Nortel Networks Multiservice Switch 7400

FP Cabling Reference

NN10600-172

Multiservice Switch 7400

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Publication: NN10600-172
Document status: Standard
Document version: 6.1S2
Document date: November 2004

Printed in Canada

Publication history

November 2004

6.1S2 Standard
General availability. Contains information on Nortel Networks Multiservice Switch 7400 for the PCR6.1 release.

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About this document

This document is a reference guide for cabling function processor (FP) cards and termination panels.

The following topics are discussed in this section:

Who should read this document and why

This document is intended for anyone who installs or maintains Nortel Networks Multiservice Switch 7400 series hardware.

What you need to know

Before performing the procedures in this guide, you should:

- understand Nortel Networks Multiservice Switch product architecture and operation. You can acquire product knowledge by reading NN10600-030 *Nortel Networks Multiservice Switch 7400/15000/20000 Overview* and NN10600-170 *Nortel Networks Multiservice Switch 7400 Hardware Description*. You also require basic UNIX knowledge.

- be familiar with fundamental data communications and basic electronic concepts and terms.
- have one or two years experience installing data communications equipment. You must be familiar with general cabinet, shelf, and processor card installation techniques and terminology. You must also be aware of all pertinent electrical and physical safety procedures and standards.

WARNING
Risk of radio interference
The Multiservice Switch 7400 series has class B compliant products provided you ensure that all power, function processor (FP), and control processor (CP) cabling is also class B compliant. Using non-class B compliant cabling may cause radio interference. Nortel Networks provides prefabricated interface cables and power cable kits with ferrite beads for B compliance.

How this document is organized

This document is organized by function processor (FP) type. Each FP section specifies the cable connections between FP cards, their corresponding termination panels, and customer equipment.

What's new in this document

The following features were added to this document:

- "4-port 10/100BaseT Ethernet FP" (page 17)
- "8-port 10/100BaseT Ethernet FP" (page 17)
- "32-port DS1 or E1 MSA 1-slot FPs" (page 17)

Other changes made to this document include the following.

- The terms Passport and PVG have been rebranded in conjunction with the new Nortel Networks' brand simplified naming format. Passport is now referred to as the Nortel Networks Multiservice Switch, and PVG is

now Media Gateway 7480/15000. For more information on the product rebranding, refer to NN10600-000 *Nortel Networks Multiservice Switch 7400/15000/20000 What's New in PCR6.1*.

- changed the Caution regarding the class B status of equipment in "What you need to know" (page 15)
- changed the headings of the DS1 and E1 MSA32 FP sections and the figures to distinguish between the existing 2-slot FPs and the new 1-slot FPs that are identified in "32-port DS1 or E1 MSA 1-slot FPs" (page 17)
- revised the table "Mapping between a DS1 or E1 MSA32 2-slot FP and sparing panel connectors" (page 74) to include the cable part numbers, orientation, and labeling, and to include the panel names and part numbers

4-port 10/100BaseT Ethernet FP

Nortel Networks Multiservice Switch 7400 series introduces the 4-port 10/100BaseT Ethernet function processor (FP) with PEC NTNQ95. The section "Ethernet 100BaseT FP cable connections" (page 122) was updated for this feature.

8-port 10/100BaseT Ethernet FP

Nortel Networks Multiservice Switch 7400 series introduces the 8-port 10/100BaseT Ethernet FP with PEC NTNQ92. The section "Ethernet 100BaseT FP cable connections" (page 122) was updated for this feature.

32-port DS1 or E1 MSA 1-slot FPs

Nortel Networks Multiservice Switch 7400 series introduces the 32-port DS1 MSA 1-slot function processors (FP) with PEC NTNQ94 and the 32-port E1 MSA 1-slot FPs with PEC NTNQ93. This document is updated by:

- changing the headings of the MSA32 FP sections and figure captions to distinguish between the existing 2-slot FPs and the new 1-slot FPs
- updating the section "DS1 or E1 MSA32 1-slot and 2-slot FP cable connections" (page 57) to distinguish the 1-slot and 2-slot versions of the MSA FPs
- adding the section "DS1 or E1 MSA 1-slot FP cabling to termination or sparing panels" (page 60) to contain the figures of the 1-slot FP cable connections

- moving all figures of 2-slot cable connections into the section “DS1 or E1 MSA 2-slot FP cabling to termination or sparing panels” (page 75)

Notational conventions

The following are samples of caution and warning conventions used in this document.

WARNING

This warning informs you of risk of personal injury.

WARNUNG
Warnhinweis für das Bestehen möglicher Verletzungsgefahren.

WARNING

This warning informs you of risk of personal injury from electrical shock.

WARNUNG
Warnhinweis für das Bestehen der Gefahr eines elektrischen Schlags.

CAUTION

This caution informs you of risk of service interruption or equipment damage.

CAUTION
Risk of electrostatic damage
This caution alerts you to the need to wear a grounded antistatic wrist strap or equivalent protection to avoid damaging electronic parts.

Note: Some warnings and cautions in this document appear in German. This is required for compliance with VDE (Verband Deutscher Elektrotechniker) requirements.

Related documents

See the following documents for related information:

- For information on Nortel Networks Multiservice Switch documentation suite, see NN10600-001 *Nortel Networks Multiservice Switch 7400/ 15000/20000 Basics: Using the Documentation*
- NN10600-170 *Nortel Networks Multiservice Switch 7400 Hardware Description*
- NN10600-175 *Nortel Networks Multiservice Switch 7400 Hardware Installation, Maintenance, and Upgrade*

How to get more help

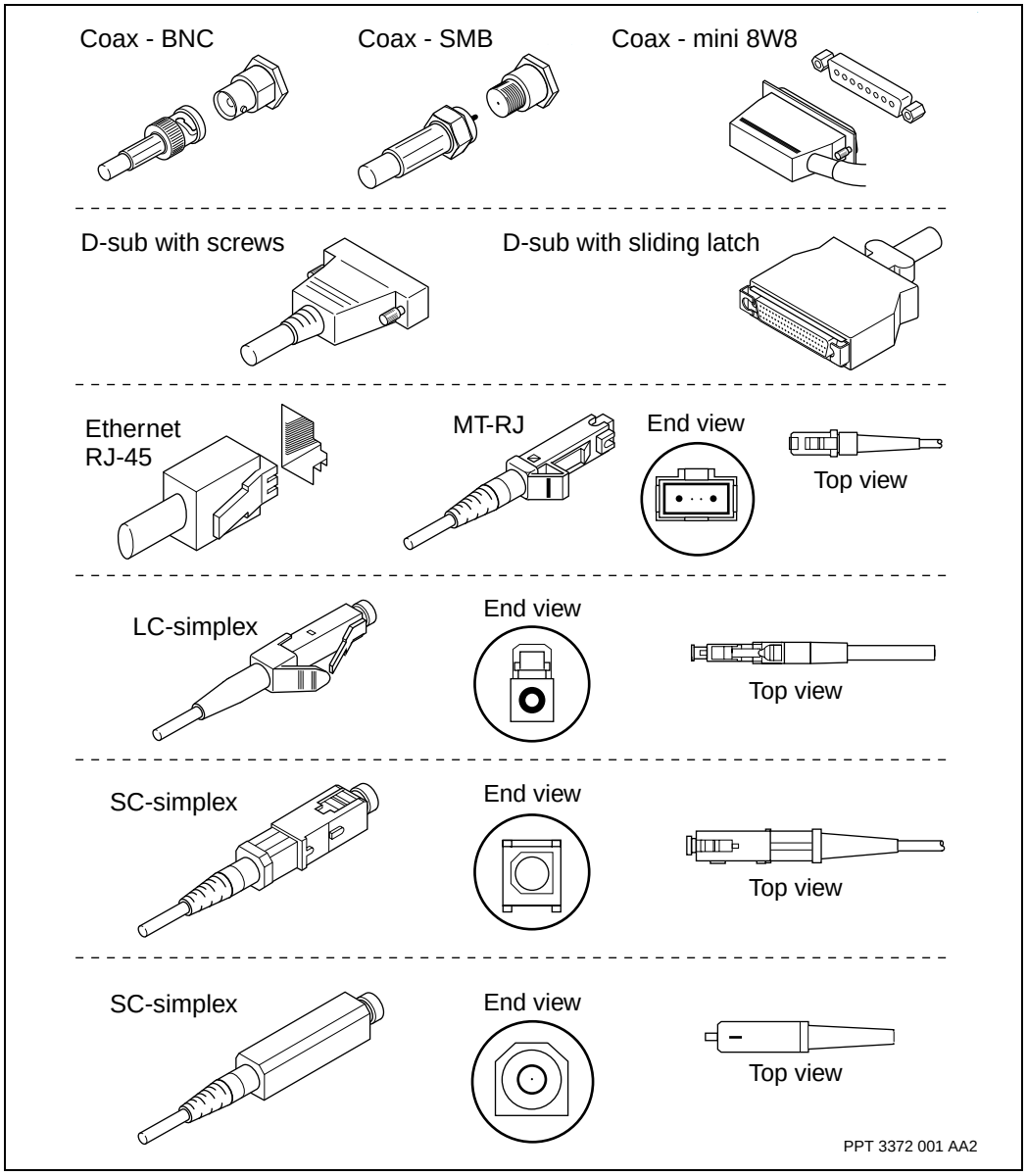
For information on training, problem reporting, and technical support, see the "Nortel Networks support services" section in NN10600-030 *Nortel Networks Multiservice Switch 7400/15000/20000 Overview*.

Chapter 1
Function processor cable connections

The following sections specify cable connections between processor cards, their corresponding termination panels, and customer equipment. The sections are listed alphabetically.

See the figure “Types of cable connectors used by custom-made or prefabricated cable assemblies” (page 23) for the different types of cable connectors used by Nortel Networks Multiservice Switch equipment.

Figure 1
Types of cable connectors used by custom-made or prefabricated cable assemblies



2-port STM-1 electrical FP cable connections

The information in this section applies to both the 2-port STM-1 electrical ATM IP FP (PEC NTNQ90AA) and the 2-port STM-1 electrical channelized CES/ATM/IMA FP (PEC NTNQ91). The control cable of the FP provides power and the switchover capability when connected to the 2-port STM-1 electrical 1:1 sparing panel (NTPS92AA). When far-end equipment other than the sparing panel is used, the control port cable is not used.

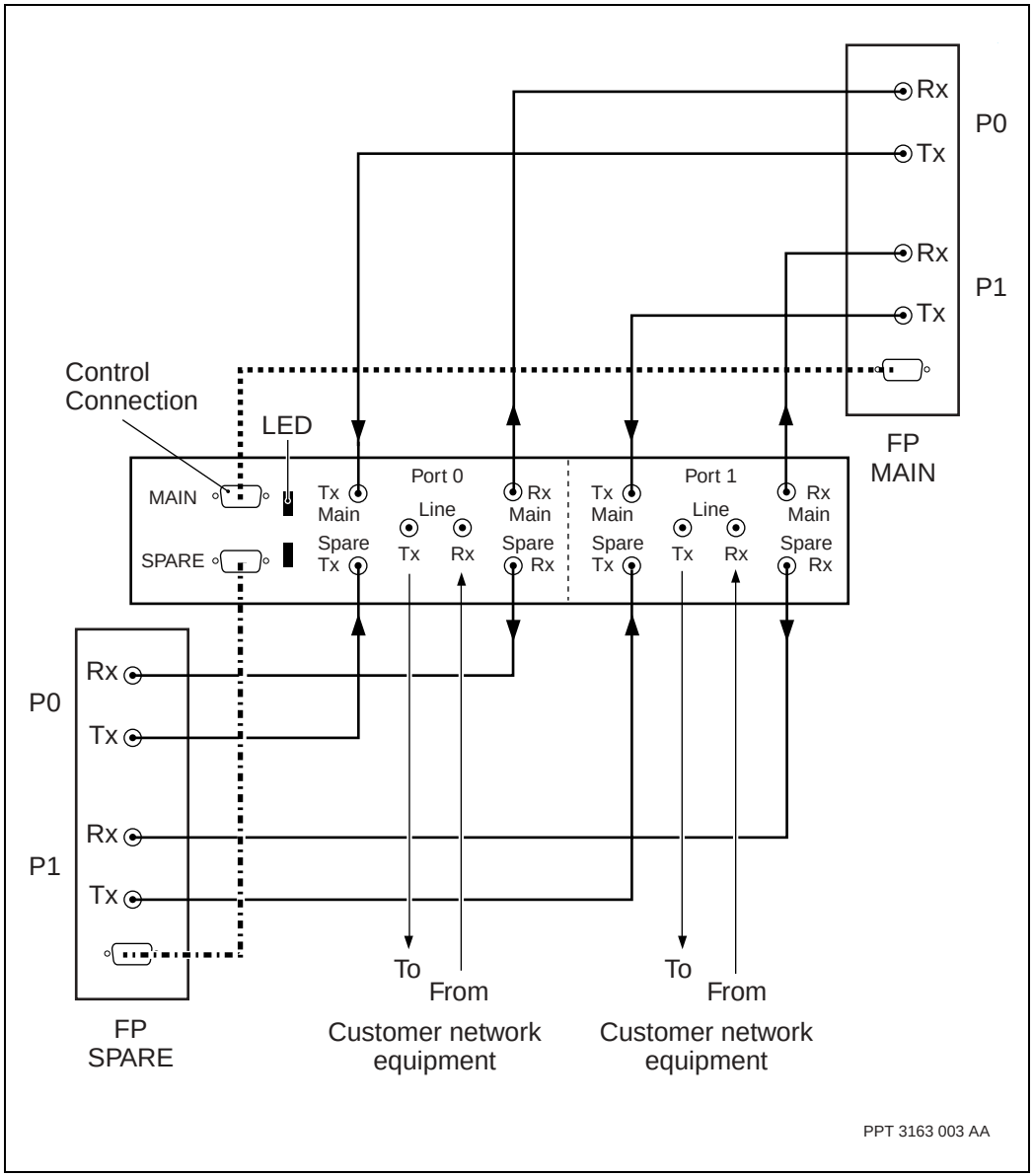
The figure “Connections between a 2-port STM-1e ATM IP FP and a 2-port STM-1e 1:1 sparing panel (NTPS92AA)” (page 25) shows where to connect the SMB BT43 (SMZ) cable connectors.

CAUTION

Risk of equipment damage

To avoid damaging the center pin of the connector in the faceplate of the NTNQ90AA card (2pSTM1eAtm FP) or NTNQ91AA card (2pSTM1eCh FP), attention should be paid while establishing a connection. The female (cable side) connector must be oriented and inserted carefully to prevent risk of damage to the center pin of the (faceplate mounted) male plug.

Figure 2
Connections between a 2-port STM-1e ATM IP FP and a 2-port STM-1e 1:1 sparing panel (NTPS92AA)



3-port DS1 ATM FP cable connections

CAUTION
Service interruption
Sparing requires all ports on the spare FP be connected to the termination panel sparing connectors, whether or not they are provisioned. Failure to do so will result in the termination panel dropping all ports on the spare FP.

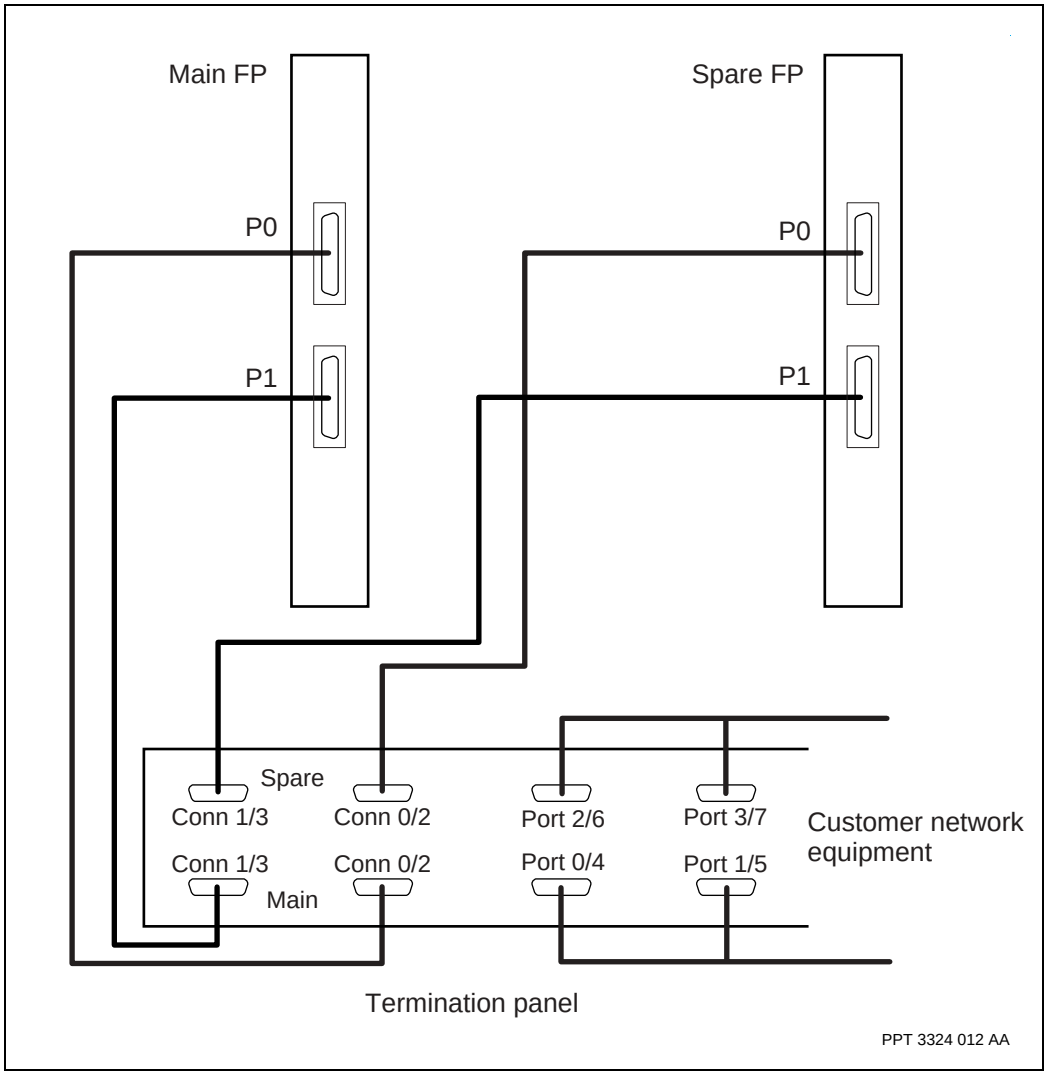
Mapping between a 3-port DS1 ATM FP and termination panel connectors

This table summarizes the mapping between the connectors for the DS1 ATM FP and its termination panel.

Table 1
Mapping between a 3-port DS1 FP and termination panel connectors

Faceplate connector	Termination panel port number
0	0 and 1
1	2 and 3

Figure 3
Cable connections for a 3-port DS1 ATM FP to a termination panel and customer equipment



3-port E1 ATM FP cable connections

CAUTION
Service interruption
Sparing requires all ports on the spare FP be connected to the termination panel sparing connectors, whether they are provisioned or not. Failure to do so will result in the termination panel dropping all ports on the spare FP.

Mapping between a 3-port E1 ATM FP and termination panel connectors

This table summarizes the mapping between the connectors for the E1 FP and its termination panels.

Table 2
Mapping between a 3-port E1 FP and termination panel connectors

Type of termination panel	Faceplate connector	Termination panel port number
Balanced E1 ATM	0	0 and 1
	1	2 and 3
Unbalanced E1 ATM	0	0 and 1 (TX and RX)
	1	2 and 3 (TX and RX)

Figure 4
Connections for 3-port E1 ATM FP—balanced termination panel

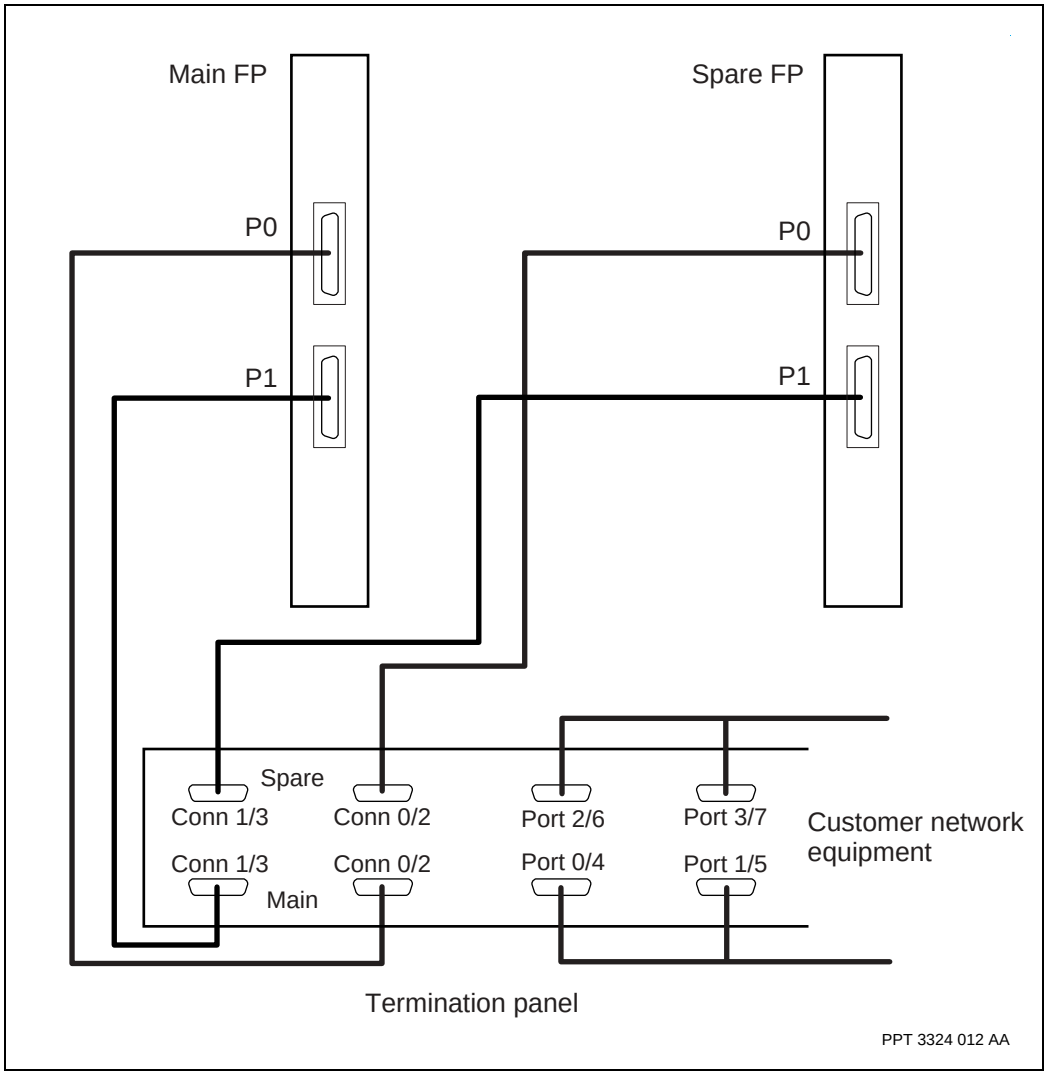
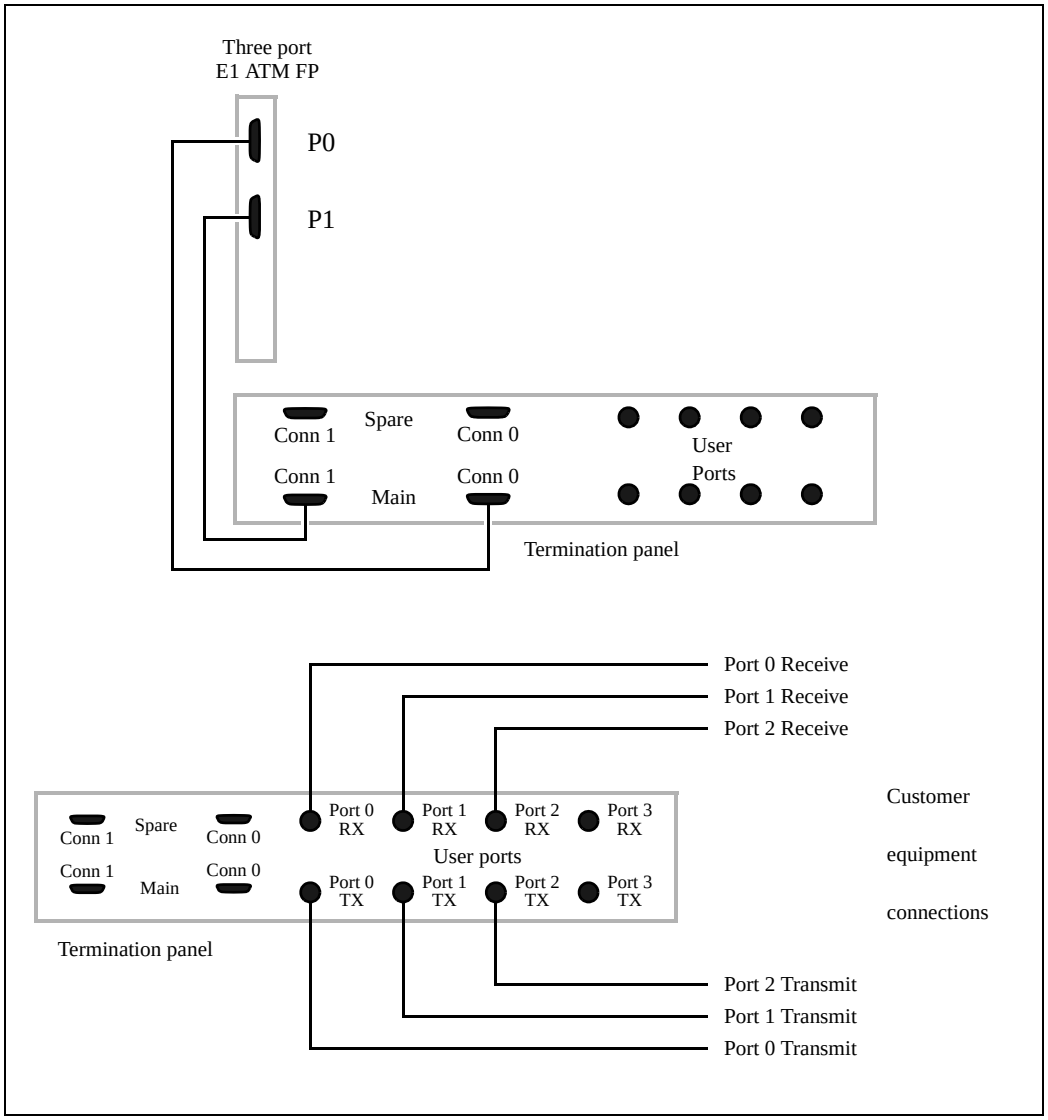


Figure 5
Connections for 3-port E1 ATM FP—unbalanced termination panel



4-port DS1 FP cable connections

CAUTION
Service interruption
Sparing requires all ports on the spare FP be connected to the termination panel sparing connectors, whether they are provisioned or not. Failure to do so will result in the termination panel dropping all ports on the spare FP.

