extension Selection (DXS)**

An option at the attendant console that allows an attendant direct access to voice terminals by pressing a Group Select button and a DXS button.

**Distributed Communications System (DCS)**

A network of two or more switches, each with its terminals and trunks, configured to function as a single large system.

**E**

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**Electronic Tandem Network (ETN)**

A special tandem tie trunk network that has automatic call routing capabilities based on the number dialed and most preferred route available at the time the call is placed. Each switch in the network is assigned a unique private network office code (RNX) and each voice terminal is assigned a unique extension number.

**End-to-End Signaling**

The transmission of touch-tone signals generated by dialing from a voice terminal user to remote computer equipment. A connection must first be established over an outgoing trunk from the calling party to the computer equipment. Then additional digits can be dialed to transmit information to be processed by the computer equipment.

**Enhanced Private Switched Communications Service (EPSCS)**

A private telecommunications network that provides advanced voice and data telecommunications services to companies with many locations.

**Extension Number**

A 1- to 5-digit number assigned to each voice terminal, certain system groups, data modules, 510D Personal Terminal, or 515 Business Communications Terminal within the system. A 1- or a 5-digit extension number is available for Version 2 and Version 3.

**External Call**

A connection between a system user and a party on the public telephone network or on a tie trunk.

**F**

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**Facility**

A general term used for the telecommunications transmission pathway and associated equipment.

**Feature**

A specifically defined function or service provided by the system.

**Feature Button**

A labeled button on a voice terminal or attendant console designating a specific feature.

**Foreign Exchange (FX)**

A central office other than the one providing local access to the public telephone network.

**Foreign Exchange Trunk**

A telecommunications channel that directly connects the system to a central office other than its local central office.

**Foreign Numbering Plan Area Code (FNPA)**

An area code other than the local area code. The foreign area code must be dialed to call outside the local geographical area.

**G**

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**Ground-Start Trunk**

On outgoing calls, the system transmits a request for services to the distant switching system by grounding the trunk ring lead. When the distant system is ready to receive the digits of the called number, that system grounds the trunk tip lead. When the system detects this ground, the digits are sent. (Tip and ring are common nomenclature to differentiate between ground-start trunk leads.) On incoming calls, detection of ground on the ring lead is sufficient to cause the call to route to a predetermined destination, normally the system attendant group. No digits are received.

**H**

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**Handshaking Logic**

A format used to initiate a data connection between two data module devices.

**Home Numbering Plan Area Code (HNPA)**

The local area code. The area code does not have to be dialed to call numbers within the local geographical area.

I

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**Immediate-Start Tie Trunk**

After establishing a connection with the distant switching system for an outgoing call, the system waits a nominal 65 milliseconds before sending the digits of the called number. This allows time for the distant system to prepare to receive the digits. Similarly, on an incoming call, the system has less than 65 milliseconds to prepare to receive the digits.

**Information Exchange**

The exchange of data between users of two different systems (DEFINITY G1 and host computer) over a local area network.

**In-Use Lamp**

A red lamp on a multi-appearance voice terminal that lights to show which call appearance will be selected when the handset is lifted or which call appearance is active when a user is off-hook.

**Intercept Tone**

An alternating high and low tone; indicates a dialing error or denial of the service requested.

**Interface**

A common boundary between two systems or pieces of equipment.

**Internal Call**

A connection between two users within the system.

**ISDN Gateway**

An adjunct network that forwards information from the switch to a host for data screen delivery to agents in an ACD split.

L

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**Link**

A transmitter-receiver channel or system that connects two locations.

**Loop-Start Trunk**

After establishing a connection with the distant switching system for an outgoing call, the system waits for a signal on the loop formed by the trunk leads before sending the digits

of the called number. On incoming calls, the received request for service is sufficient to cause the call to route to a predetermined destination, normally the system attendant group. No digits are received.

## **M**

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### **Main/Satellite/Tributary**

A Main switch provides: interconnection, via tie trunks, with one or more subtending switches, called Satellites; all attendant positions for the Main/Satellite configuration; and, access to and from the public network. To a user outside the complex, a Main/Satellite configuration appears as a single switch, with a single Listed Directory Number (LDN). A Tributary is a switch, connected to the Main via tie trunks, but which has its own attendant position(s) and its own LDN.

### **Message Center**

An answering service for calls that might otherwise go unanswered; an agent accepts and stores messages for later retrieval. (Requires an Applications Processor.)

### **Message Center Agent**

A member of the Message Center Hunt Group who takes and retrieves messages for voice terminal users.

### **Modular Processor Data Module (MPDM)**

See Processor Data Module.

### **Modular Trunk Data Module (MTDM)**

See Trunk Data Module.

### **Modem Pooling**

Provides shared-use conversion resources that eliminate the need for a dedicated modem when a data module accesses, or is accessed by, an analog line or trunk.

### **Multi-Appearance Voice Terminal**

A terminal equipped with several call appearance buttons for the same extension number. Allows the user to handle more than one call, on that same extension number, at the same time.

### **Multiplexer**

A device for simultaneous transmission of two or more signals over a common transmission medium.

**N**

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**Network**

An arrangement of inter- and/or intra-location circuits designed to perform specific functions.

**P**

---

**Paging Trunk**

A telecommunications channel used to access an amplifier for loudspeaker paging.

**Pickup Group**

A group of individuals authorized to answer any call directed to an extension number within the group.

**Port**

A designation of the location of a circuit that provides an interface between the system and lines and/or trunks.