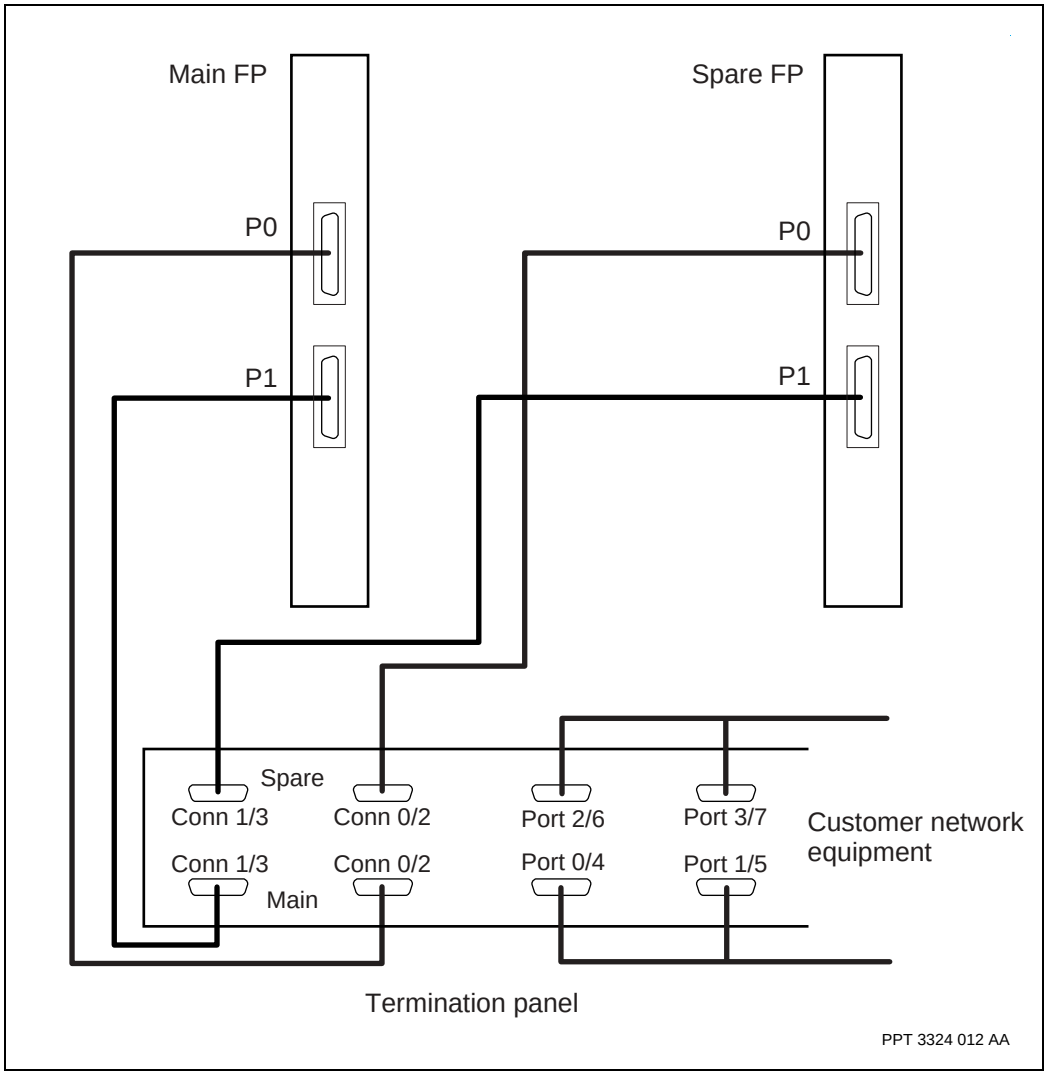
Mapping between a 4-port DS1 and termination panel connectors

This table summarizes the mapping between the connectors for the 4-port DS1 FP and its termination panel.

Table 3
Mapping between a 4-port DS1 FP and termination panel connectors

Faceplate connector	Termination panel port number
0	0 and 1
1	2 and 3

Figure 6
Cable connections for a 4-port DS1 FP



4-port DS1 MVP-E FP cable connections

CAUTION
Service interruption
Sparing requires all ports on the spare FP be connected to the termination panel sparing connectors, whether they are provisioned or not. Failure to do so will result in the termination panel dropping all ports on the spare FP.

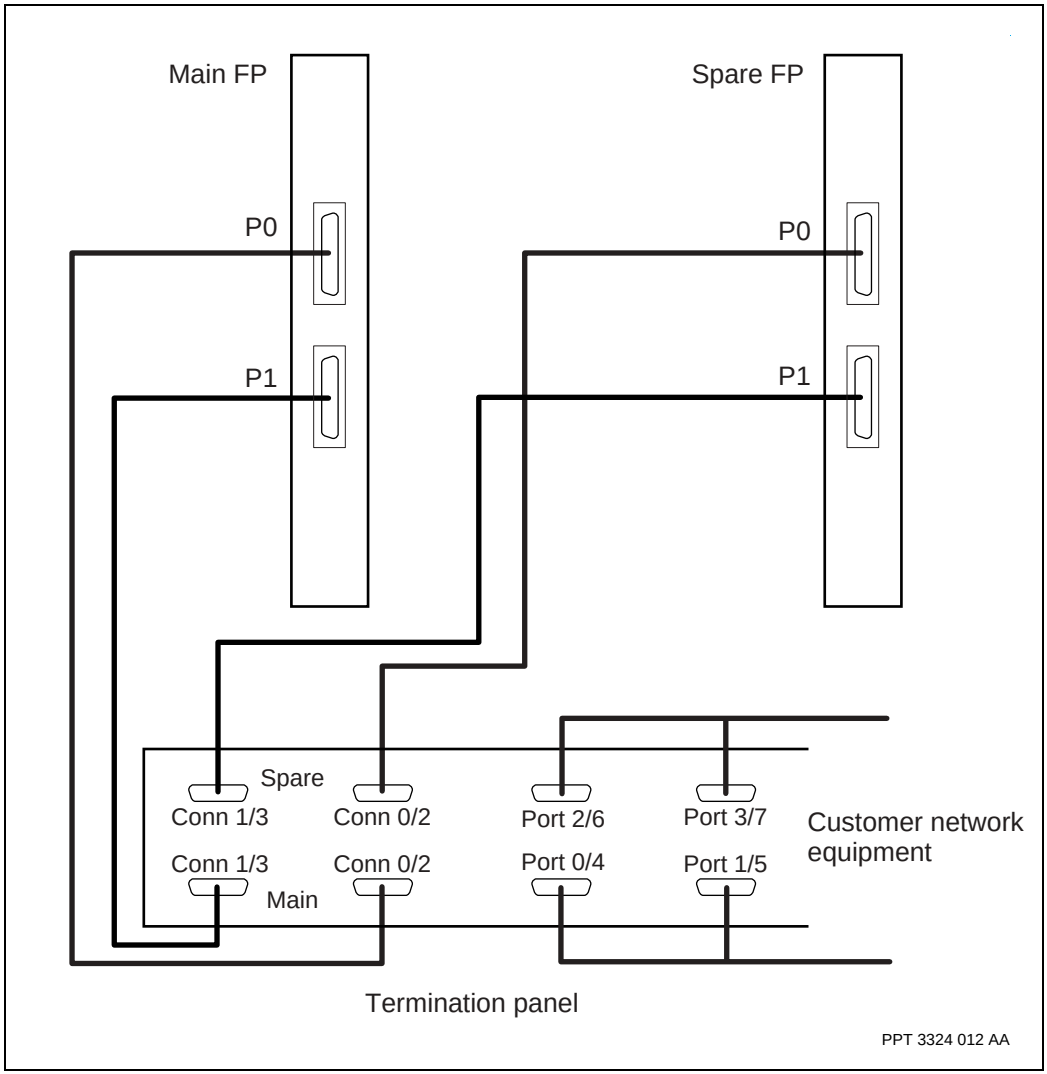
Mapping between a 4-port DS1 MVP-E FP and termination panel connectors

This table summarizes the mapping between the connectors for the 4-port DS1 MVP-E FP and its termination panel.

Table 4
Mapping between a 4-port DS1 MVP-E FP and termination panel connectors

Faceplate connector	Termination panel port number
0	0 and 1
1	2 and 3

Figure 7
Connections for a 4-port DS1 MVP-E FP



4-port E1 FP cable connections

CAUTION
Service interruption
Sparing requires all ports on the spare FP be connected to the termination panel sparing connectors, whether they are provisioned or not. Failure to do so will result in the termination panel dropping all ports on the spare FP.

Mapping between a 4-port E1 FP and termination panel connectors

This table summarizes the mapping between the connectors for the 4-port E1 FP and its termination panel.

Table 5
Mapping between a 4-port E1 FP and termination panel connectors

Type of termination panel	Faceplate connector	Termination panel port number
Balanced 4-port E1	0	0 and 1
	1	2 and 3
Unbalanced 4-port E1	0	0 and 1 (TX and RX)
	1	2 and 3 (TX and RX)

Figure 8
Cable connections for 4-port E1 FP with balanced termination panel

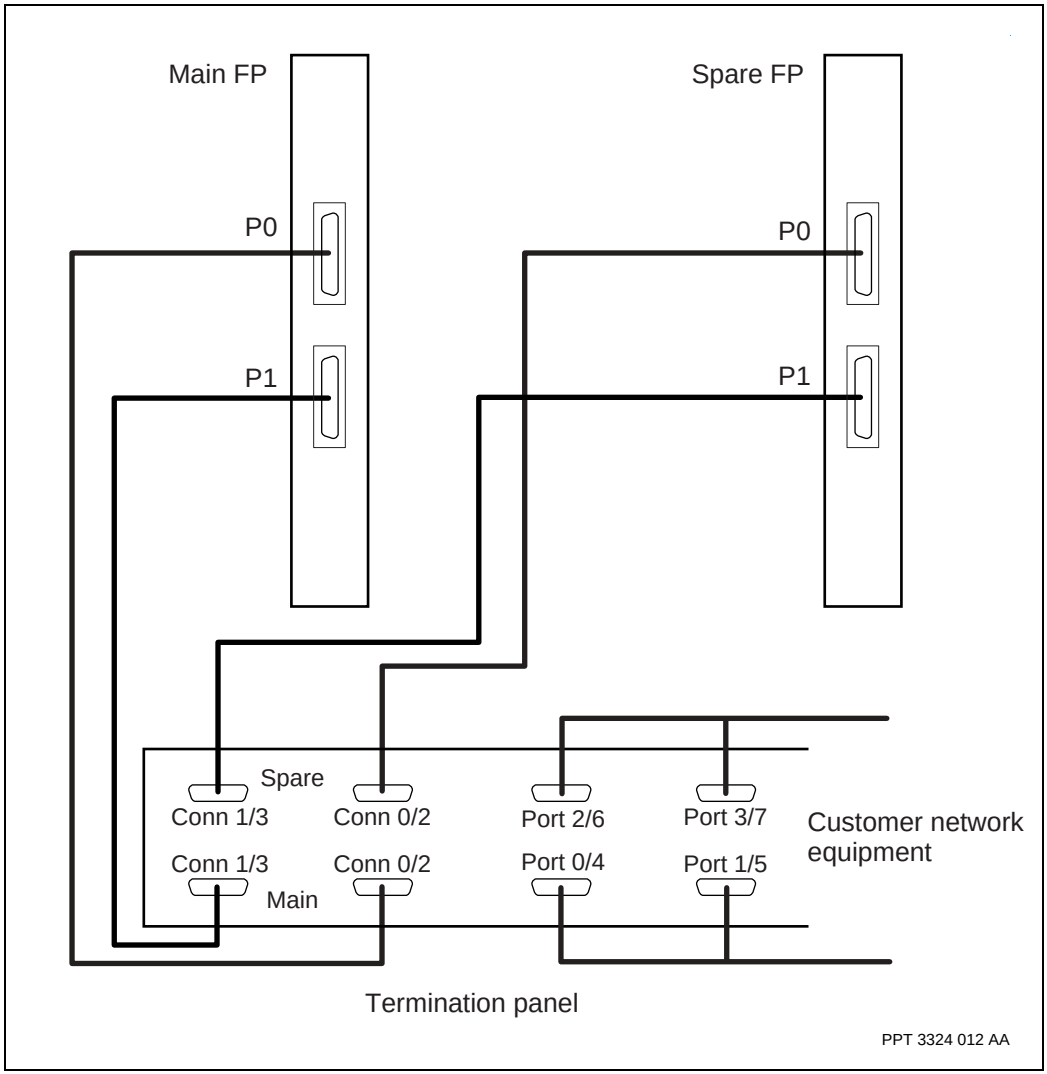
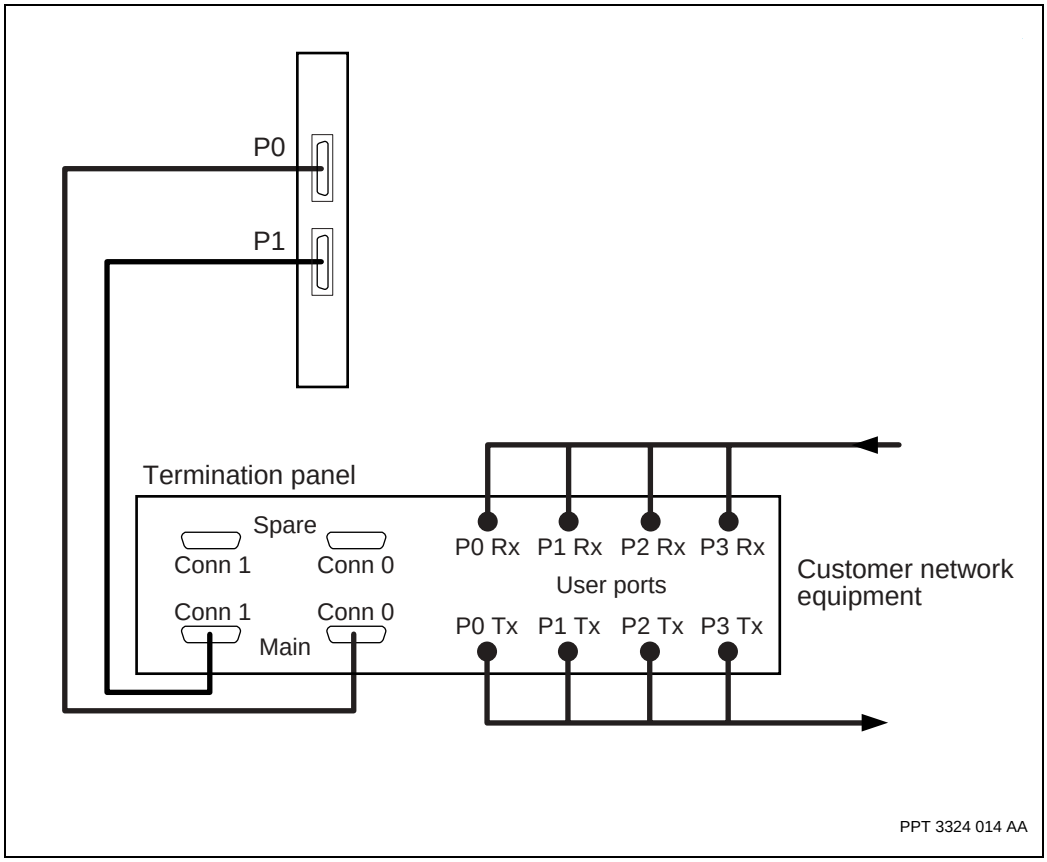


Figure 9
Cable connections for 4-port E1 FP with unbalanced termination panel



4-port E1 MVP-E FP cable connections

CAUTION
Service interruption
Sparing requires all ports on the spare FP be connected to the termination panel sparing connectors, whether they are provisioned or not. Failure to do so will result in the termination panel dropping all ports on the spare FP.

Mapping between a 4-port E1 MVP-E FP and termination panel connectors

This table summarizes the mapping between the connectors for the 4-port E1 MVP-E FP and its termination panel.

Table 6
Mapping between a 4-port E1 MVP-E FP and termination panel connectors

Type of termination panel	Faceplate connector	Termination panel port number
Balanced 4-port E1	0	0 and 1
	1	2 and 3
Unbalanced 4-port E1	0	0 and 1 (TX and RX)
	1	2 and 3 (TX and RX)

Figure 10
Connections for a 4-port E1 MVP-E FP—balanced termination panel

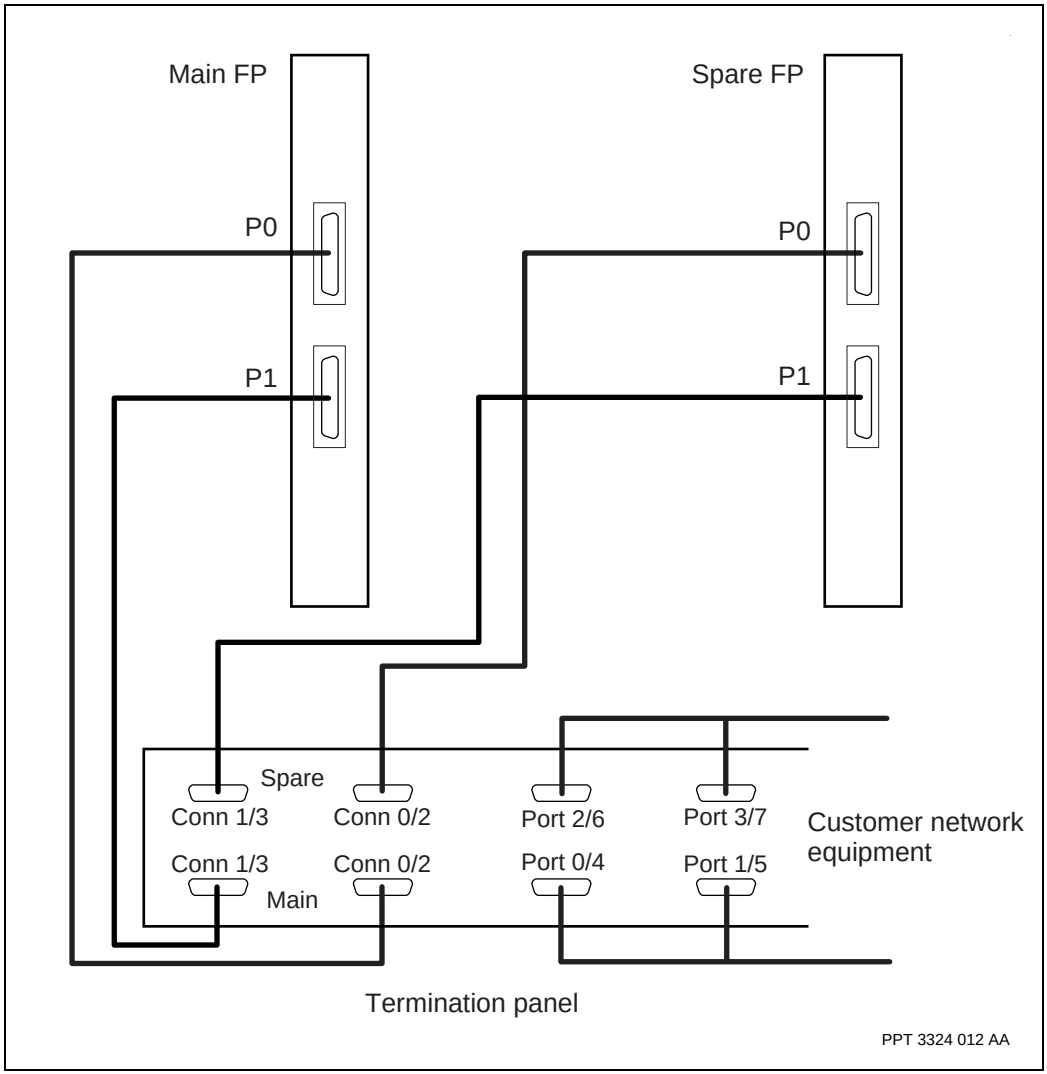
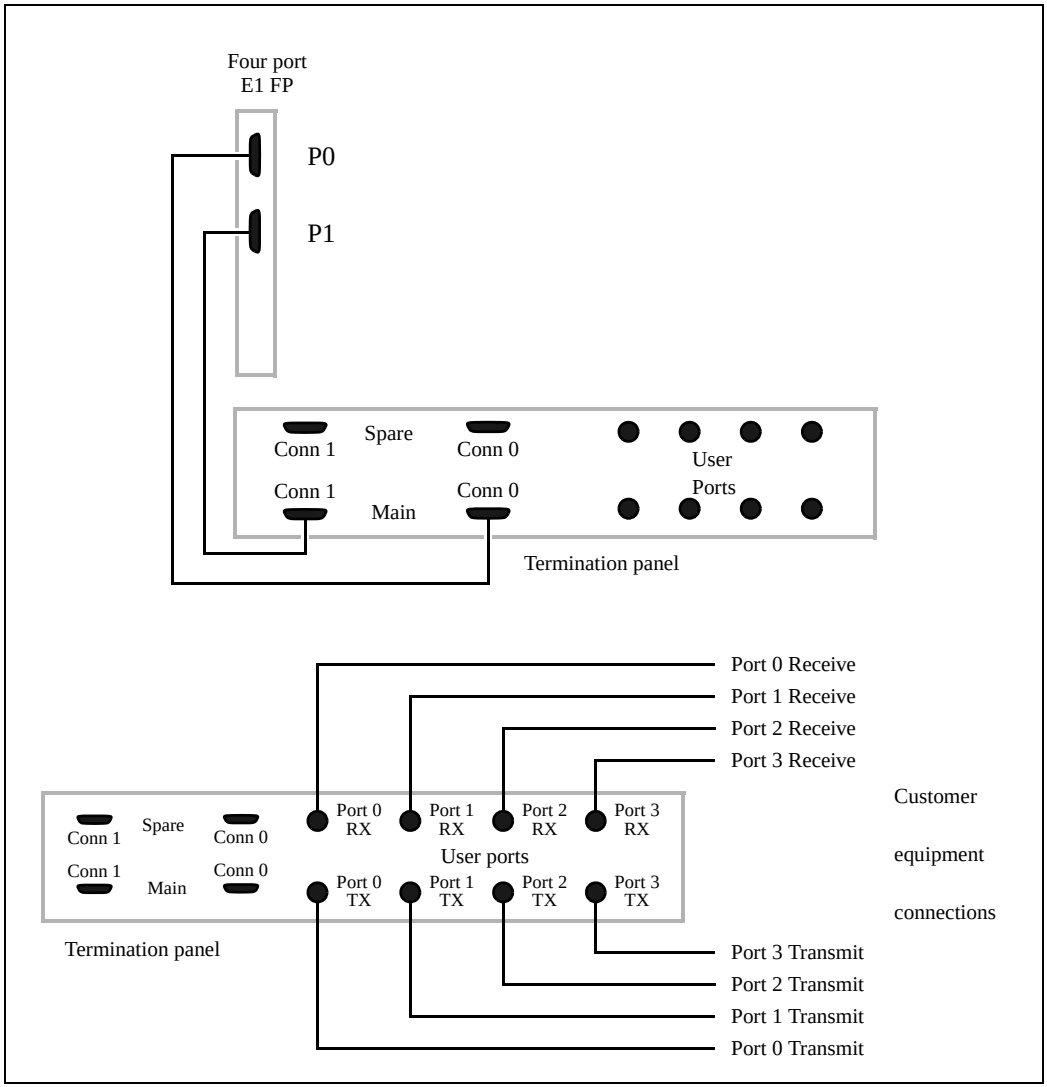


Figure 11
Connections for 4-port E1 MVP-E FP—unbalanced termination panel



8-port DS1 ATM FP cable connections

CAUTION
Service interruption
Sparing requires all ports on the spare FP be connected to the termination panel sparing connectors, whether they are provisioned or not. Failure to do so will result in the termination panel dropping all ports on the spare FP.

Mapping between an 8-port DS1 ATM FP and termination panel connectors

This table summarizes the mapping between the connectors for the 8-port DS1 ATM FP and its termination panel.

Table 7
Mapping between an 8-port DS1 ATM FP and termination panel connectors

Faceplate connector	Termination panel port number
0	0 and 1
1	2 and 3
2	4 and 5
3	6 and 7

Figure 12
Customer equipment connections to 8-port DS1 ATM termination panels

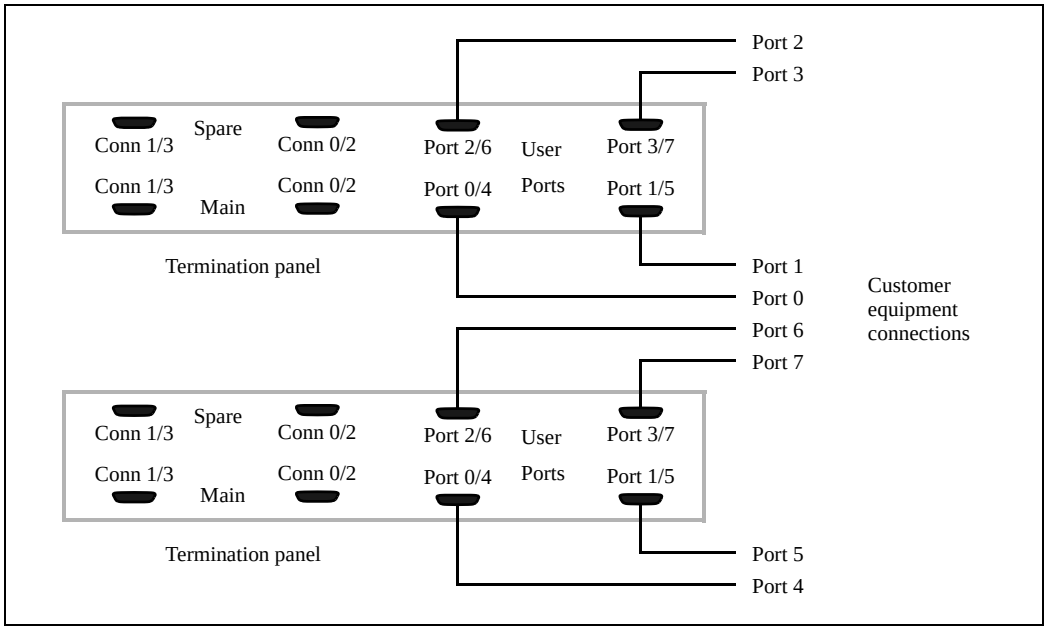
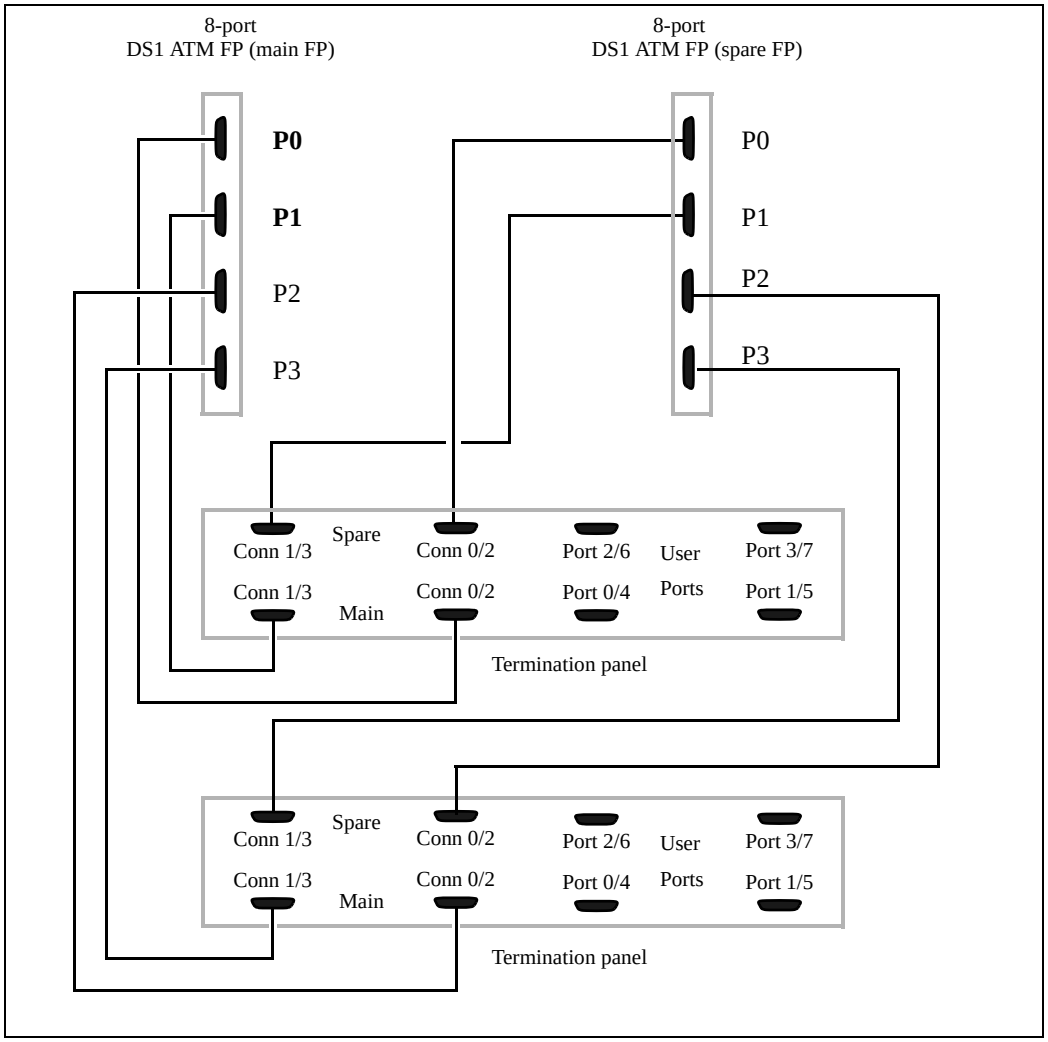


Figure 13
Connections for 8-port DS1 ATM FP



8-port DS1 FP cable connections

CAUTION
Service interruption
Sparing requires all ports on the spare FP be connected to the termination panel sparing connectors, whether they are provisioned or not. Failure to do so will result in the termination panel dropping all ports on the spare FP.

Mapping between an 8-port DS1 FP and termination panel connectors

This table summarizes the mapping between the connectors for the 8-port DS1 FP and its termination panel.

Table 8
Mapping between a DS1 FP and termination panel connectors

Faceplate connector	Termination panel port number
0	0 and 1
1	2 and 3
2	4 and 5
3	6 and 7

Figure 14
Customer equipment connections to 8-port DS1 termination panels

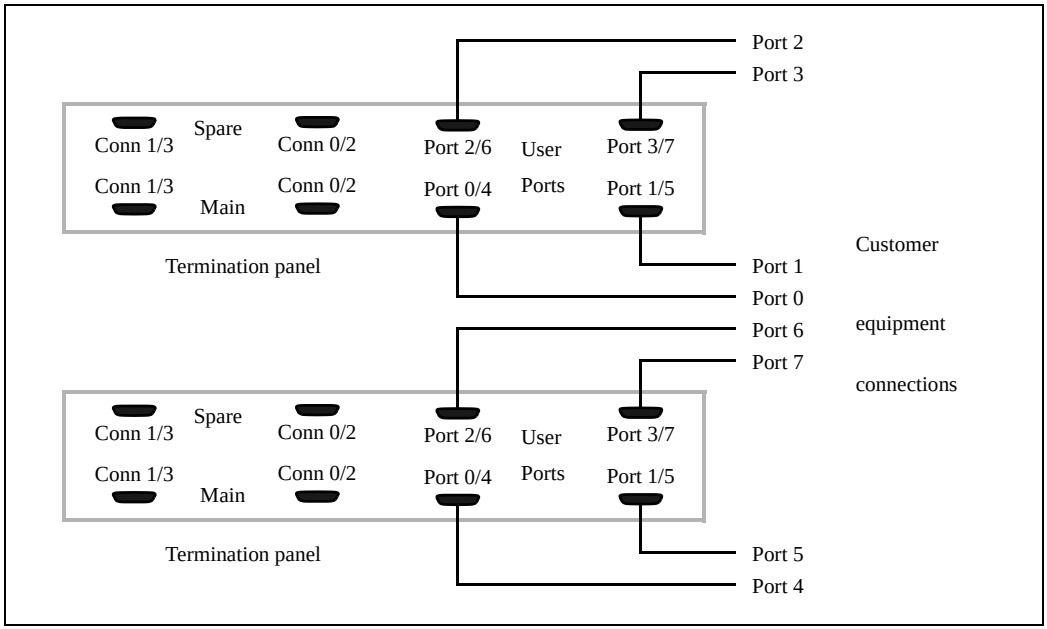
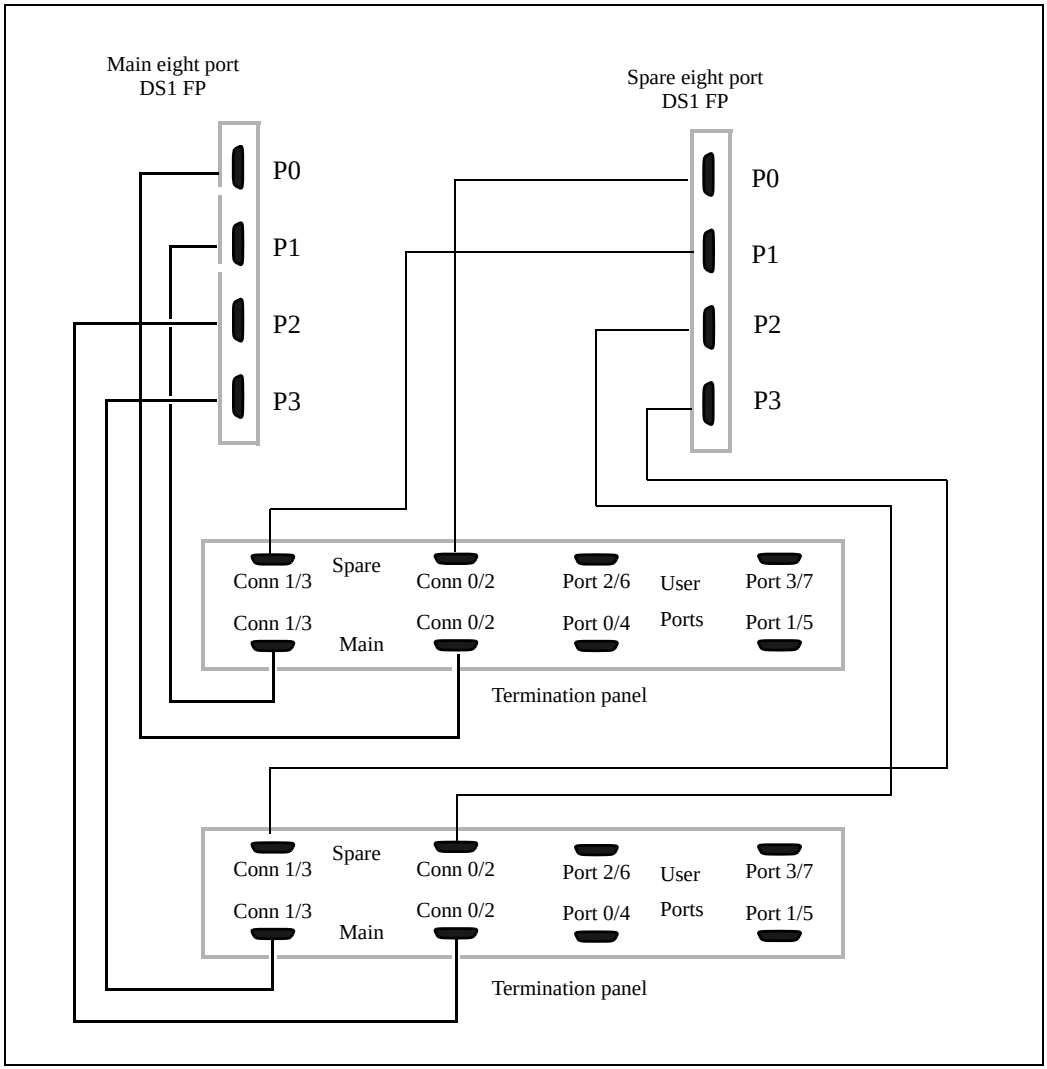


Figure 15
Connections for 8-port DS1 FP



8-port E1 ATM cable connections

CAUTION
Service interruption
Sparing requires all ports on the spare FP be connected to the termination panel sparing connectors, whether they are provisioned or not. Failure to do so will result in the termination panel dropping all ports on the spare FP.

Mapping between an 8-port E1 ATM FP and termination panel connectors

This table summarizes the mapping between the connectors for the 8-port E1 ATM FP and its termination panel.

Table 9
Mapping between an 8-port E1 ATM FP and termination panel connectors

Type of termination panel	Faceplate connector	Termination panel port number
Balanced 8-port E1 ATM	0	0 and 1
	1	2 and 3
	2	4 and 5
	3	6 and 7
Unbalanced 8-port E1 ATM	0	0 and 1 (TX and RX)
	1	2 and 3 (TX and RX)
	0	4 and 5 (TX and RX)
	1	6 and 7 (TX and RX)

Figure 16
Connections for 8-port E1 ATM FP—balanced termination panel

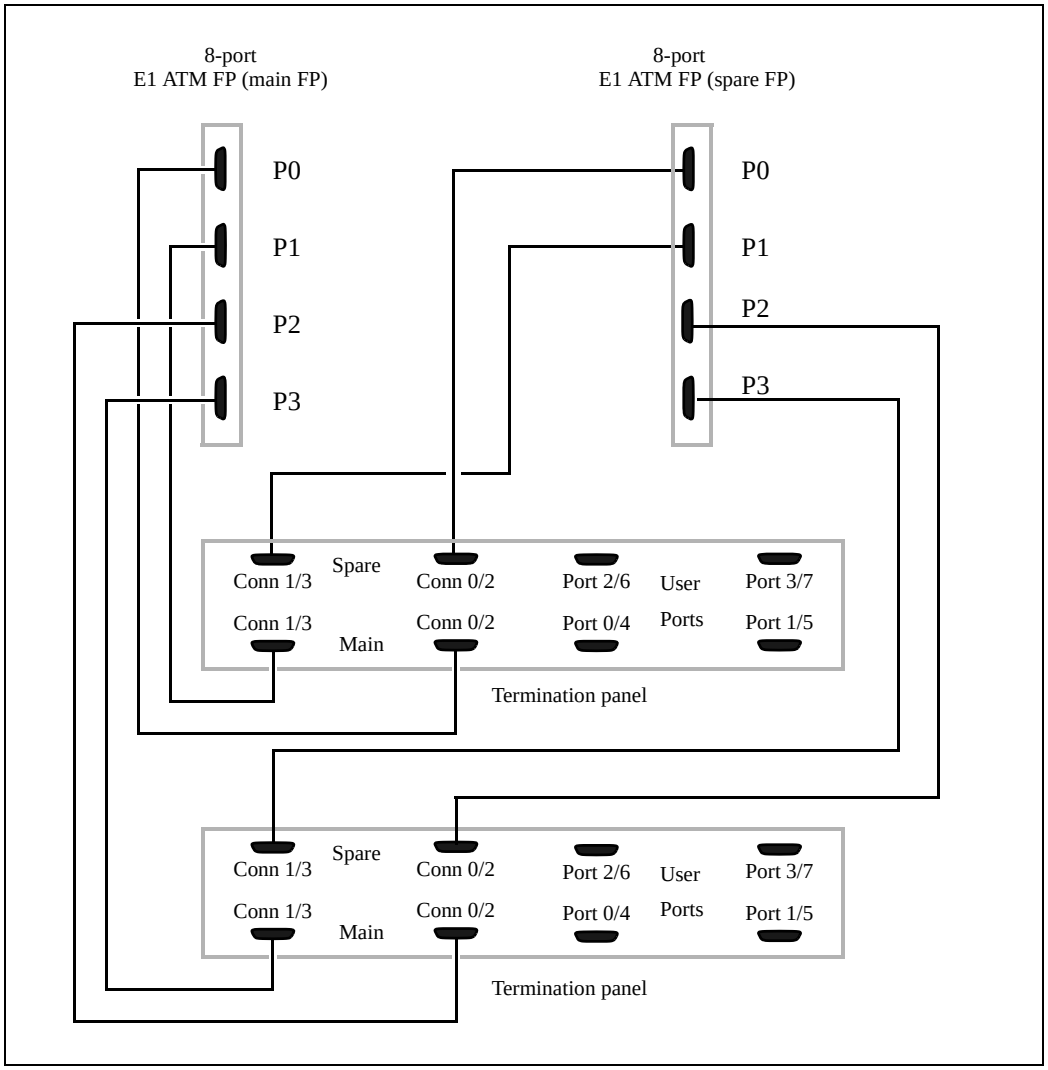


Figure 17
Customer equipment connections to balanced 8-port E1 ATM termination panels

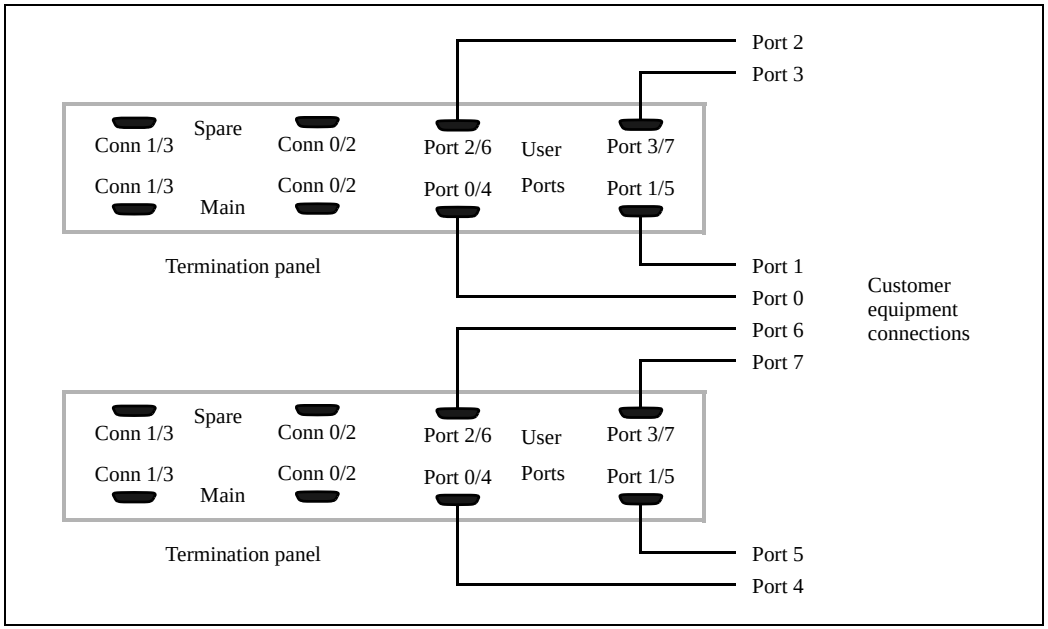


Figure 18
Connections for 8-port E1 ATM FP—unbalanced termination panel

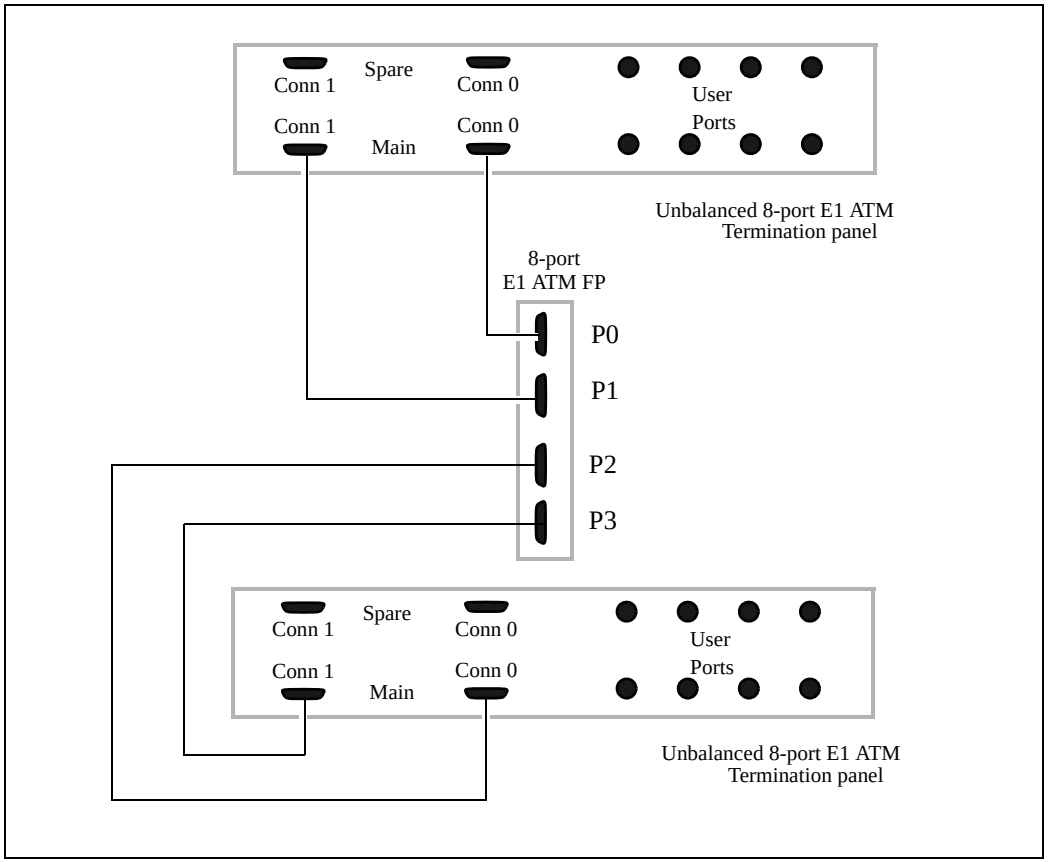
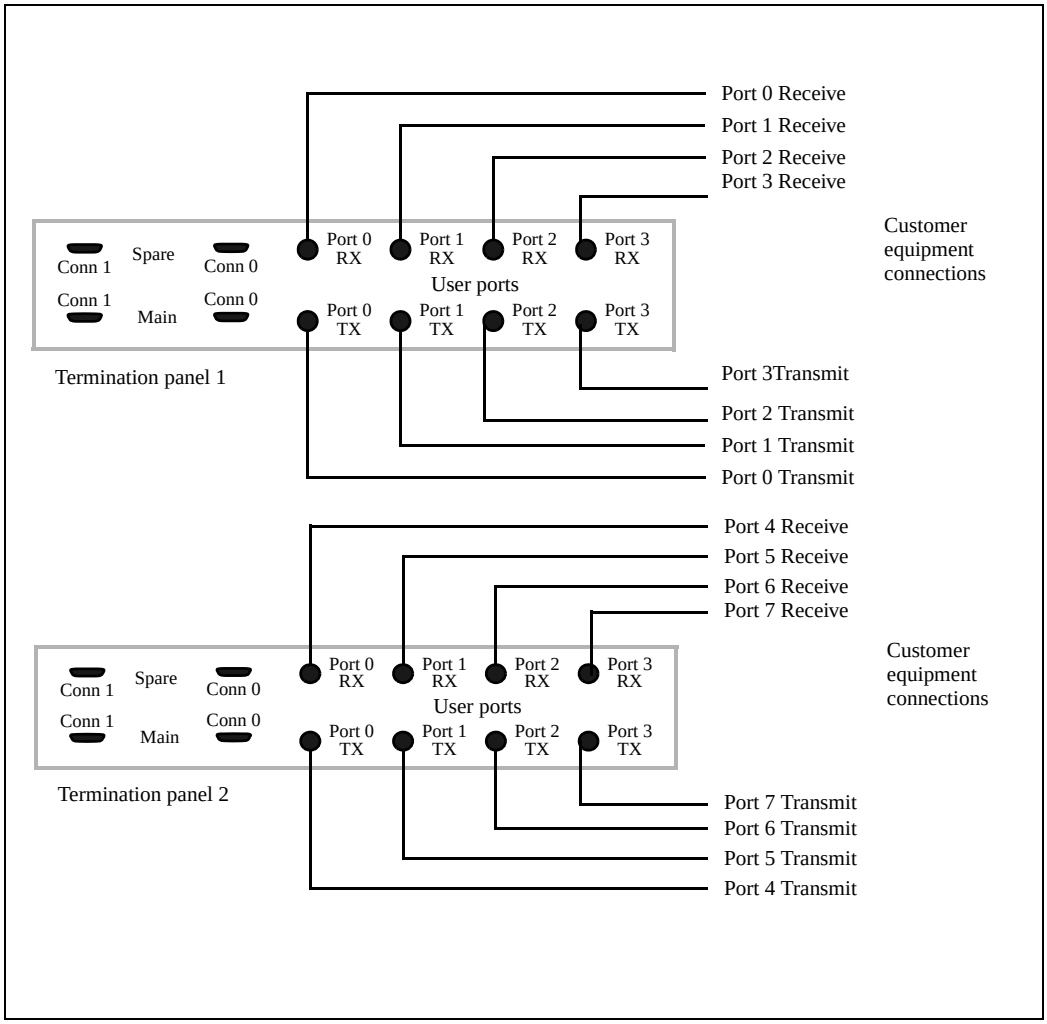


Figure 19
Customer equipment connections to unbalanced 8-port E1 ATM termination panels



32-port E1 TDM FP cable connections

The 32-port E1 TDM FP uses a termination panel to support one-for-one sparing. Customer equipment connections are provided through a multiport aggregate device. Each multiport aggregate device provides individual RJ-45 connections to 16 E1 ports.