**Principal (User)**

In terms of Call Coverage, a person for whom a call was originally intended.

**Private Network**

A network used exclusively for handling the telecommunications needs of a particular customer.

**Private Network Office Code (RNX)**

The first three digits of a 7-digit private network number. These codes are numbered 220 through 999, excluding any codes that have a zero or one as the second digit.

**Processor Data Module (PDM)**

Provides the required interface between the system and an EIA computer or data terminal.

**Property Management System (PMS)**

A stand-alone computer which Lodging and Health Services organizations use for services such as reservations, housekeeping, billing, etc.

**Protocol**

A set of conventions or rules governing the format and timing of message exchanges to control data movement and correction of errors.

**Public Network**

The network that can be openly accessed by all customers for local or long-distance calling.

**Q**

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**Queue**

An ordered sequence of calls waiting to be processed.

**Queuing**

The process of holding calls in order of their arrival to await connection to an attendant, to an answering group, or to an idle trunk. Calls are automatically connected in first-in, first-out sequence.

**R**

---

**Random Access Memory (RAM)**

A storage arrangement whereby information can be retrieved at a speed independent of the location of the stored information.

**Read Only Memory (ROM)**

A storage arrangement primarily for information retrieval applications.

**Recall Dial Tone**

Three short bursts of tone followed by steady dial tone; indicates the system has completed some action (such as holding a call) and is ready to accept dialing.

**Redirection Criteria**

The information administered for each voice terminal's coverage path that determines when an incoming call is redirected to coverage.

**Remote Home Numbering Plan Area Code (RHNPA)**

A foreign numbering plan area code that is treated as a home area code by the Automatic Route Selection feature. Calls can be allowed or denied based on the area code and the dialed central office code rather than just the area code. If the call is allowed, the Automatic Route Selection pattern used for the call is determined by these six digits.

**Removable Mass Storage Subsystem (RMSS)**

A tape storage device that stores the software information for the system.

**Reorder Tone**

A fast-busy tone repeated 120 times a minute; indicates that at least one of the facilities, such as a trunk or a digit transmitter, required for the call was not available at the time the call was placed.

**S**

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**Service Profile Identifier (SPID)**

A unique number of up to 10 digits, assigned to an Integrated Services Digital Network (ISDN) terminal, that will be used for terminal identification during level-3 initialization.

**Single-Line Voice Terminals**

Voice terminals served by a single-line tip and ring circuit (Models 500, 2500, 7101A, 7103A).

**Software**

A set of computer programs that accomplish one or more tasks.

**Split**

A condition whereby a caller is temporarily separated from a connection with the attendant. This split condition automatically occurs when the attendant, active on a call, presses the Start button.

**Standard Serial Interface (SSI)**

A communications protocol developed by AT&T Teletype Corporation for use with the 500 Business Communications Terminals and the 400-series printers.

**Status Lamp**

A green lamp that shows the status of a call appearance or a feature button by the state of the lamp (lighted, flashing, fluttering, broken flutter, or dark).

**Stroke Counts**

Method used by ACD agents to record up to nine customer-defined events on a per call basis when the Call Management System (CMS) is active.

**Switchhook**

The button(s) on a voice terminal located under the receiver.

**Synchronous Data Transmission**

A scheme for sending and receiving data, where data elements may occur only at regular specified times. Sending and receiving devices must operate in step with each other.

**System Manager**

A person responsible for specifying and administering features and services for the system.

**System Reload**

A process that allows stored data to be written from a tape into the system memory (normally after a power outage).

**T**

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**Tandem Switch**

A switch within an ETN that provides the logic to determine the best route for a network call, possibly modifies the digits outpulsed, and allows or denies certain calls to certain users.

**Tandem Through**

The switched connection of an incoming trunk to an outgoing trunk without human intervention.

**Tandem Tie Trunk Network (TTTN)**

A private network that interconnects several customer switching systems by dial repeating tie trunks. Access to the various systems is dictated by codes that must be individually dialed for each system.

**Tie Trunk**

A telecommunications channel that directly connects two private switching systems.

**Time Division Multiplex Bus**

A special bus that is time shared by preallocating short time slots to each transmitter on a regular basis. In a PBX, all port circuits are connected to the time division multiplex bus permitting any port to send a signal to any other port.

**Tone Ringer**

A device with a speaker, used in electronic voice terminals to alert the user.

**Trunk**

A telecommunications channel between two switching systems.

**Trunk Data Module (TDM)**

Provides the required interface between the system and a data set (modem) or data service unit connected to a private or switched data line.

**Trunk Group**

Telecommunications channels assigned as a group for certain functions.

**U**

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**Uniform Dial Plan (UDP)**

A feature that allows a unique 4- or 5-digit number assignment for each terminal in a multi-switch configuration, such as a Distributed Communications System (DCS) or Main/Satellite/Tributary configuration.

**V**

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**Voice Terminal**

A single-line or multi-appearance voice instrument (telephone).

## W

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### **Wide Area Telecommunications Service (WATS)**

A service that allows calls to a certain area or areas for a flat-rate charge based on expected usage.

### **Wink-Start Tie Trunk**

After establishing a connection with a distant switching system for an outgoing call, the system waits for a momentary signal (wink) before sending the digits of the called number. Similarly, on an incoming call, the system sends the wink signal when ready to receive digits.

### **Write Operation**

The process of putting information onto a storage medium such as magnetic tape.

## 8

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### **800 Service**

A service that allows incoming calls from a certain area or areas to an assigned number for a flat-rate charge based on usage.



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