Figure 20
Customer equipment connections to multiport aggregate device

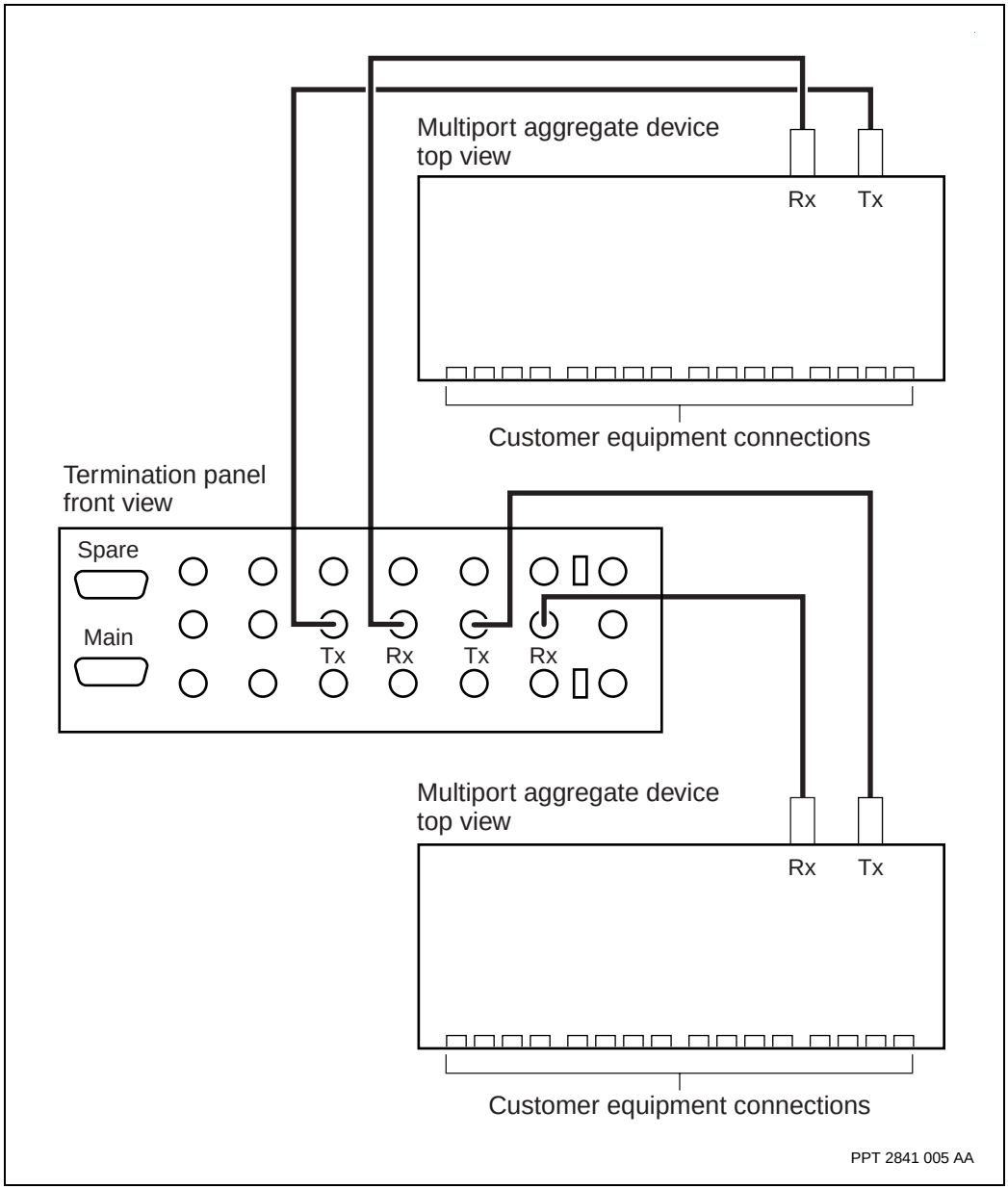
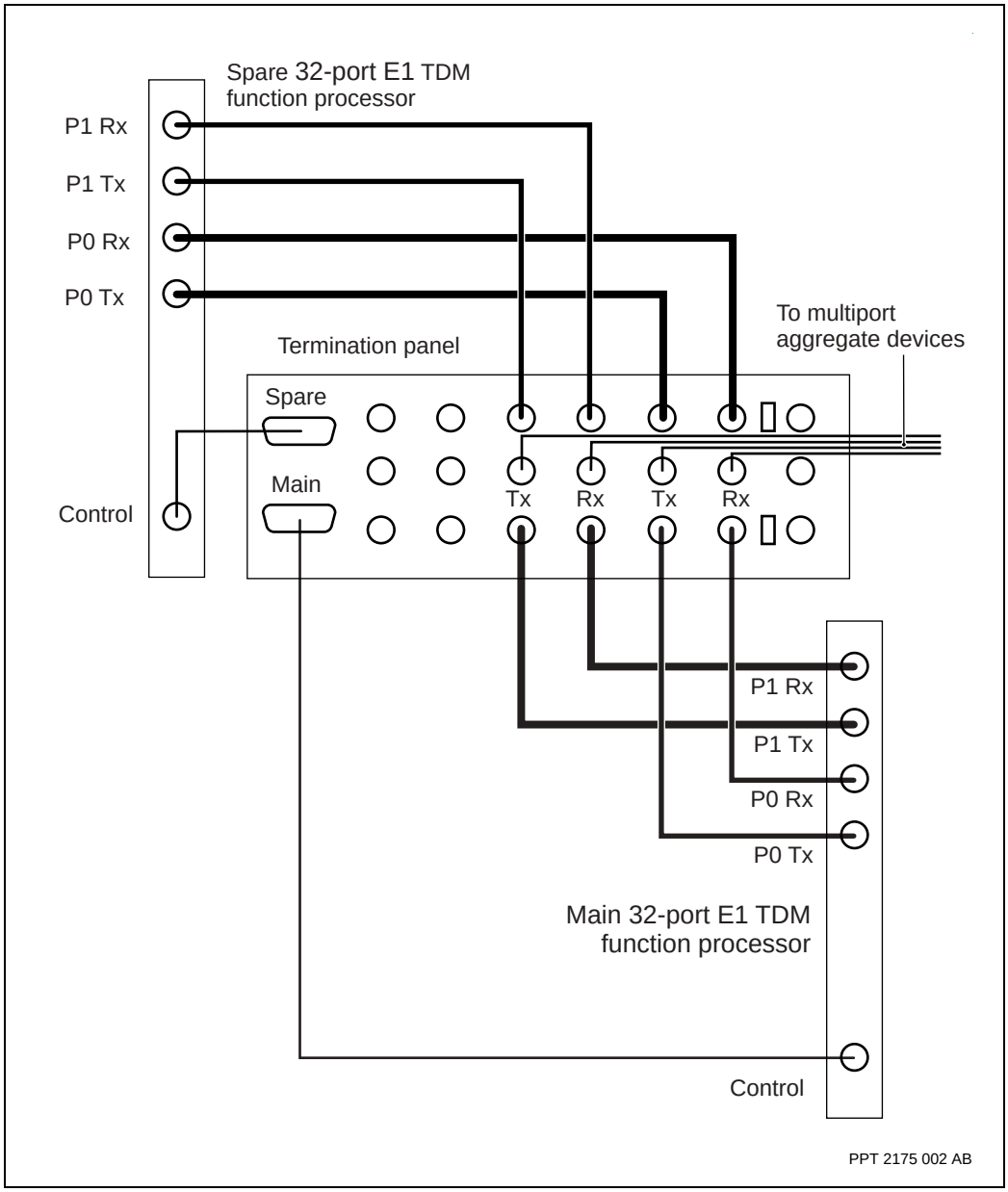


Figure 21
Connections for a 32-port E1 TDM FP



DS1 AAL1 FP cable connections

CAUTION
Service interruption
Sparing requires all ports on the spare FP be connected to the termination panel sparing connectors, whether they are provisioned or not. Failure to do so will result in the termination panel dropping all ports on the spare FP.

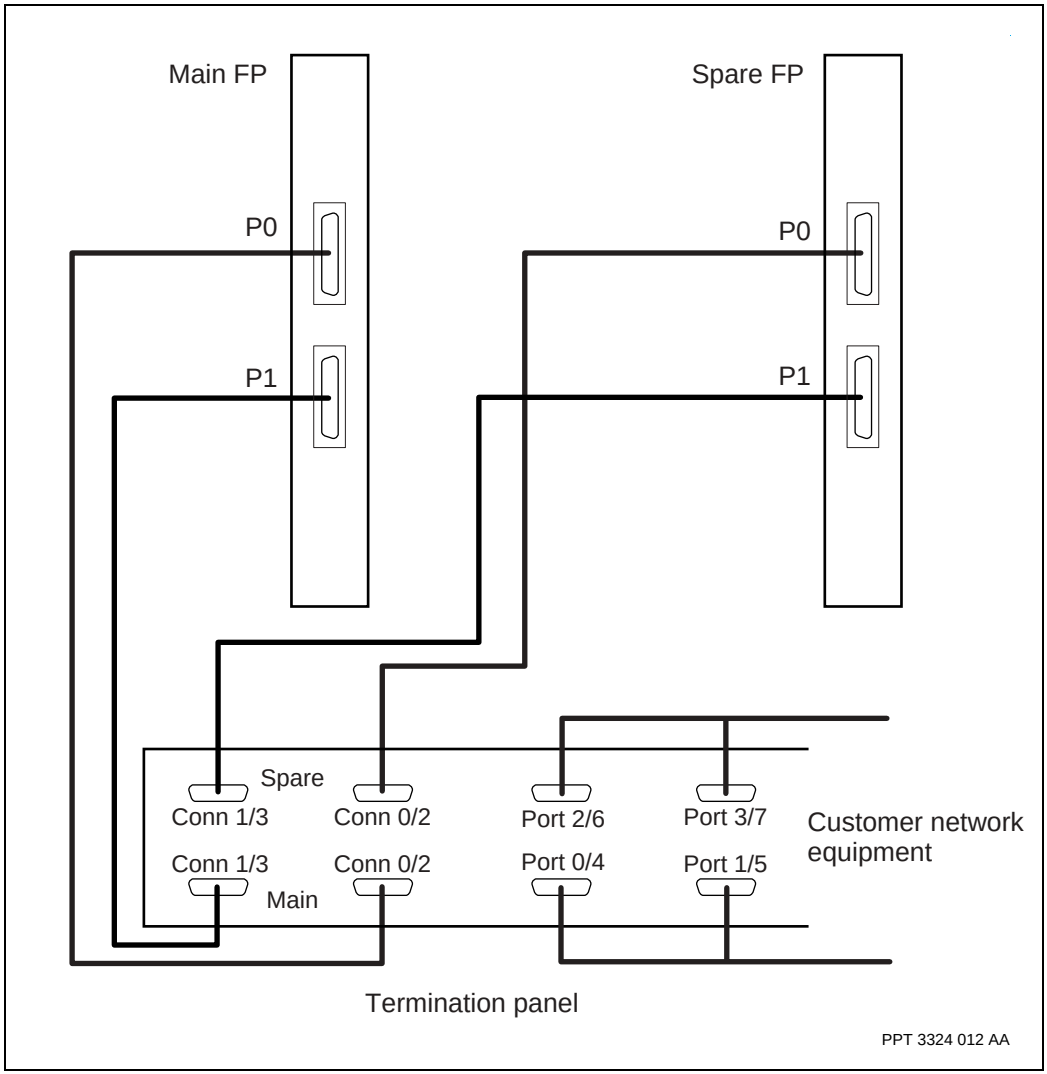
Mapping between a DS1 AAL1 FP and termination panel connectors

This table summarizes the mapping between the connectors for a DS1 AAL1 FP and its termination panel.

Table 10
Mapping between a DS1 AAL1 FP and termination panel connectors

Faceplate connector	Termination panel port number
0	0 and 1
1	2 and 3

Figure 22
Cable connections for a DS1 AAL1 FP



DS1 or E1 MSA32 1-slot and 2-slot FP cable connections

CAUTION
Service interruption
Sparing requires all ports on the spare FP be connected to the termination panel sparing connectors, whether they are provisioned or not. Failure to do so will result in the termination panel dropping all ports on the spare FP.

The method of supplying power to an MSA32 sparing panel is described in the section about power for a sparing panel in NN10600-170 *Nortel Networks Multiservice Switch 7400 Hardware Description*.

The 1-slot and 2-slot versions of the MSA FPs are supported by the same termination and sparing panels with no difference in functionality. The PCR software compatibilities between FP versions are identified in NN10600-551 *Nortel Networks Multiservice Switch 7400/15000/20000 FP Configuration Reference*. The FP 1-slot and 2-slot sparing configuration combinations and the available sparing panels are identified in the description of the DS1 and E1 FPs in NN10600-170 *Nortel Networks Multiservice Switch 7400 Hardware Description*.

The cabling between a 1-slot FP and a termination or sparing panel is slightly different than the 2-slot FP. The higher pin density of the connectors on the 1-slot FPs requires a pair of adapter Y-cable NTPS39s or pairs of prefabricated Y-cables NTPS32, NTPS33, NTPS36, or NTPS37 to accommodate connecting to the lower pin density of existing FPs and sparing panels. The NTPS39 enables a cable-to-cable connection to existing termination or sparing panel cables with PEC NTPS03 or NTPS04. The descriptions of all FP cable assemblies are in NN10600-170 *Nortel Networks Multiservice Switch 7400 Hardware Description*, while their installation procedures are in NN10600-175 *Nortel Networks Multiservice Switch 7400 Hardware Installation, Maintenance, and Upgrade*.

Since the user port numbering is different at the faceplates of the 1-slot and 2-slot versions of the FPs, the cable connections are divided into:

- “Mapping between DS1 or E1 MSA 1-slot FP and sparing panel connectors” (page 58)

- "DS1 or E1 MSA 1-slot FP cabling to termination or sparing panels" (page 60)
- "Mapping between DS1 or E1 MSA32 2-slot FP and sparing panel connectors" (page 74)
- "DS1 or E1 MSA 2-slot FP cabling to termination or sparing panels" (page 75)
- "DS1 or E1 MSA 1-slot and 2-slot FPs sharing the same sparing panels" (page 89)

Mapping between DS1 or E1 MSA 1-slot FP and sparing panel connectors

The table "Mapping between a DS1 or E1 MSA32 2-slot FP and sparing panel connectors" (page 74) summarizes the sparing panel to FP cable connections according to the labels on the parts.

Table 11
Mapping between a DS1 or E1 MSA32 1-slot FP and sparing panel connectors

Termination panel name	Termination panel PEC	Termination panel faceplate connector	one of two 44-pin cable connectors	68-pin cable connector	MSA32 FP faceplate connector
1-port/DB15 for DS1 or E1	NTY197	P0 (user ports 0 to 7)	P0/P2	P0	P0
		P1 (user ports 8 to 15)	P1/P3	P0	P0
		P2 (user ports 16 to 23)	P0/P2	P1	P1
		P3 (user ports 24 to 31)	P1/P3	P1	P1
2-port/DB15 for DS1 or E1	NTY195	P0 (user ports 0 to 7)	P0/P2	P0	P0
		P1 (user ports 8 to 15)	P1/P3	P0	P0
		P2 (user ports 16 to 23)	P0/P2	P1	P1
		P3 (user ports 24 to 31)	P1/P3	P1	P1

(Sheet 1 of 2)

Table 11 (continued)
Mapping between a DS1 or E1 MSA32 1-slot FP and sparing panel connectors

Termination panel name	Termination panel PEC	Termination panel faceplate connector	one of two 44-pin cable connectors	68-pin cable connector	MSA32 FP faceplate connector
RJ-45 for DS1 or E1	NTJS95	P0 (user ports 0 to 7)	P0/P2	P0	P0
		P1 (user ports 8 to 15)	P1/P3	P0	P0
		P2 (user ports 16 to 23)	P0/P2	P1	P1
		P3 (user ports 24 to 31)	P1/P3	P1	P1
unbalanced BNC for E1 only	NTY196	P0 (user ports 0 to 7)	P0/P2	P0	P0
		P1 (user ports 8 to 15)	P1/P3	P0	P0
		P2 (user ports 16 to 23)	P0/P2	P1	P1
		P3 (user ports 24 to 31)	P1/P3	P1	P1

(Sheet 2 of 2)

DS1 or E1 MSA 1-slot FP cabling to termination or sparing panels

The following figures show the cable connections between a DS1 or E1 MSA 1-slot FP and the various types of termination and sparing panels.

For the connection of the 1-slot FPs with 2-slot FPs in the same sparing configuration, see “DS1 or E1 MSA 1-slot and 2-slot FPs sharing the same sparing panels” (page 89).

Figure 23
1-port/DB15 sparing panel connections to 32-port DS1 or E1 MSA FPs and CPE

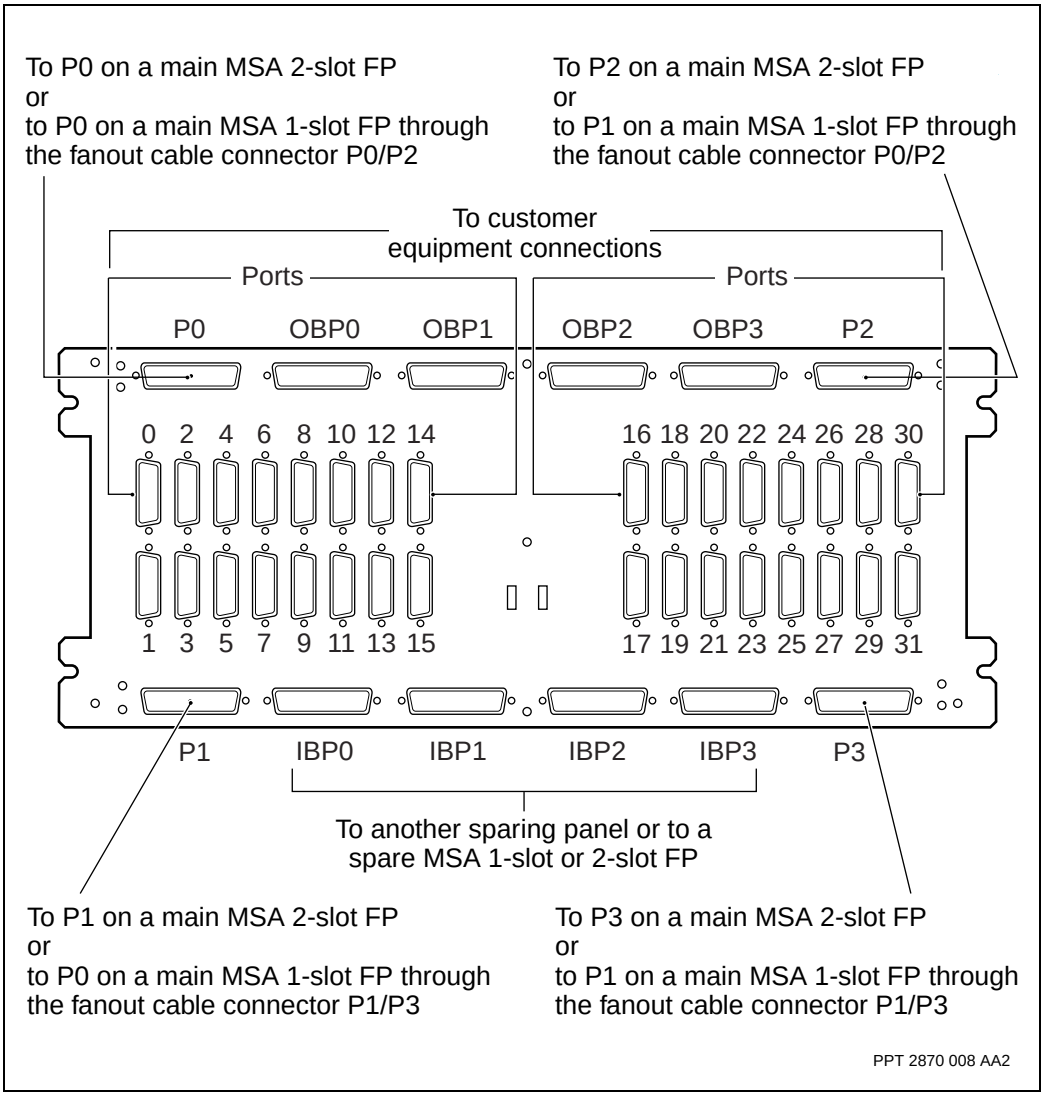


Figure 24
1-port/DB15 sparing panel connections to a main 32-port DS1 or E1 MSA 1-slot FP

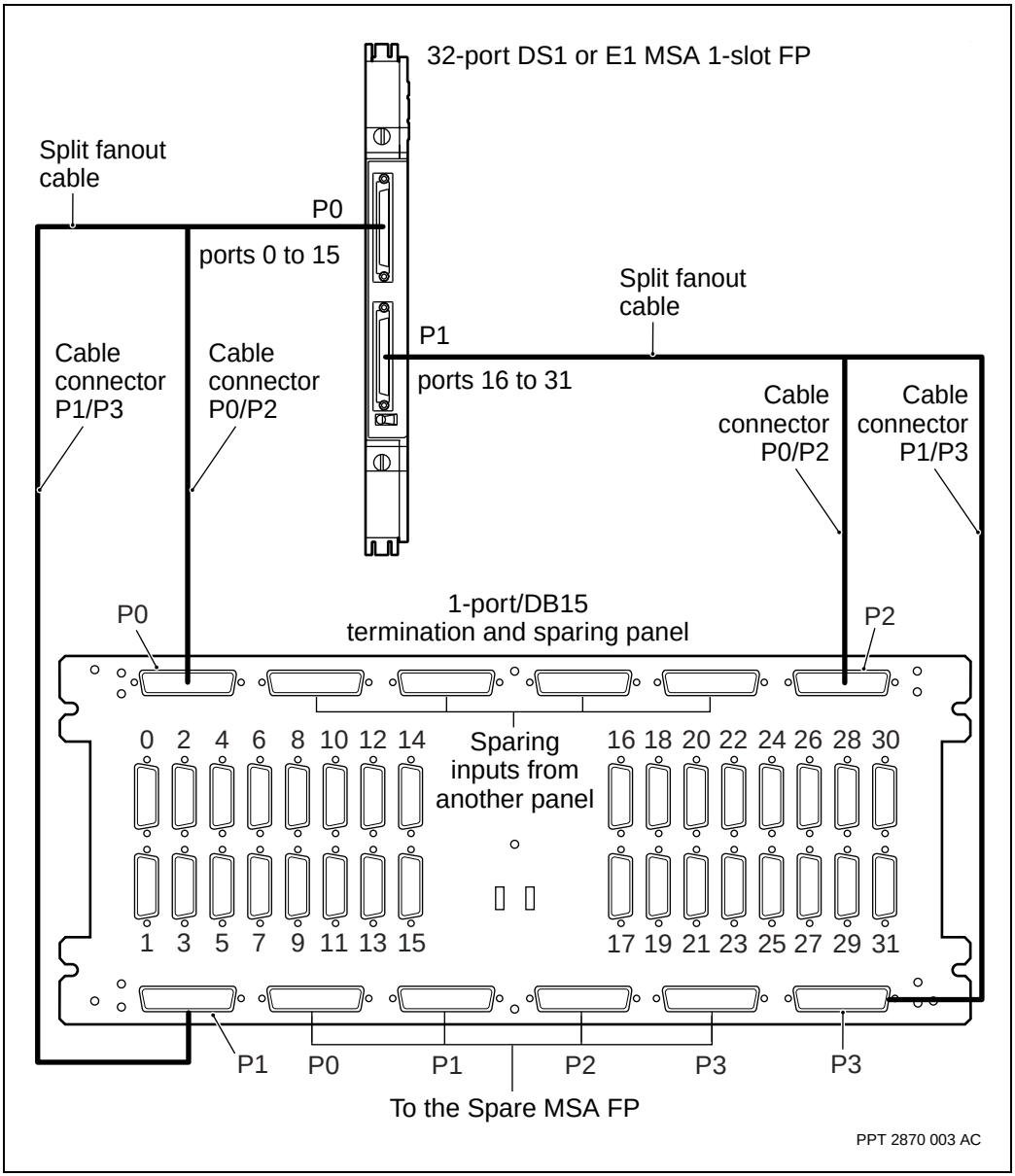


Figure 25
1-port/DB15 sparing panel one-for-n connections to a spare 32-port DS1 or E1 MSA 1-slot FP

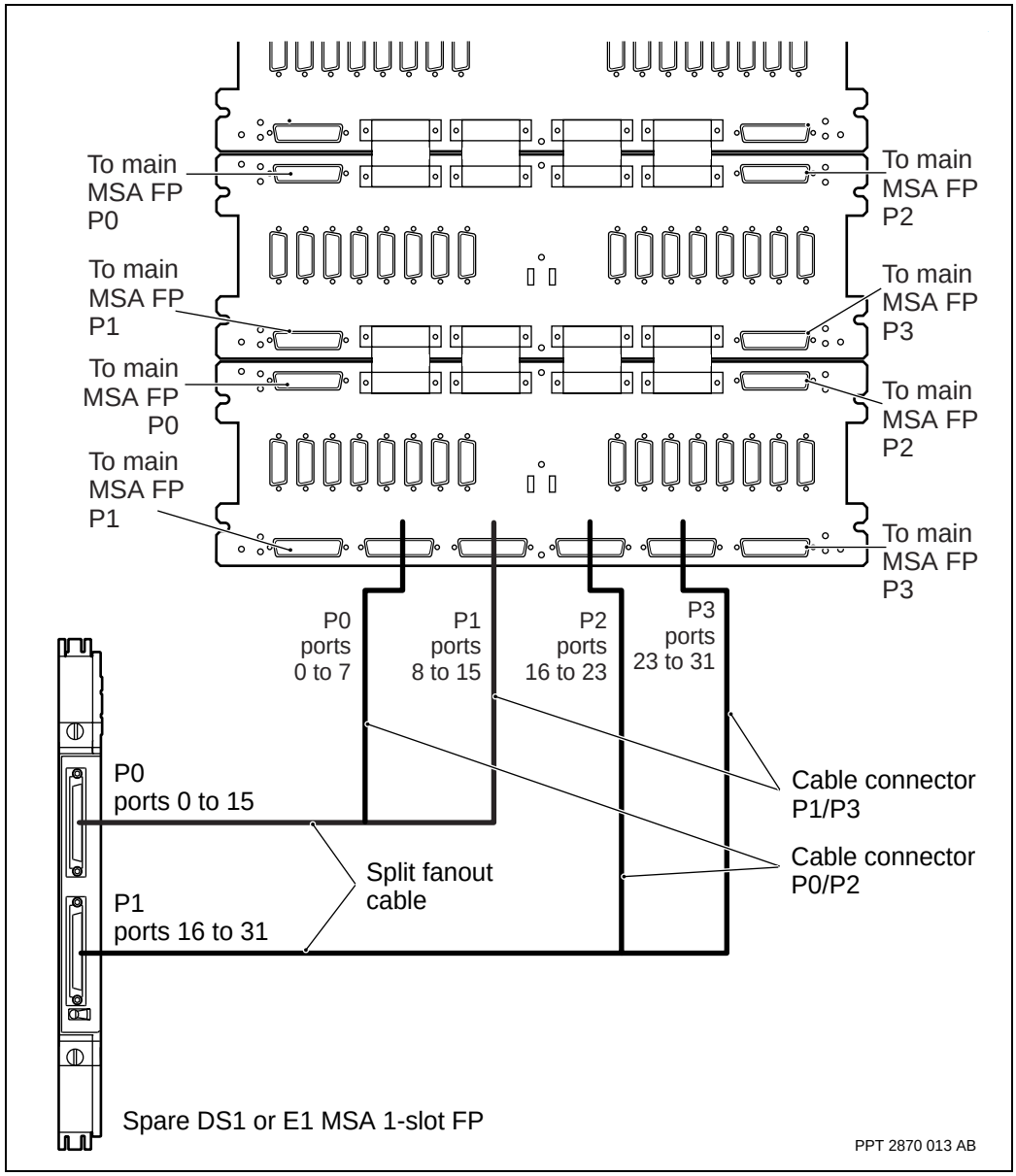


Figure 26
2-port/DB15 sparing panel connections to 32-port DS1 or E1 MSA FPs and CPE

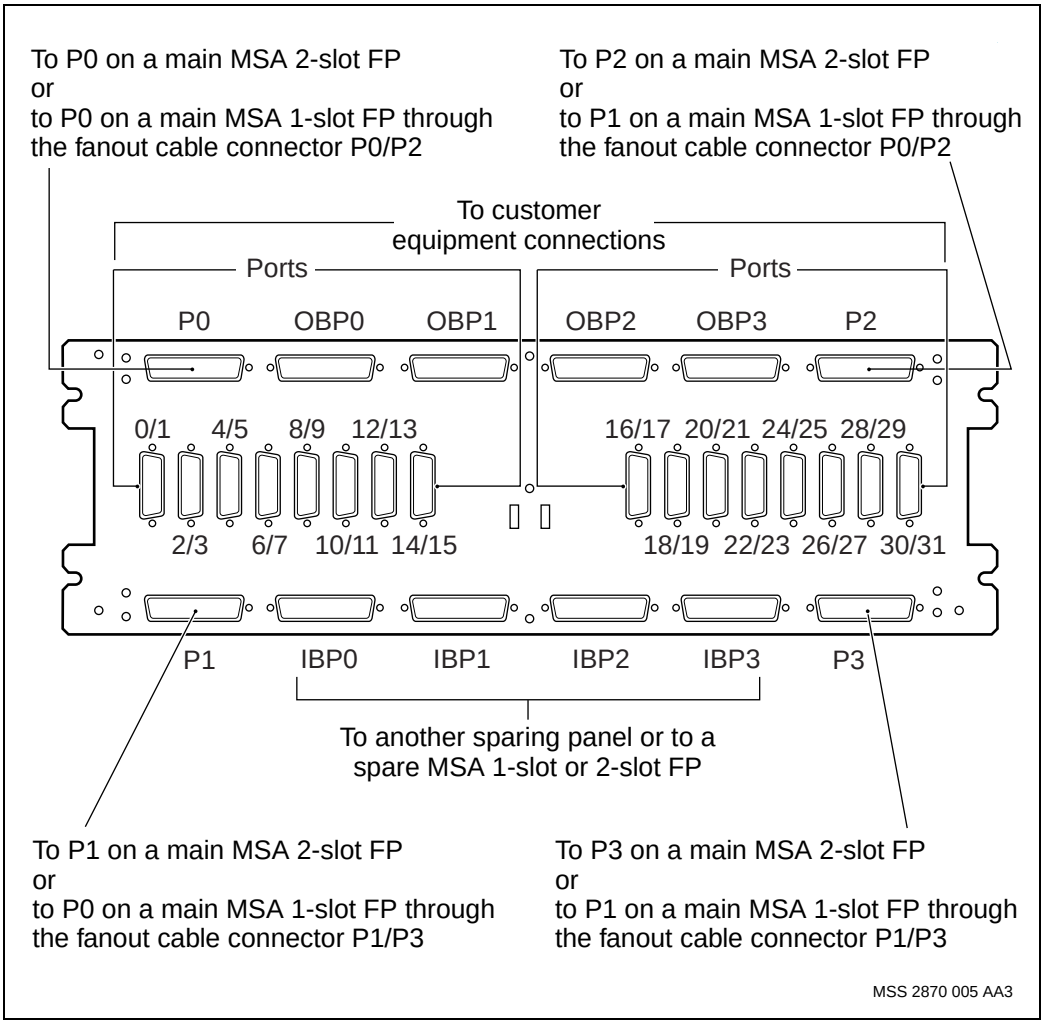


Figure 27
2-port/DB15 sparing panel connections to a main 32-port DS1 or E1 MSA 1-slot FP

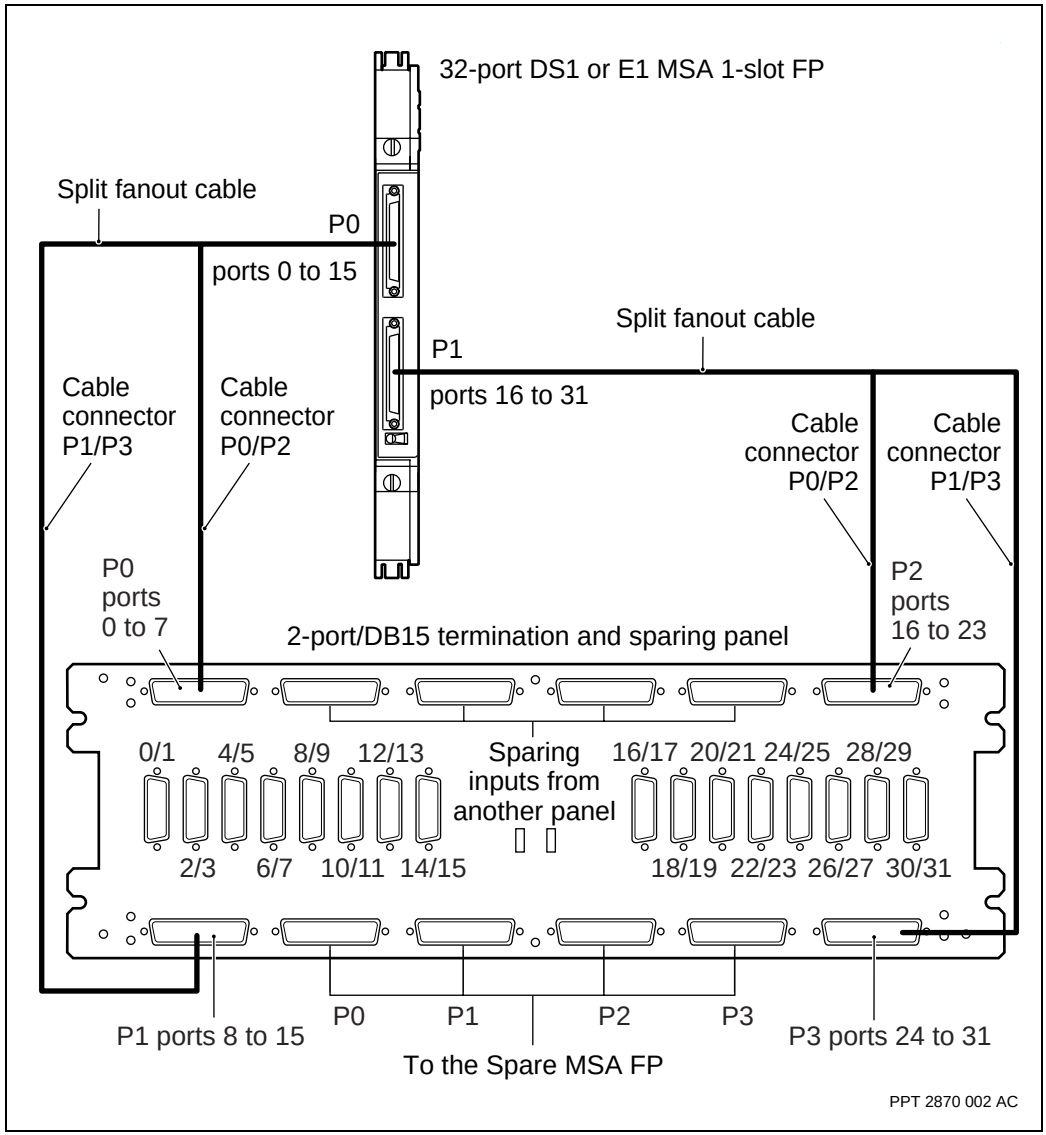


Figure 28
2-port/DB15 sparing panel one-for-n connections to a spare 32-port DS1 or E1 MSA 1-slot FP

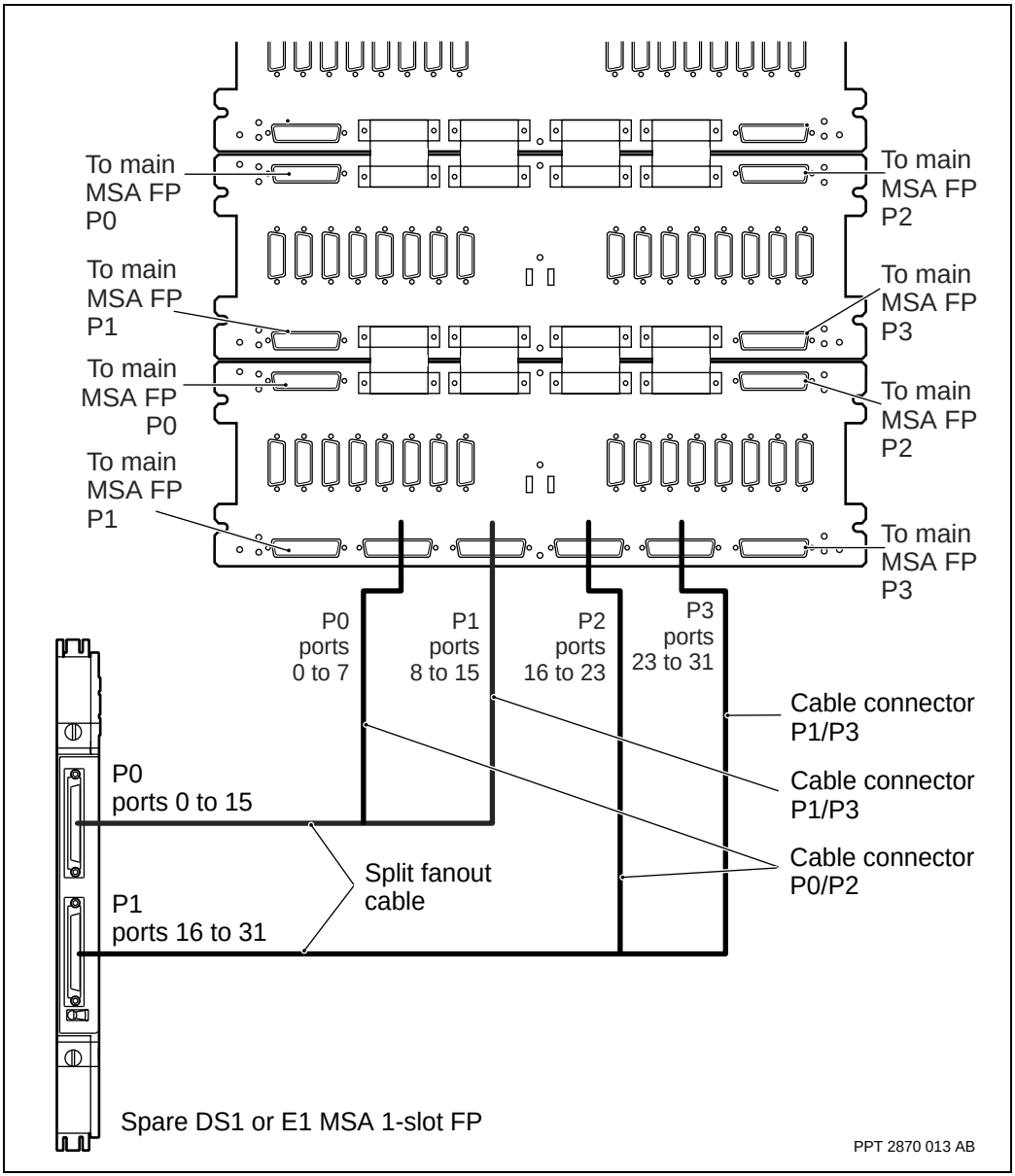


Figure 29
RJ-45 sparing panel connections to 32-port DS1 or E1 MSA FPs and CPE

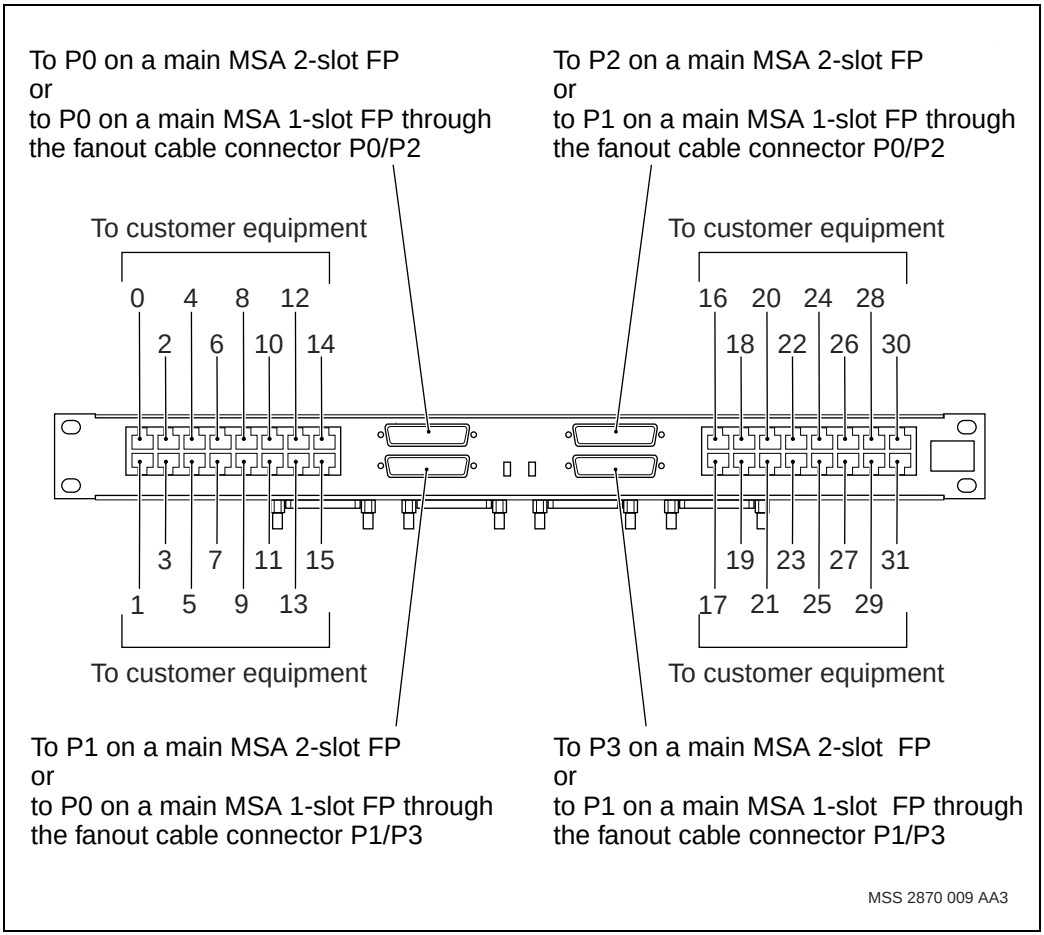


Figure 30
RJ-45 sparing panel one-for-n connections to a spare 32-port DS1 or E1 MSA 1-slot FP

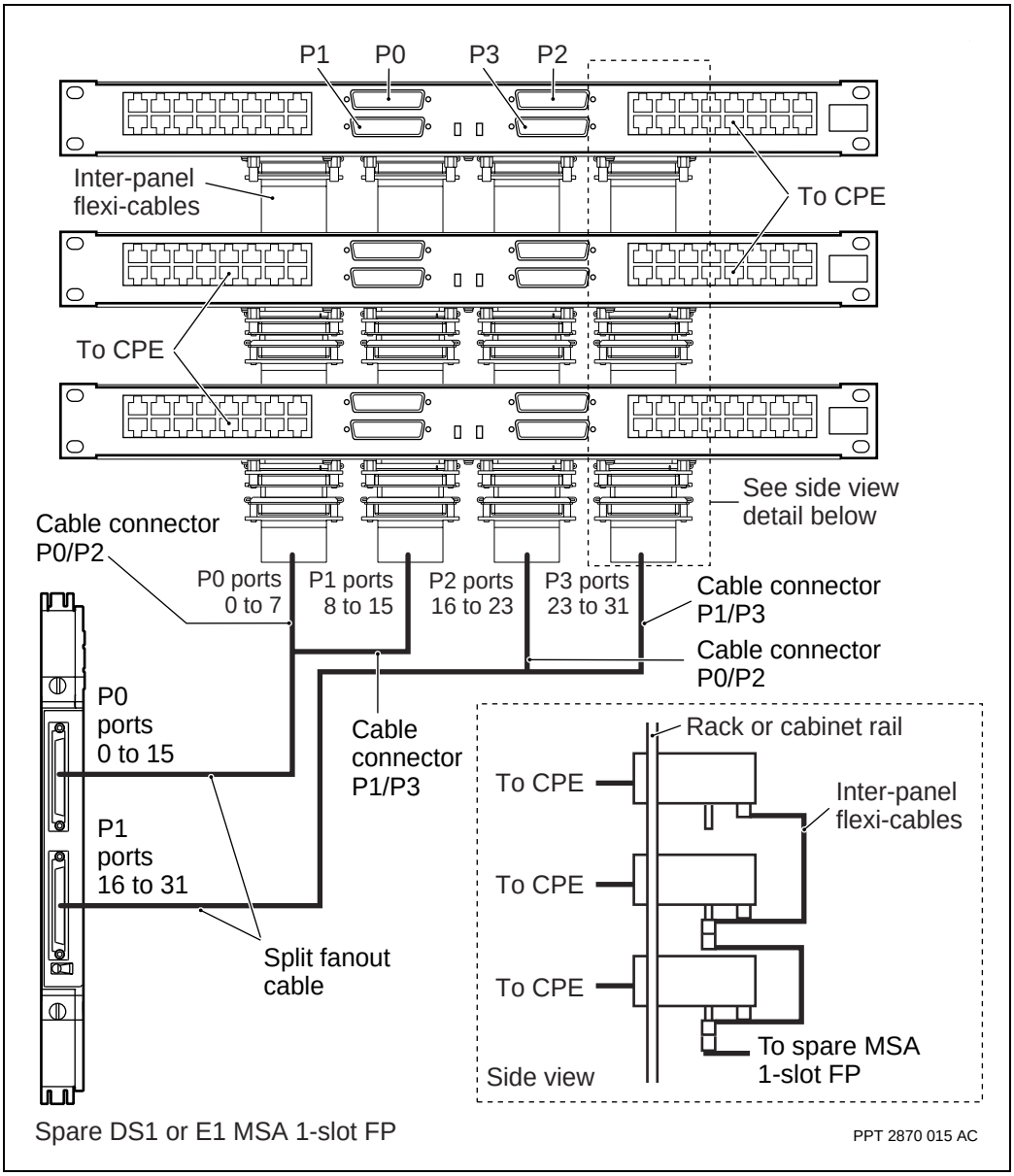


Figure 31
RJ-45 sparing panel connections to a main 32-port DS1 or E1 MSA 1-slot FP

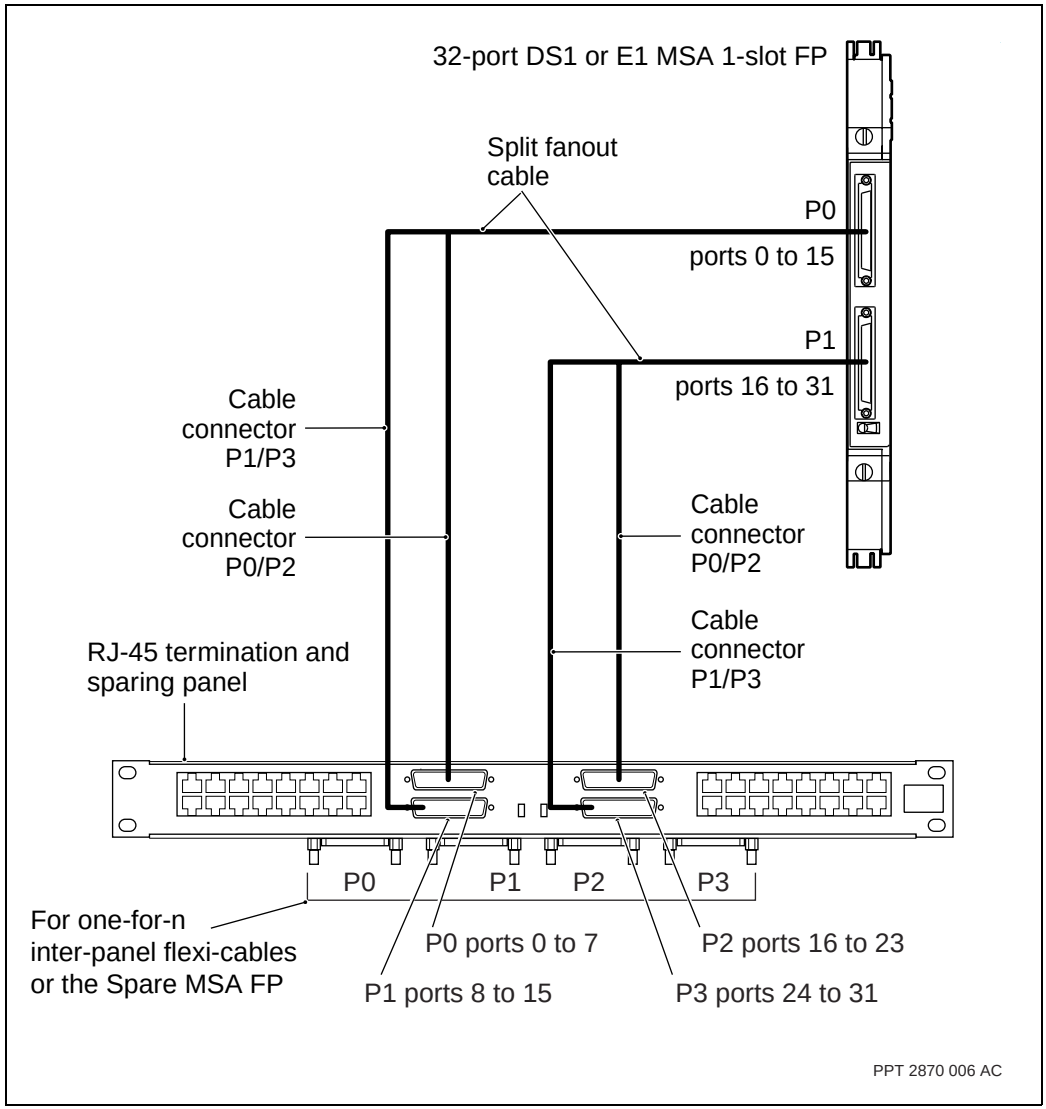


Figure 32
Unbalanced BNC sparing panel connections to E1 MSA FPs and CPE

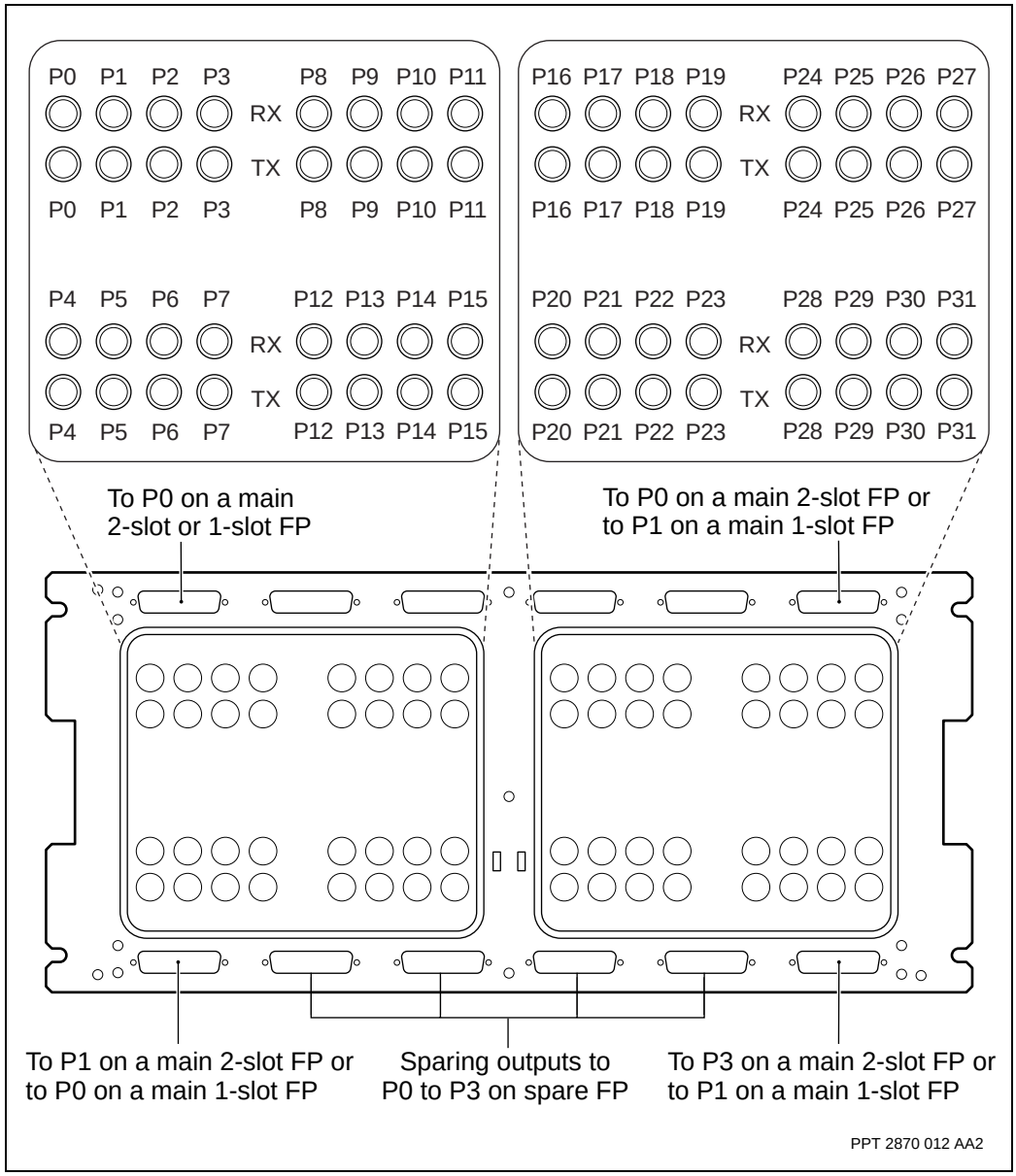


Figure 33
Unbalanced BNC sparing panel connections to a main 32-port E1 MSA 1-slot FP

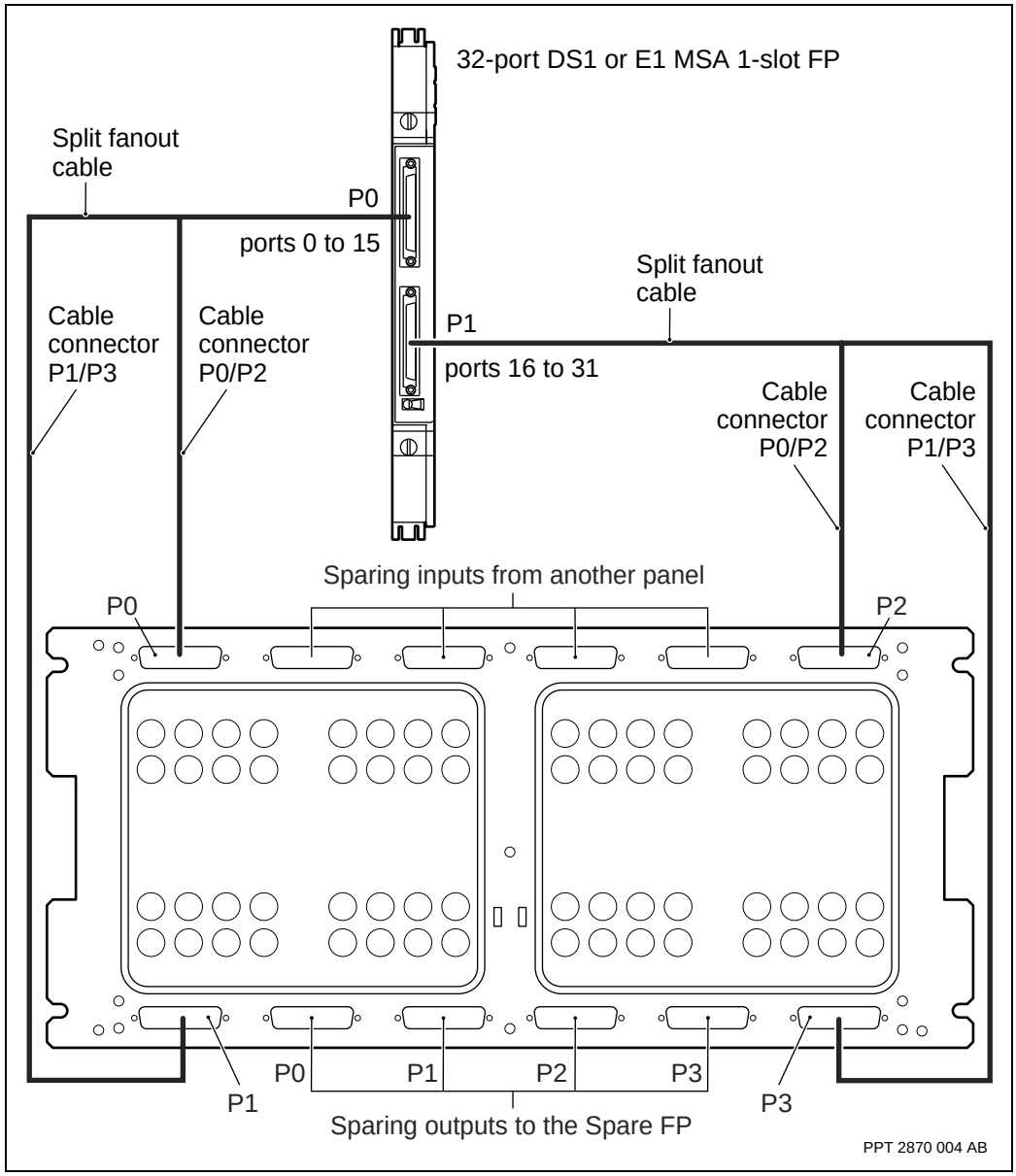


Figure 34
Unbalanced BNC sparing panel one-for-n connections to a spare E1 MSA 1-slot FP

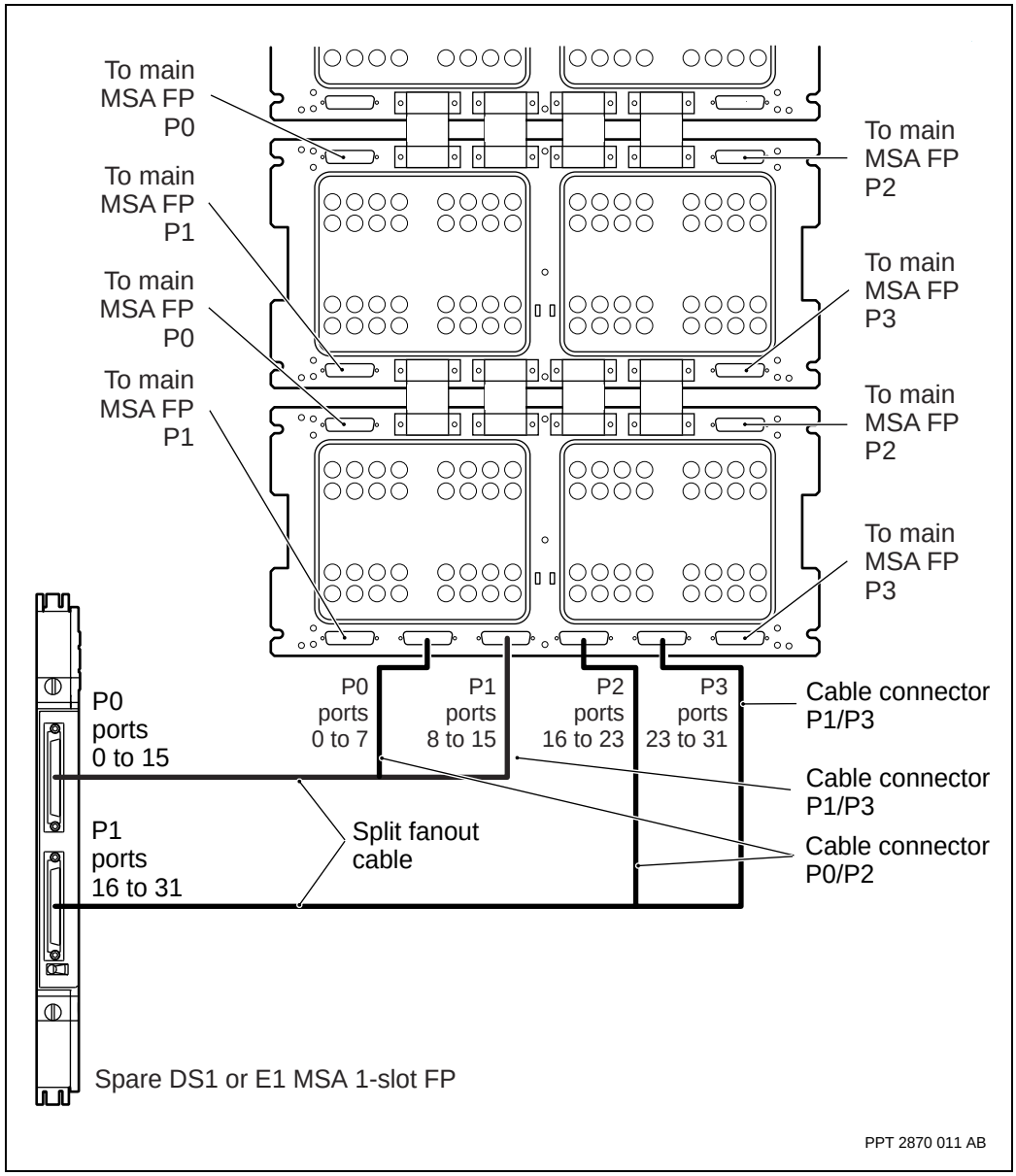
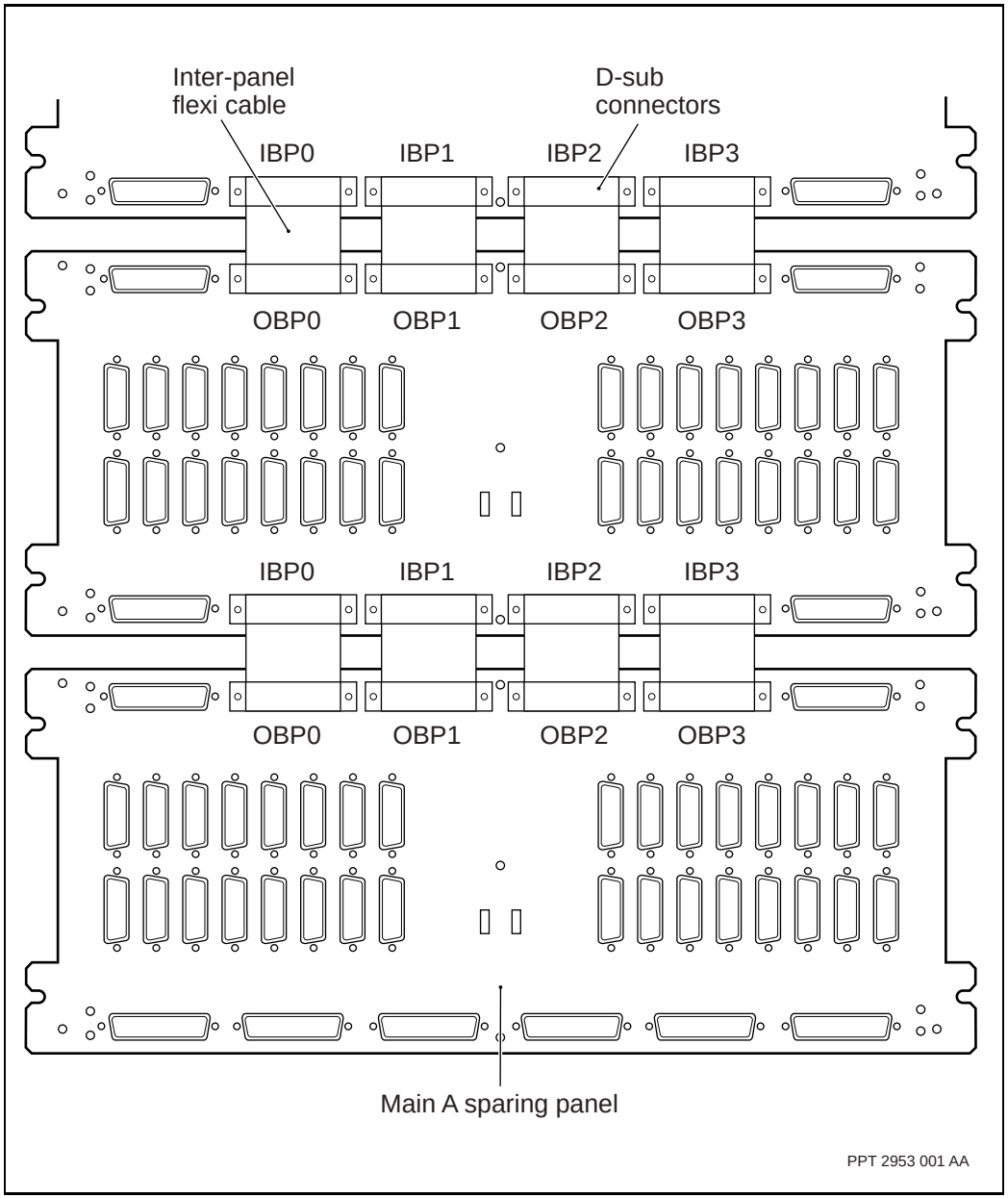


Figure 35
BNC and DB15 sparing panels one-for-n inter-panel flexi-cable connectors



Mapping between DS1 or E1 MSA32 2-slot FP and sparing panel connectors

The table “Mapping between a DS1 or E1 MSA32 2-slot FP and sparing panel connectors” (page 74) summarizes the sparing panel to FP cable connections by faceplate labels.

Table 12
Mapping between a DS1 or E1 MSA32 2-slot FP and sparing panel connectors

Termination panel name	Termination panel faceplate female connector	NTPS03 or NTPS04 female connector	NTPS03 or NTPS04 male connector	MSA32 FP faceplate female connector
1-port/DB15	P0 (user ports 0 to 7)	P0	P0	P0
for DS1 or E1	P1 (user ports 8 to 15)	P1	P1	P1
	P2 (user ports 16 to 23)	P2	P2	P2
	P3 (user ports 24 to 31)	P3	P3	P3
2-port/DB15	P0 (user ports 0 to 7)	P0	P0	P0
for DS1 or E1	P1 (user ports 8 to 15)	P1	P1	P1
	P2 (user ports 16 to 23)	P2	P2	P2
	P3 (user ports 24 to 31)	P3	P3	P3
RJ-45	P0 (user ports 0 to 7)	P0	P0	P0
for DS1 or E1	P1 (user ports 8 to 15)	P1	P1	P1
	P2 (user ports 16 to 23)	P2	P2	P2
	P3 (user ports 24 to 31)	P3	P3	P3
unbalanced BNC	P0 (user ports 0 to 7)	P0	P0	P0
	P1 (user ports 8 to 15)	P1	P1	P1
for E1 only	P2 (user ports 16 to 23)	P2	P2	P2
	P3 (user ports 24 to 31)	P3	P3	P3

DS1 or E1 MSA 2-slot FP cabling to termination or sparing panels

The following figures show the cable connections between a DS1 or E1 MSA 2-slot FP and the various termination and sparing panels.

For the connection of the 1-slot FPs with 2-slot FPs in the same sparing configuration, see “DS1 or E1 MSA 1-slot and 2-slot FPs sharing the same sparing panels” (page 89).

Figure 36
1-port/DB15 sparing panel connections to 32-port DS1 or E1 MSA FPs and CPE

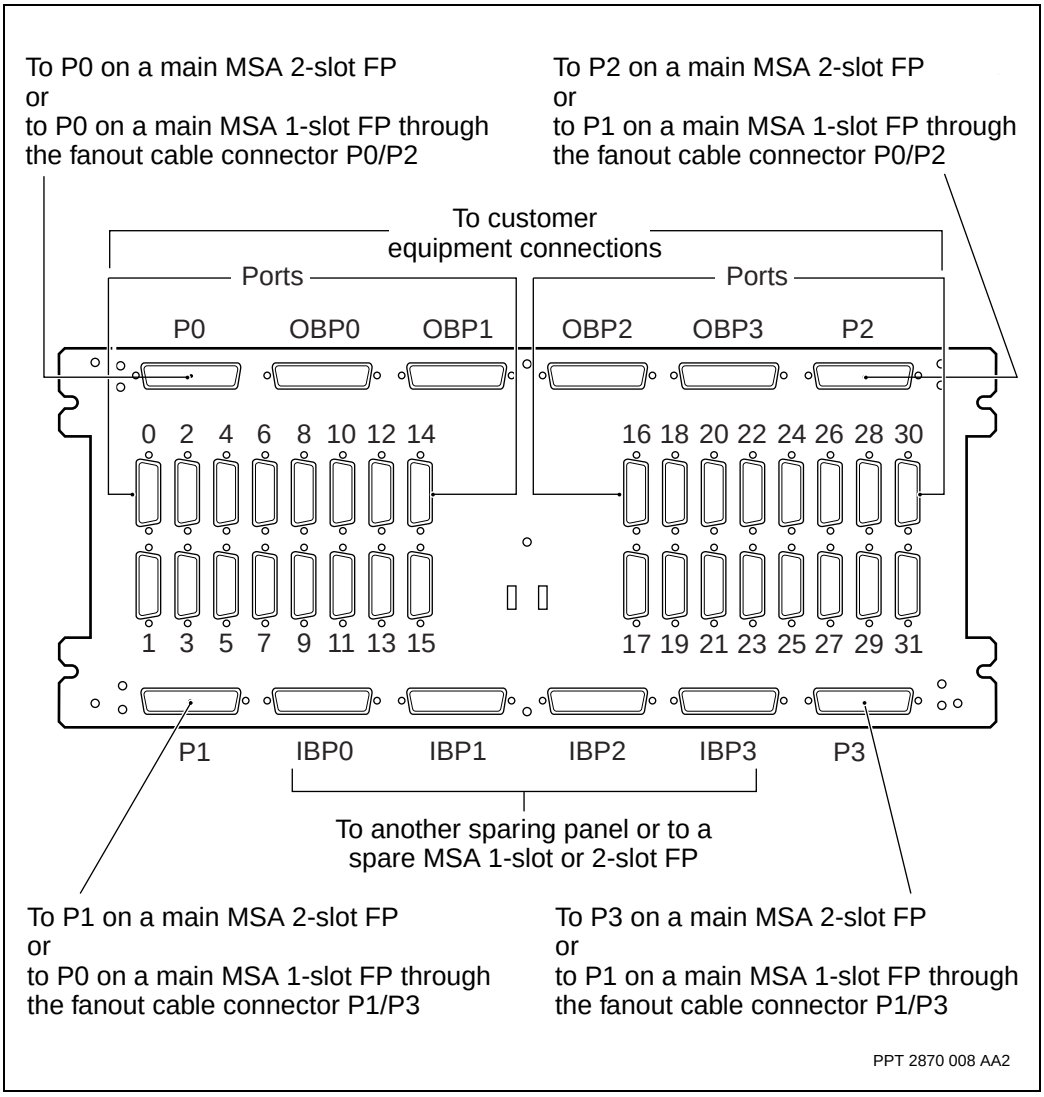


Figure 37
1-port/DB15 sparing panel connections to a main 32-port DS1 or E1 MSA 2-slot FP

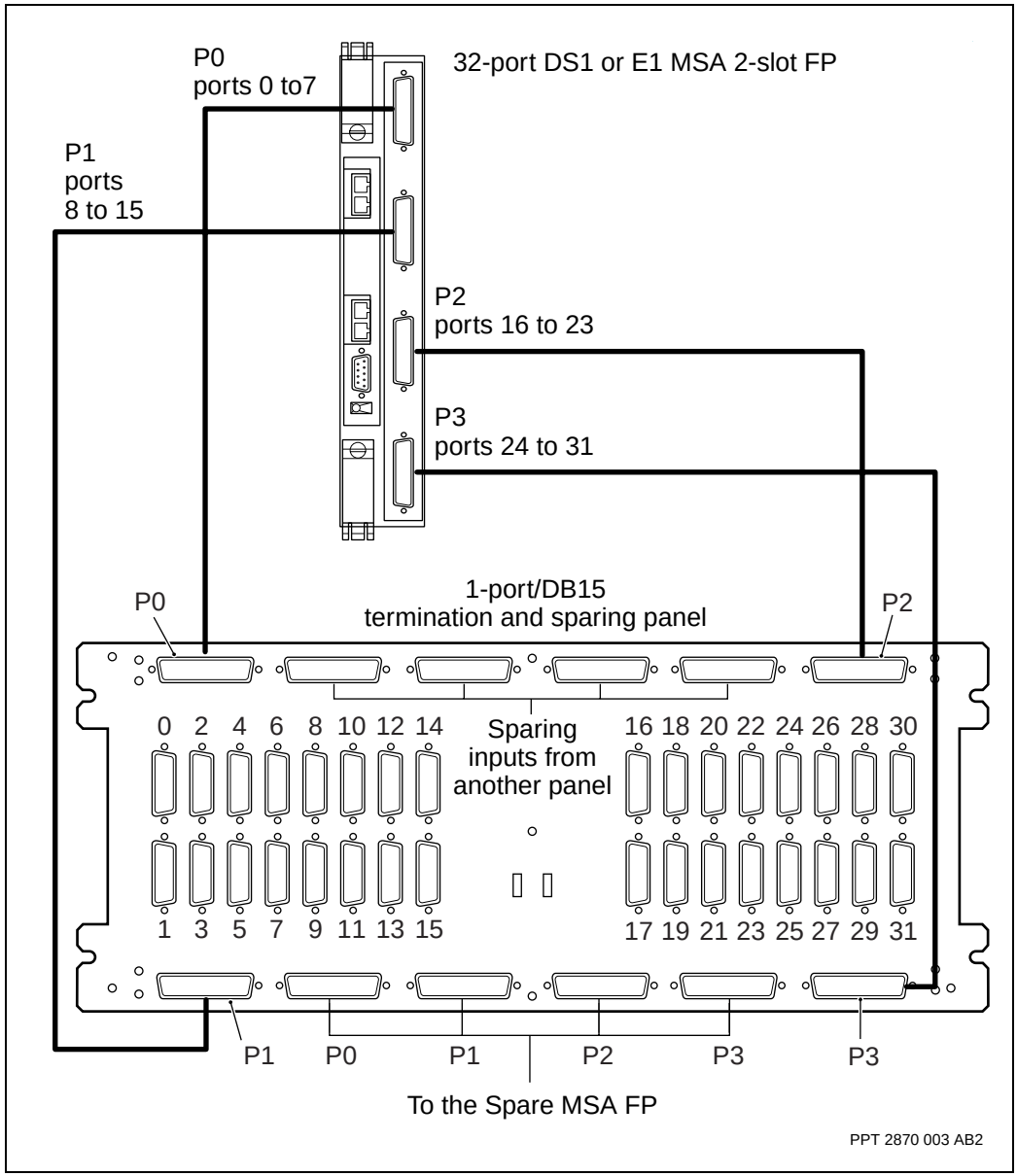


Figure 38
1-port/DB15 sparing panel one-for-n connections to a spare 32-port DS1 or E1 MSA 2-slot FP

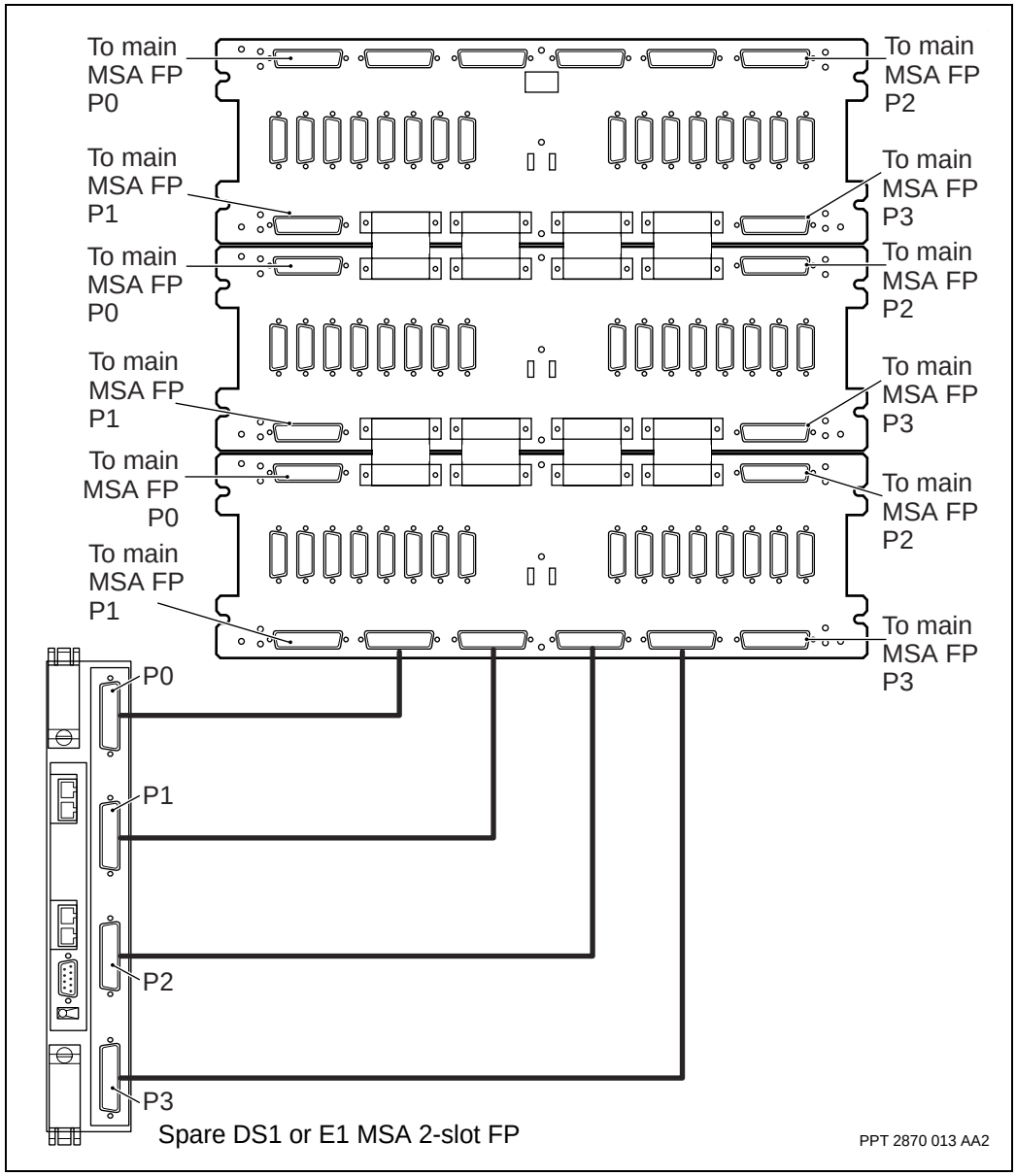


Figure 39
2-port/DB15 sparing panel connections to 32-port DS1 or E1 MSA2 FPs and CPE

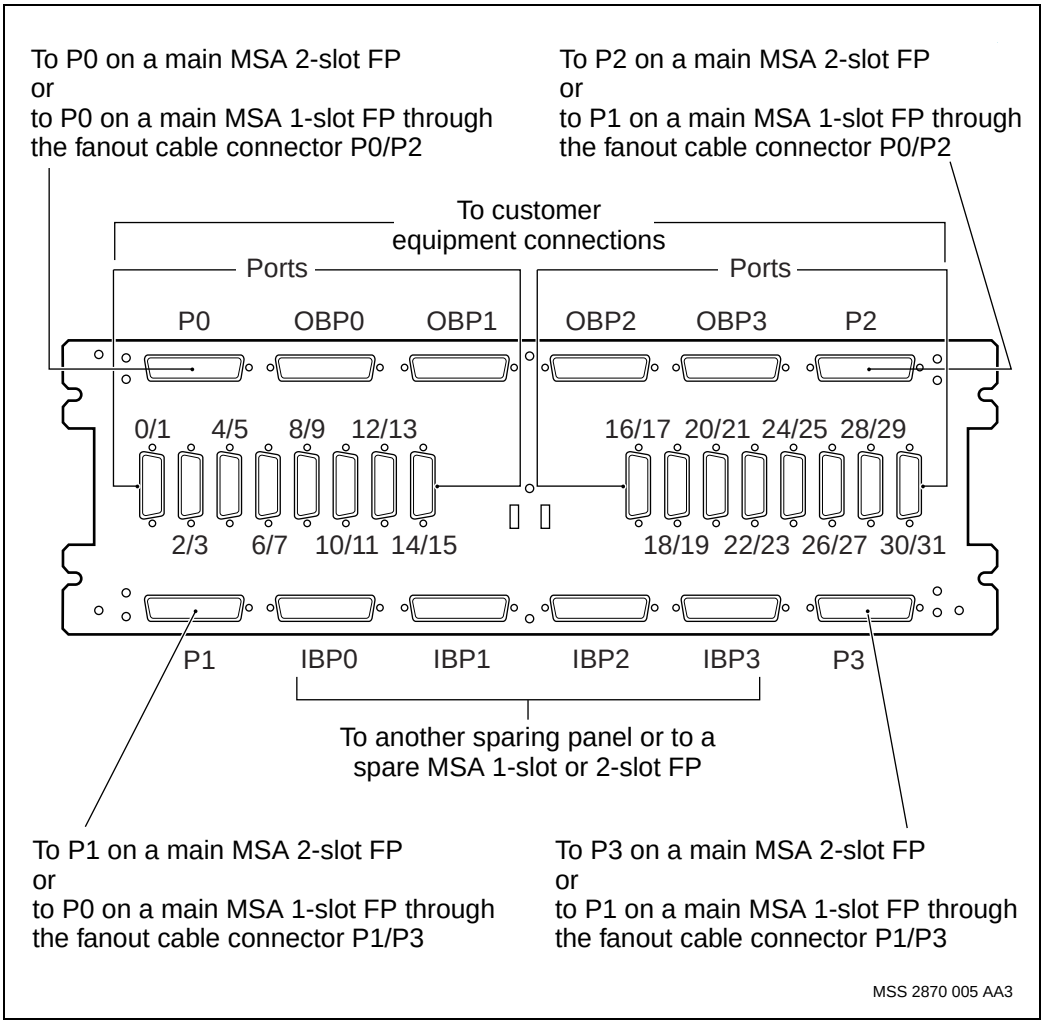


Figure 40
2-port/DB15 sparing panel one-for-n connections to a main 32-port DS1 or E1 MSA 2-slot FP

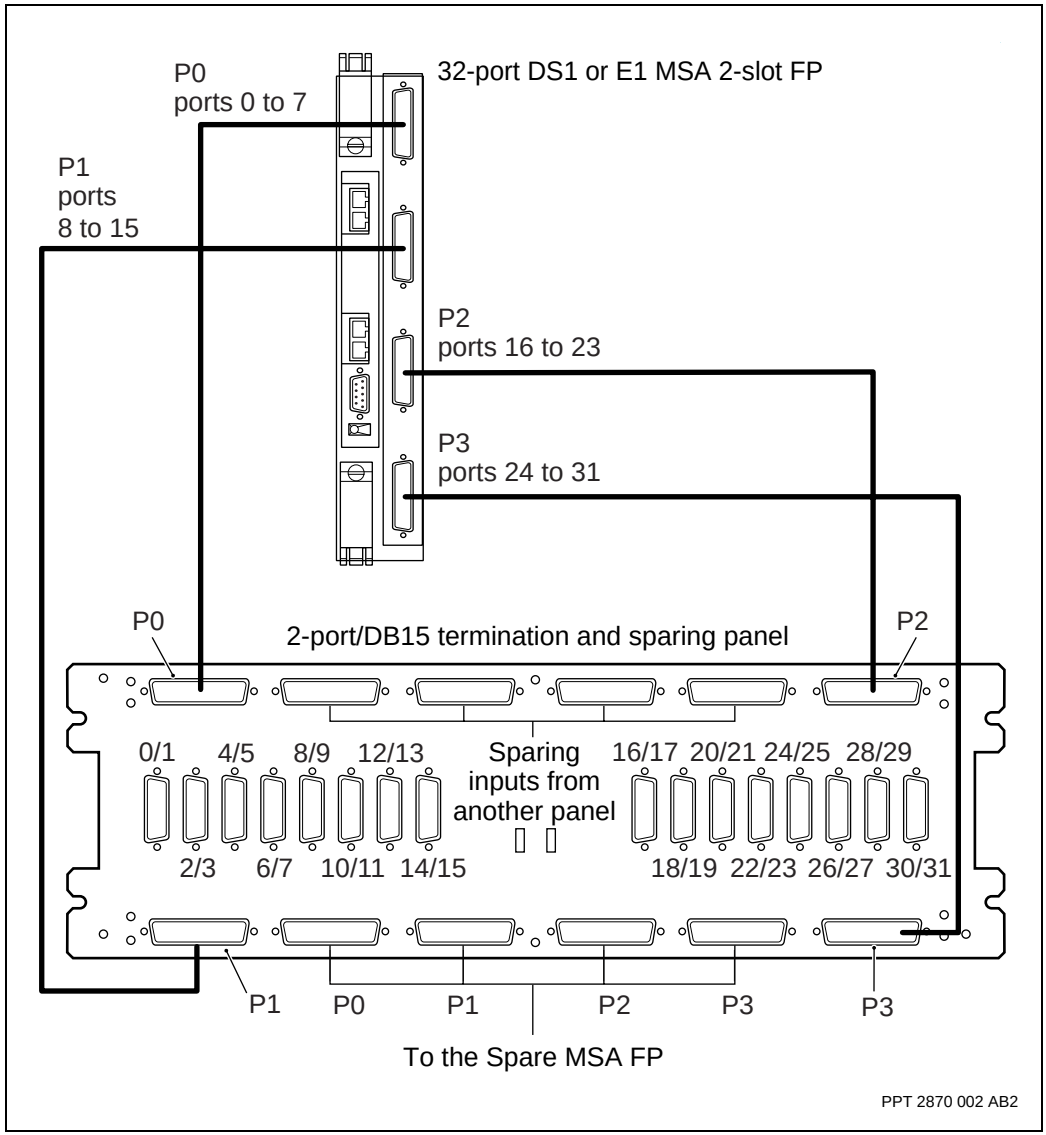


Figure 41
2-port/DB15 sparing panel one-for-n connections to a spare 32-port DS1 or E1 MSA 2-slot FP

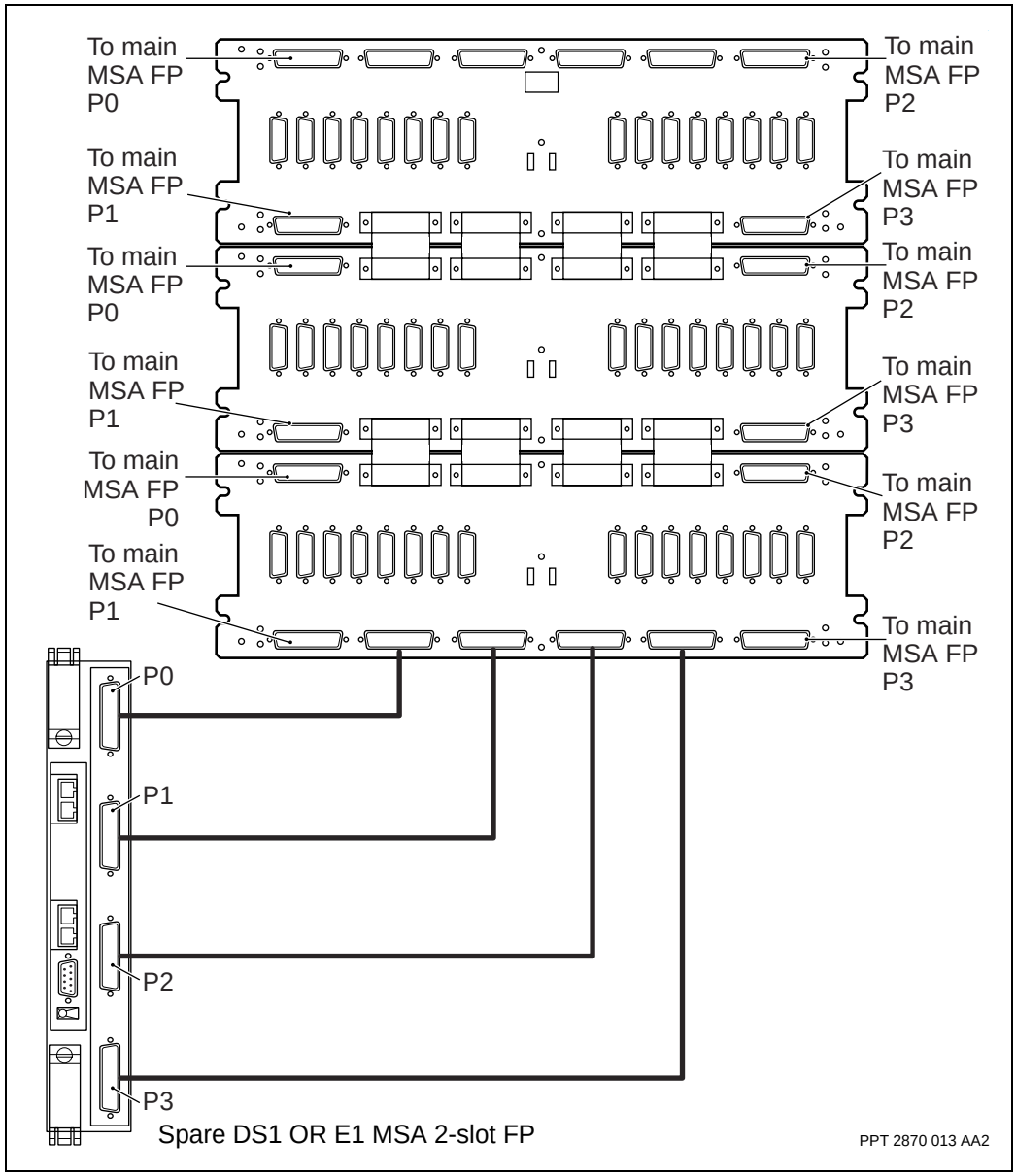


Figure 42
RJ-45 sparing panel connections to 32-port DS1 or E1 MSA FPs and CPE

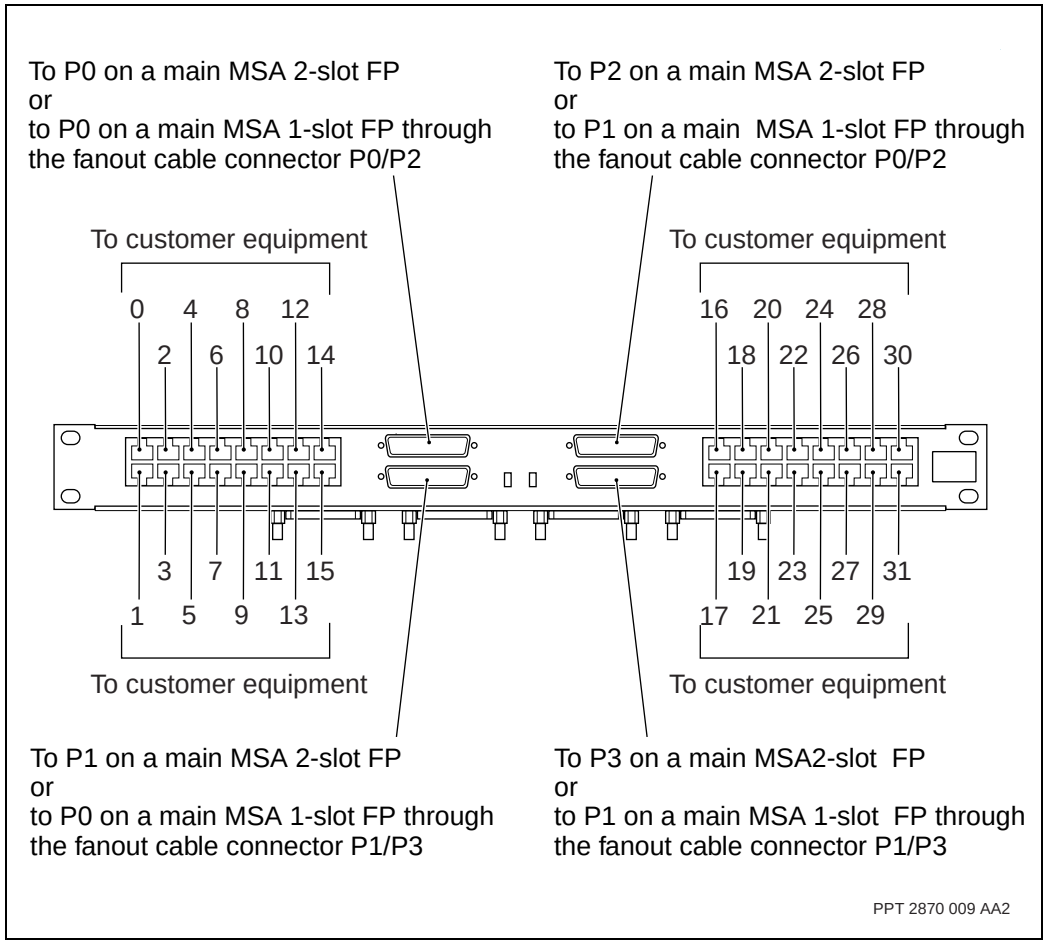


Figure 43
RJ-45 sparing panel one-for-n connections to a spare 32-port DS1 or E1 MSA 2-slot FP

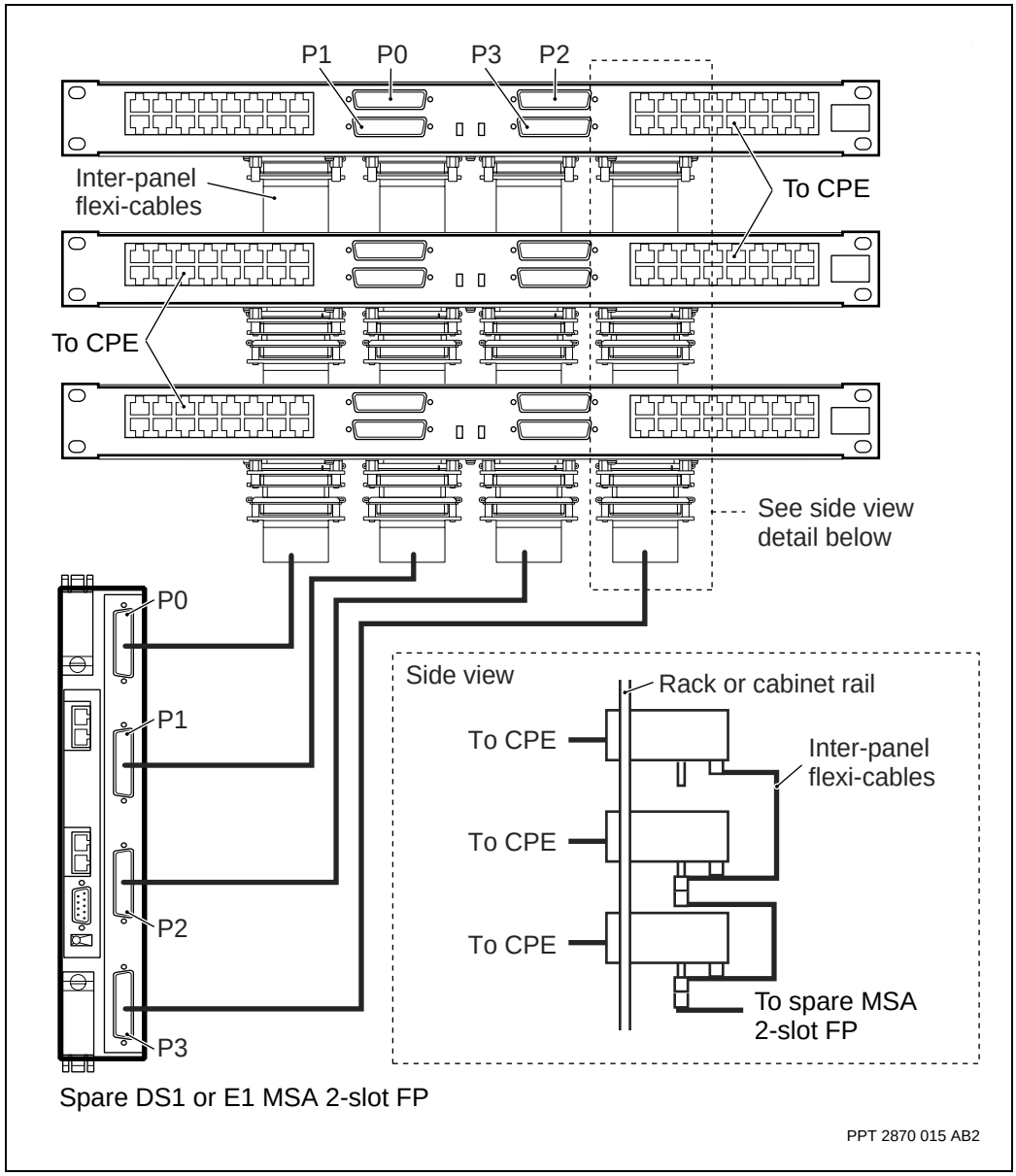


Figure 44
RJ-45 sparing panel connections to a main 32-port DS1 or E1 MSA 2-slot FP

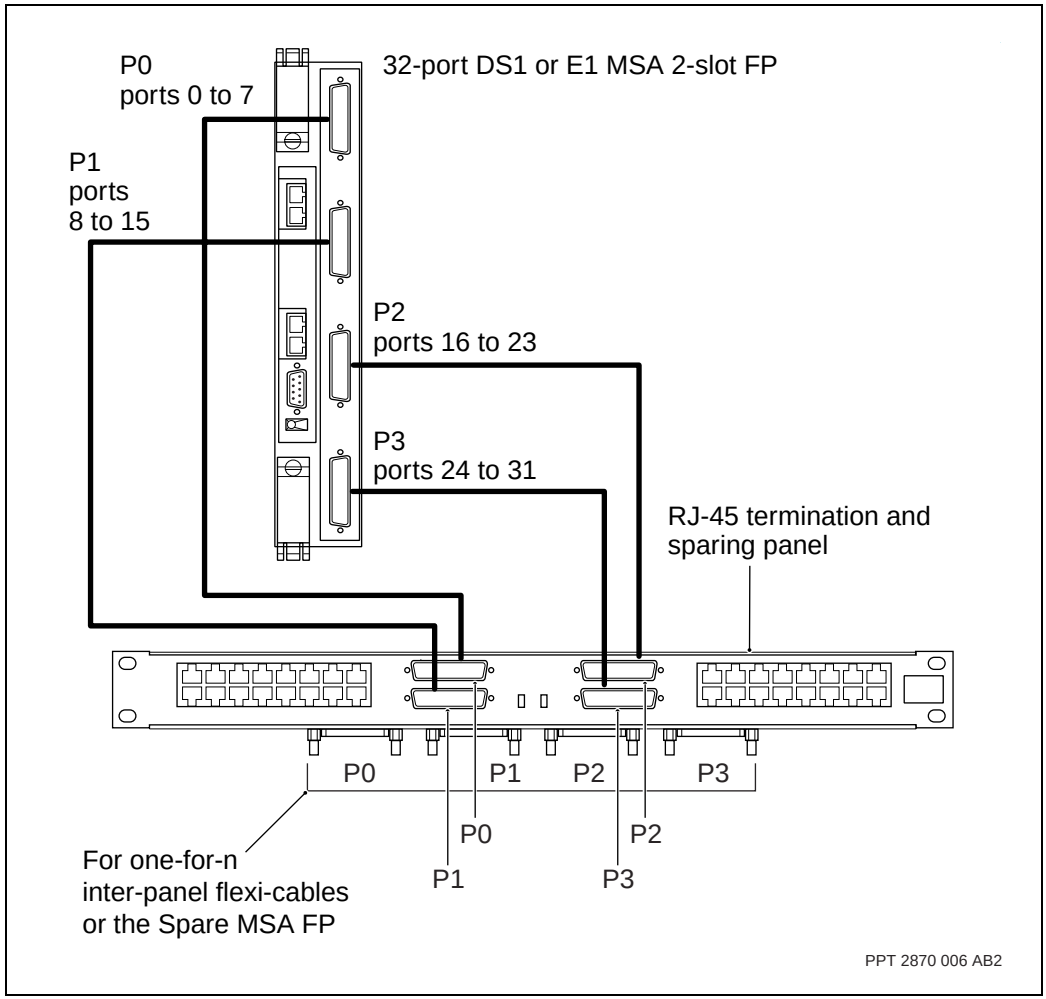


Figure 45
Unbalanced BNC sparing panel connections to 32-port E1 MSA 2-slot FPs and CPE

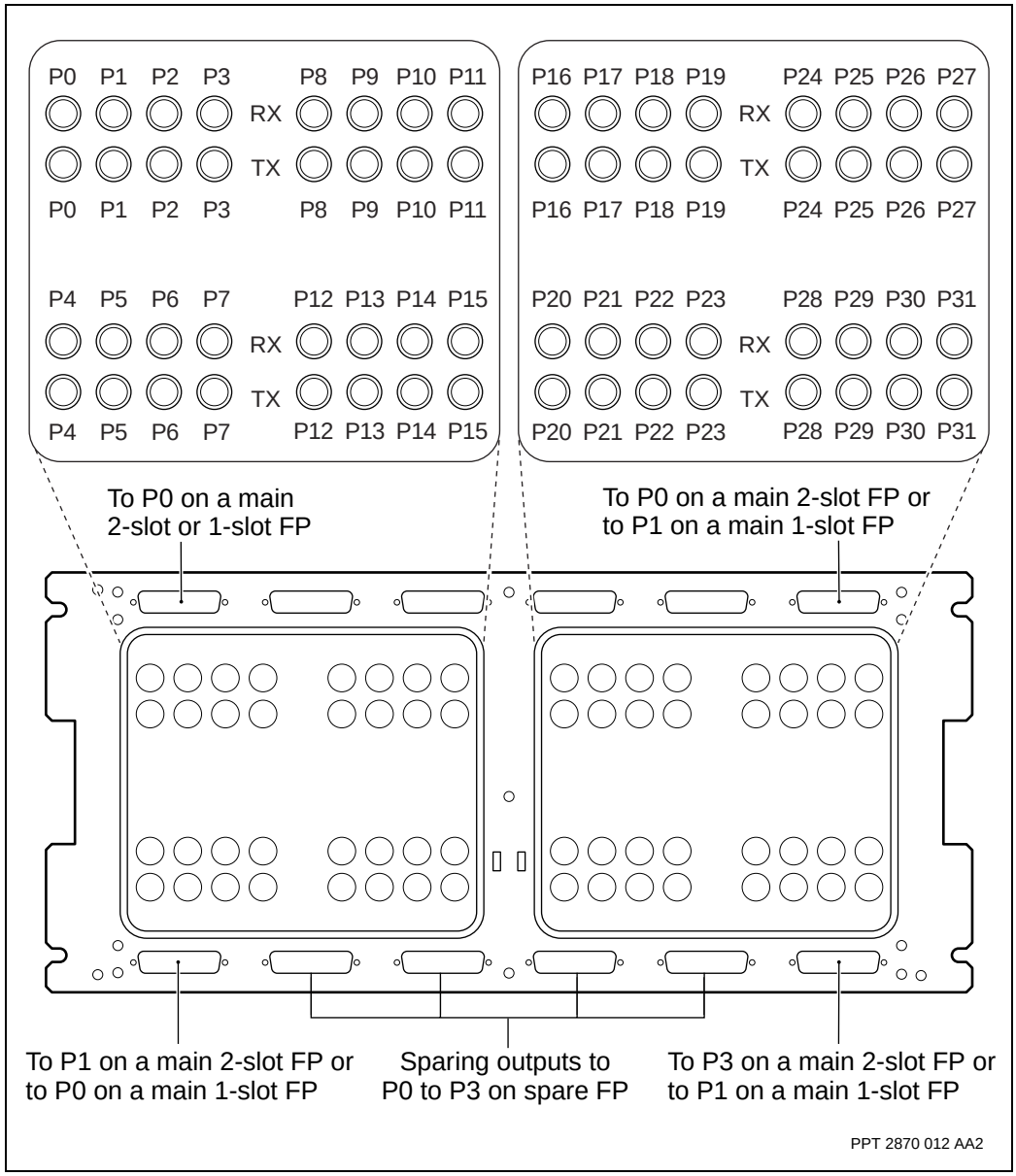


Figure 46
Unbalanced BNC sparing panel connections to a main 32-port E1 MSA 2-slot FP

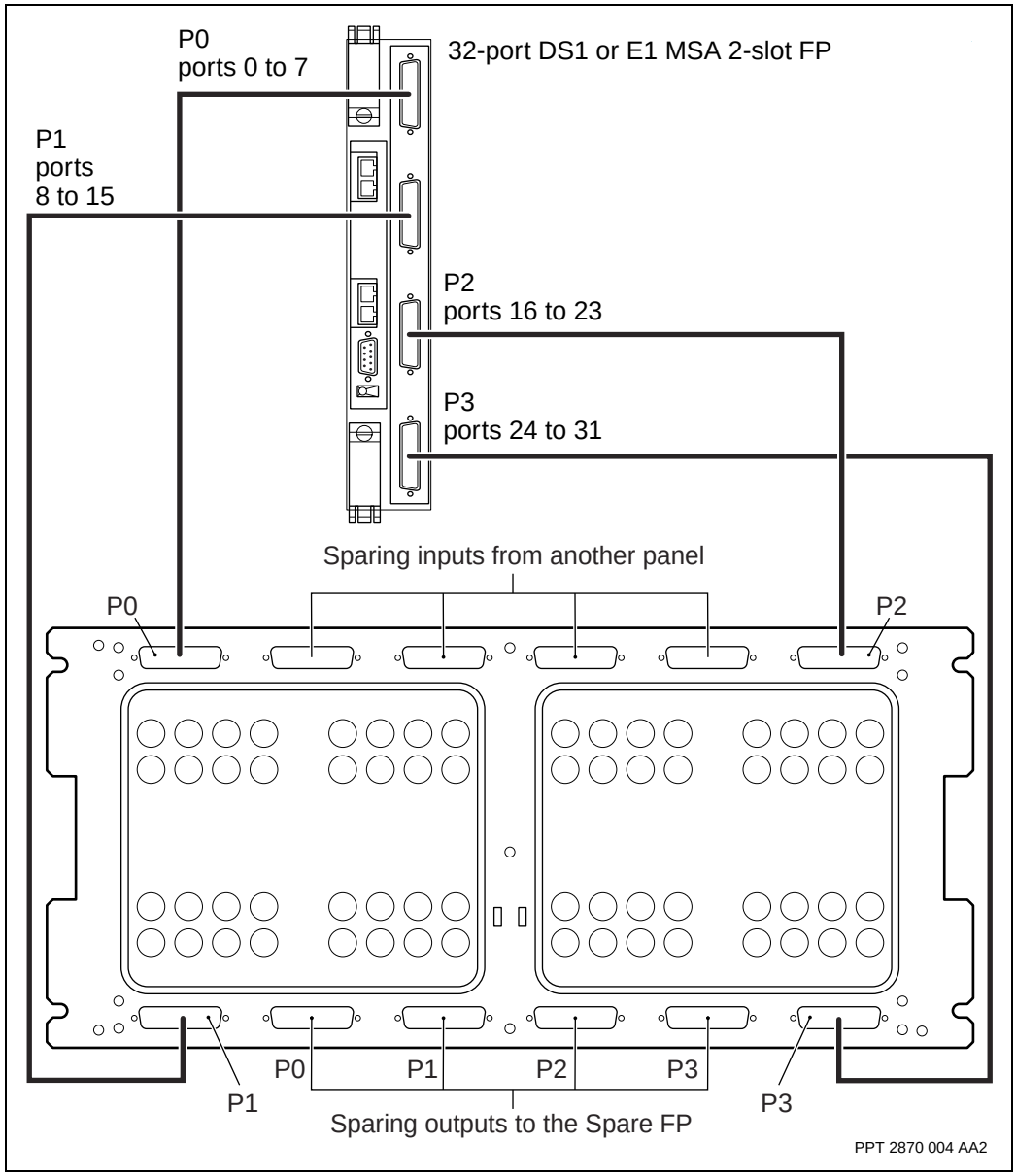


Figure 47
Unbalanced BNC sparing panel one-for-n connections to a spare 32-port E1 MSA 2-slot FP

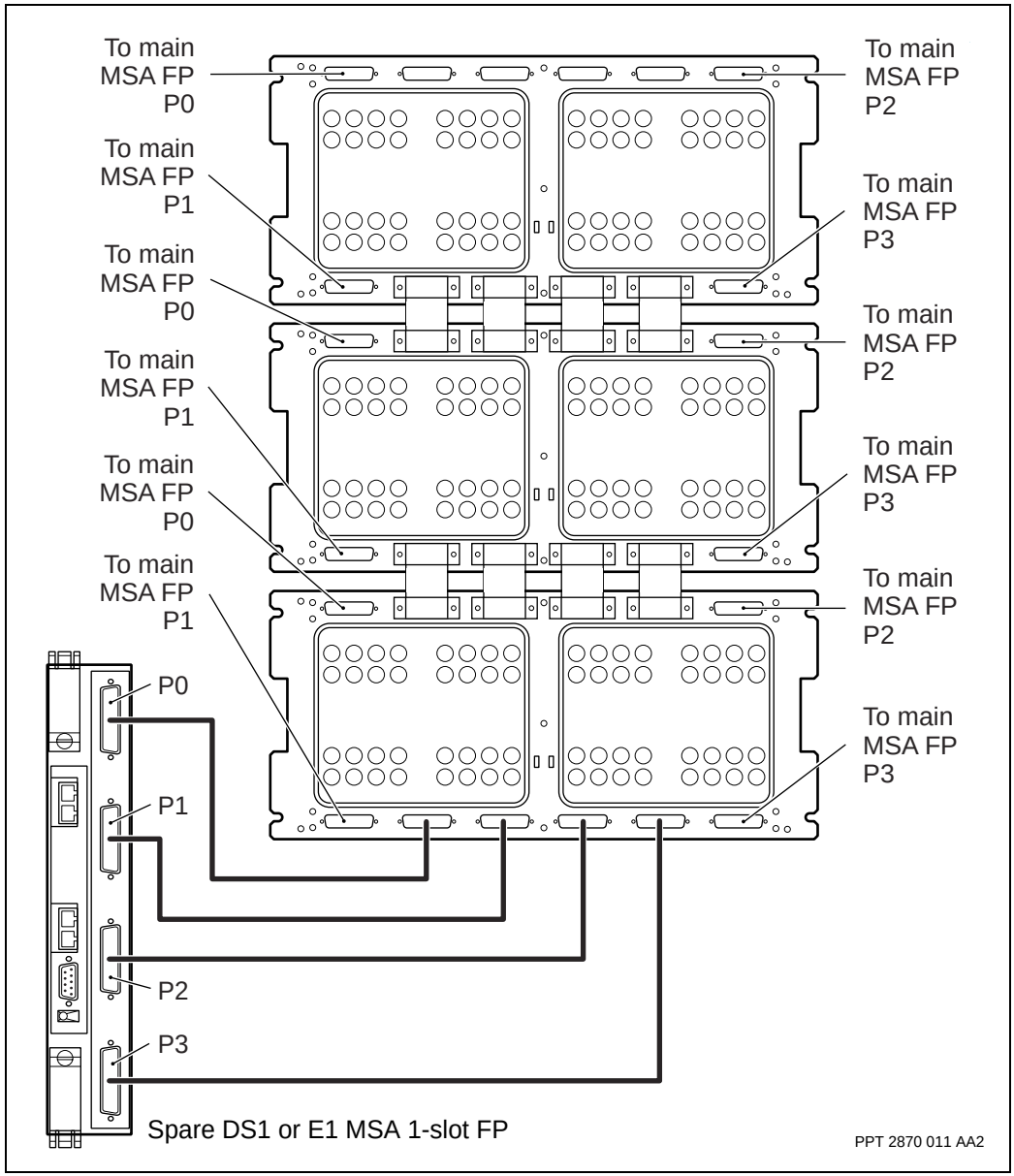
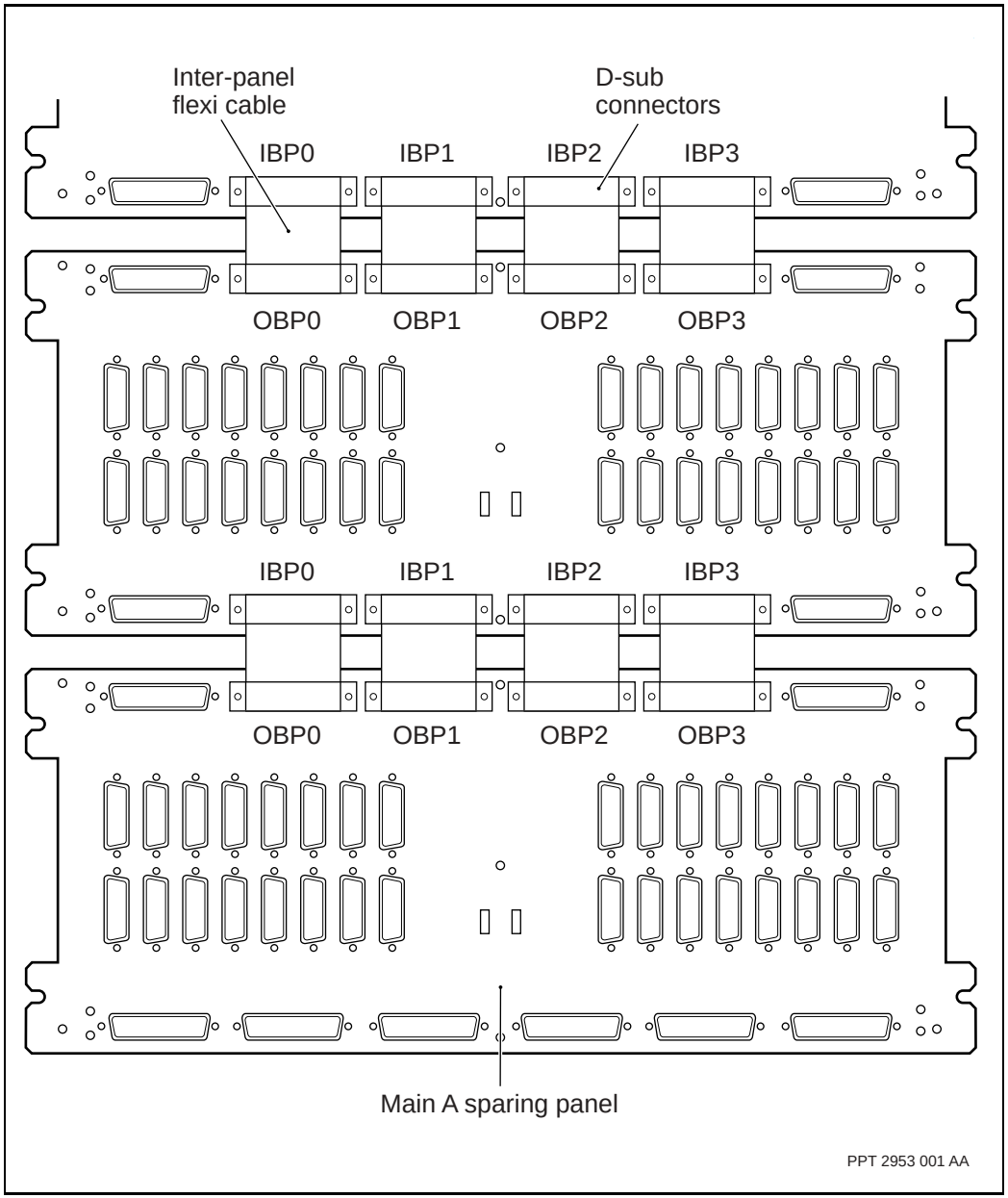


Figure 48
BNC and DB15 sparing panels one-for-n inter-panel flexi-cable connectors



DS1 or E1 MSA 1-slot and 2-slot FPs sharing the same sparing panels

A 32-port DS1 MSA 1-slot FP can spare one or more of the equivalent 2-slot FPs, and vice versa. A 32-port E1 MSA 1-slot FP can spare one or more of the equivalent 2-slot FPs, and vice versa.The following figures show two exemplary cable connection configurations from sparing panels to one of each version of the MSA 32-port FPs.

Figure 49
2-port/DB15 sparing panel connections to a main DS1 or E1 2-slot FP and a spare 1-slot FP

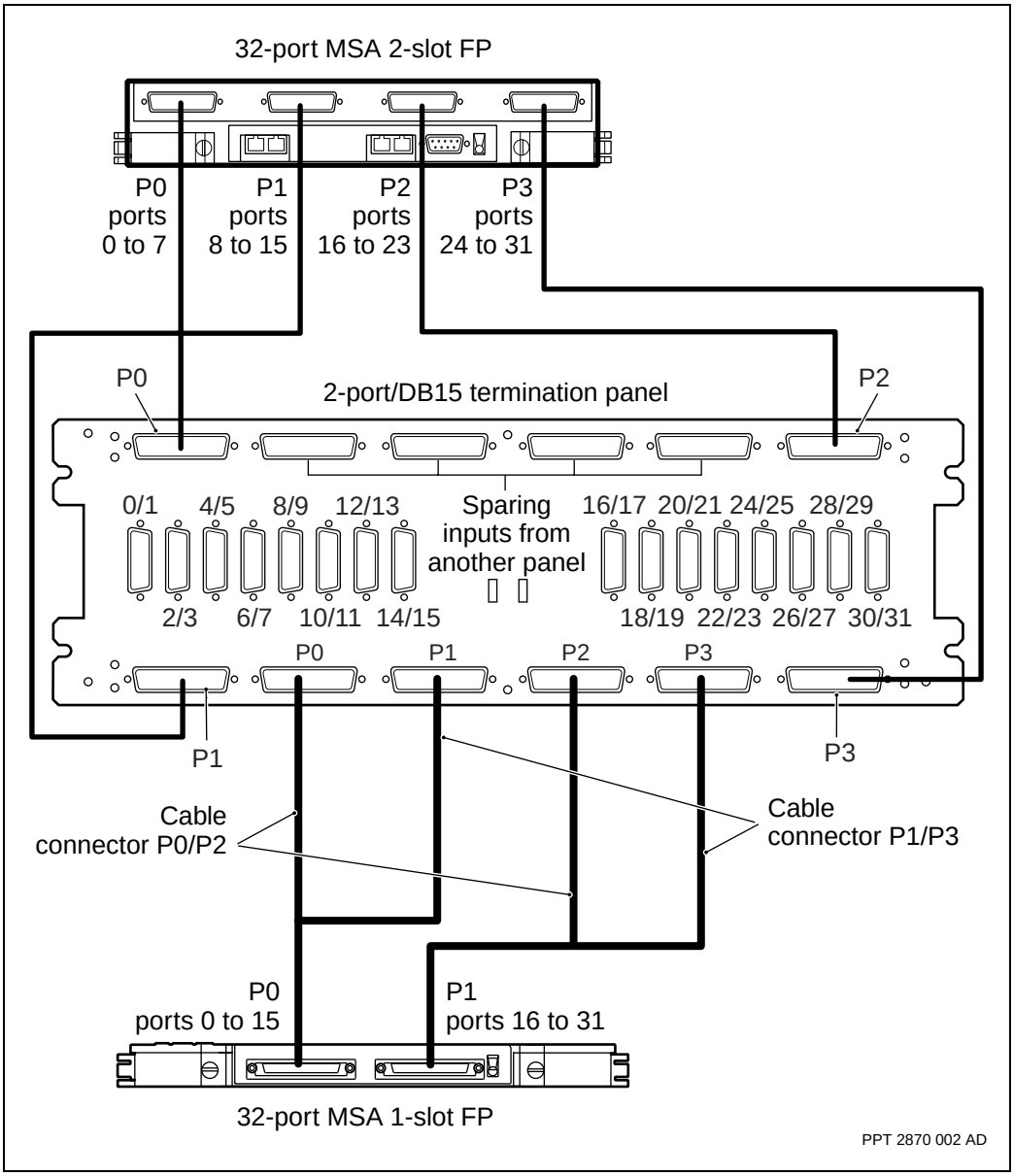
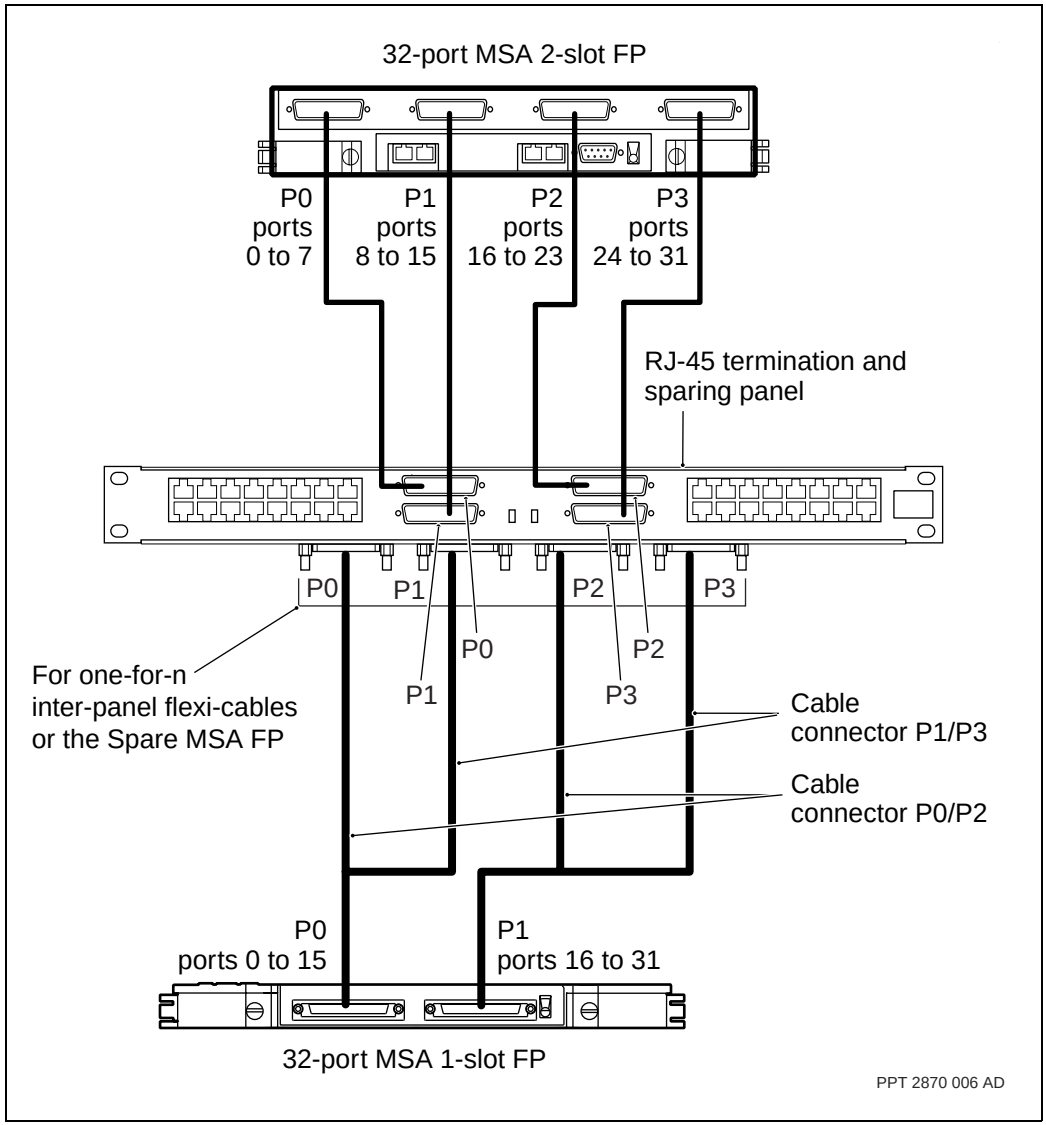


Figure 50
RJ-45 sparing panel connections to a main DS1 or E1 2-slot FP and a spare 1-slot FP



DS1C FP cable connections

CAUTION
Service interruption
Sparing requires all ports on the spare FP be connected to the termination panel sparing connectors, whether they are provisioned or not. Failure to do so will result in the termination panel dropping all ports on the spare FP.

Only the C1 connector on the FP supplies power for the termination panel. You must install a cable from C1 on either the main or spare FP to the termination panel, even if the ports associated with connector C1 are not in use.

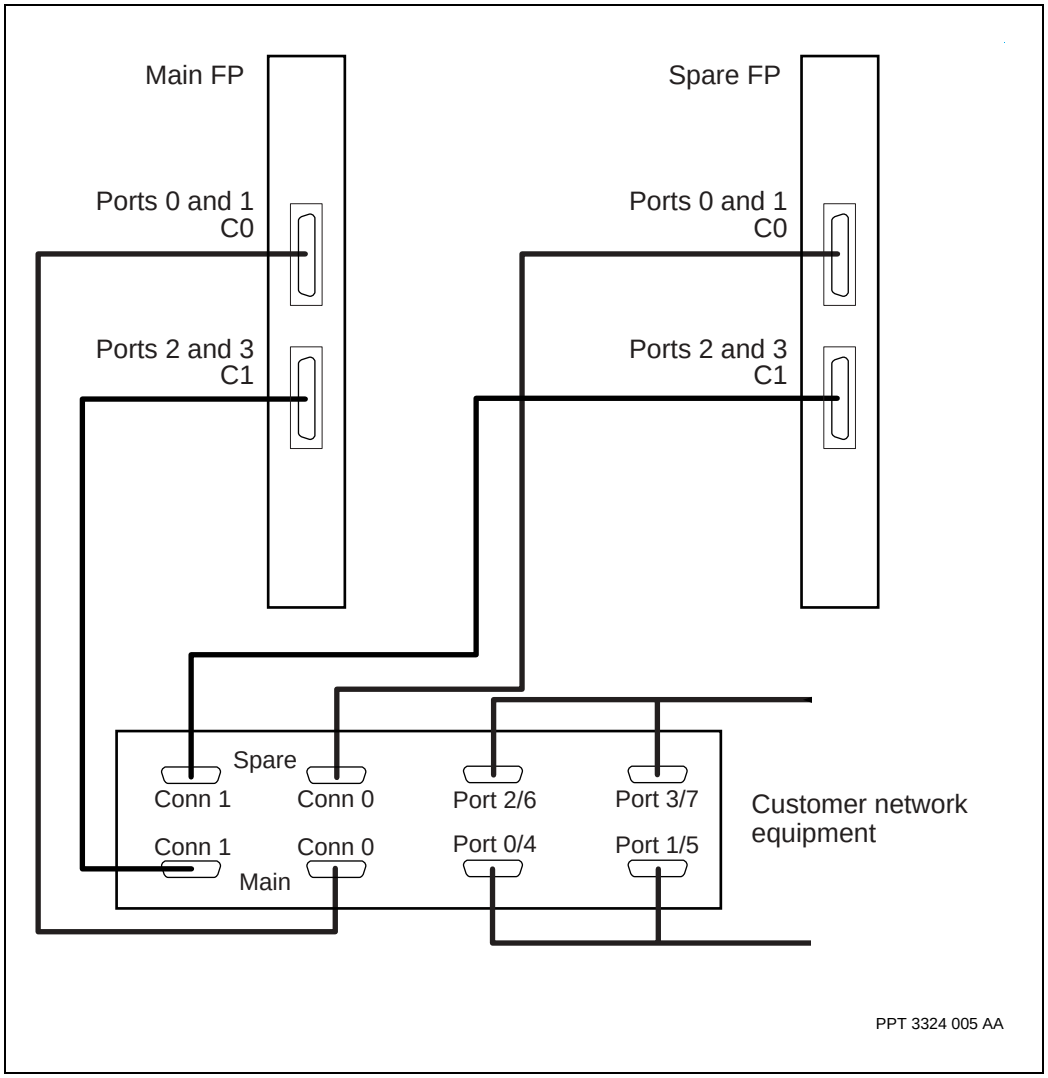
Mapping between a DS1C FP and termination panel connectors

This table summarizes the mapping between the connectors for the DS1C FP and its termination panel.

Table 13
Mapping between a DS1C FP and termination panel connectors

Faceplate connector	Termination panel port number
0	0 and 1
1	2 and 3

Figure 51
Connections for a DS1C FP



DS3 ATM FP cable connections

CAUTION
Service interruption
Sparing requires all ports on the spare FP be connected to the termination panel sparing connectors, whether they are provisioned or not. Failure to do so will result in the termination panel dropping all ports on the spare FP.

The three ports on the right side of the DS3 termination panel are used for monitoring transmit output. This allows you to connect third-party equipment for testing and monitoring purposes.

Figure 52
Connections for DS3 ATM FP

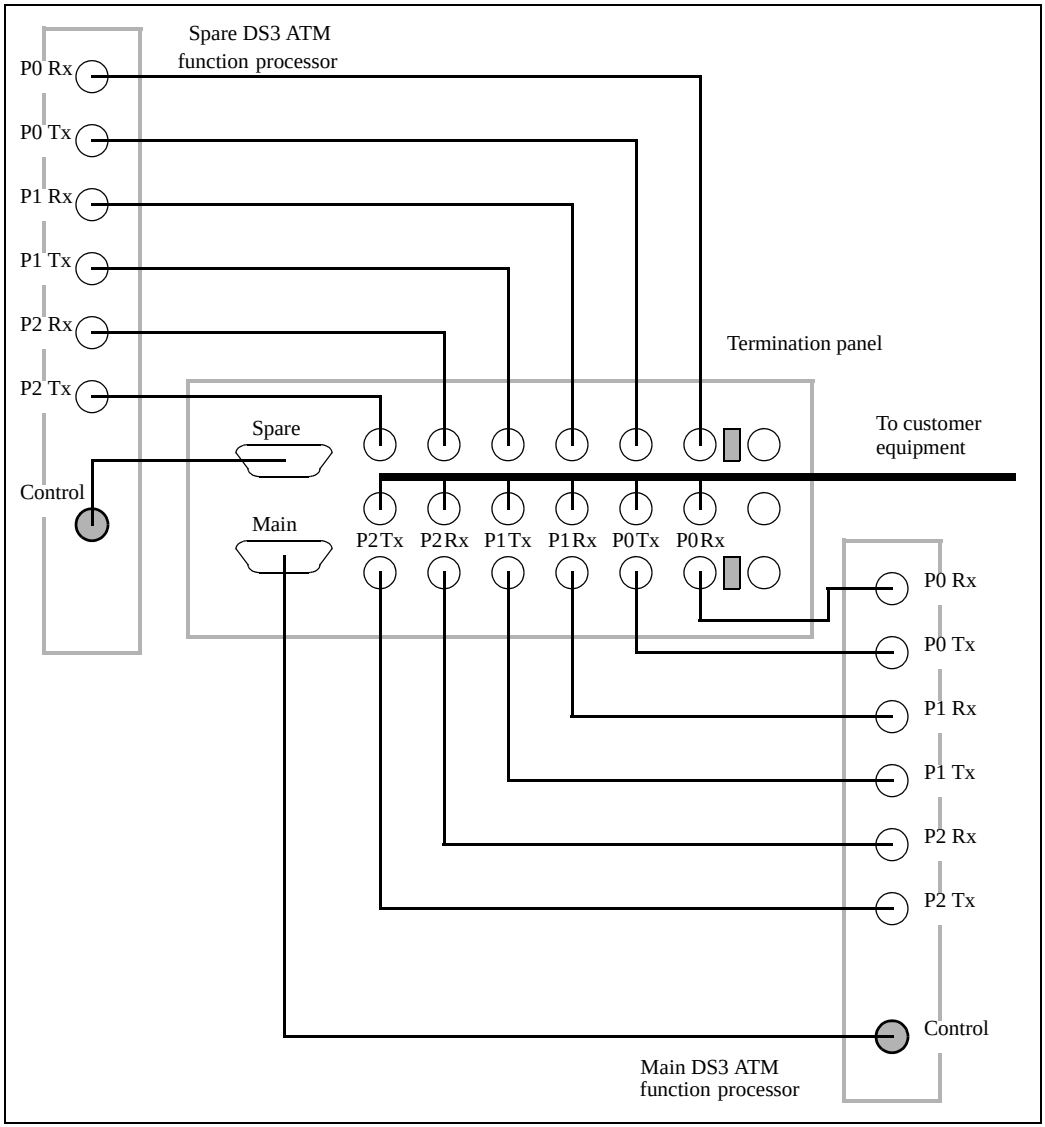
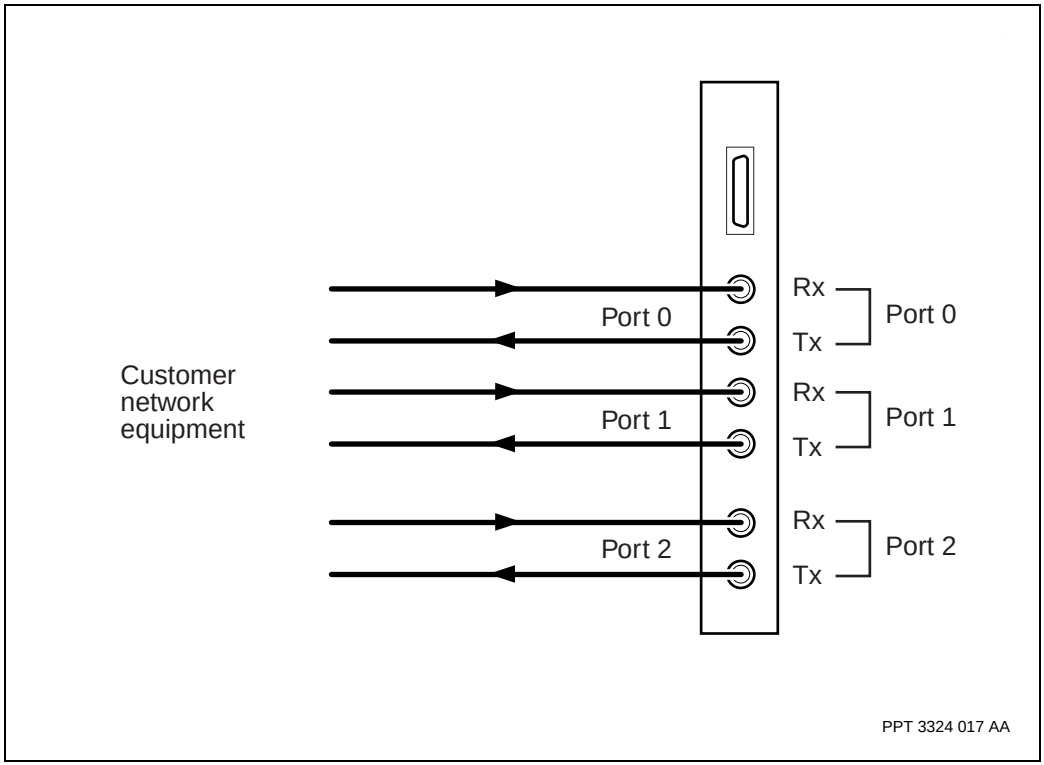


Figure 53
Customer equipment connections for DS3 ATM FP



DS3 ATM IP FP cable connections

CAUTION
Service interruption
Sparing requires all ports on the spare FP be connected to the termination panel sparing connectors, whether they are provisioned or not. Failure to do so will result in the termination panel dropping all ports on the spare FP.

The three ports on the right side of the DS3 termination panel are used for monitoring transmit output. This allows you to connect third-party equipment for testing and monitoring purposes.

Figure 54
Customer equipment connections for DS3 ATM IP

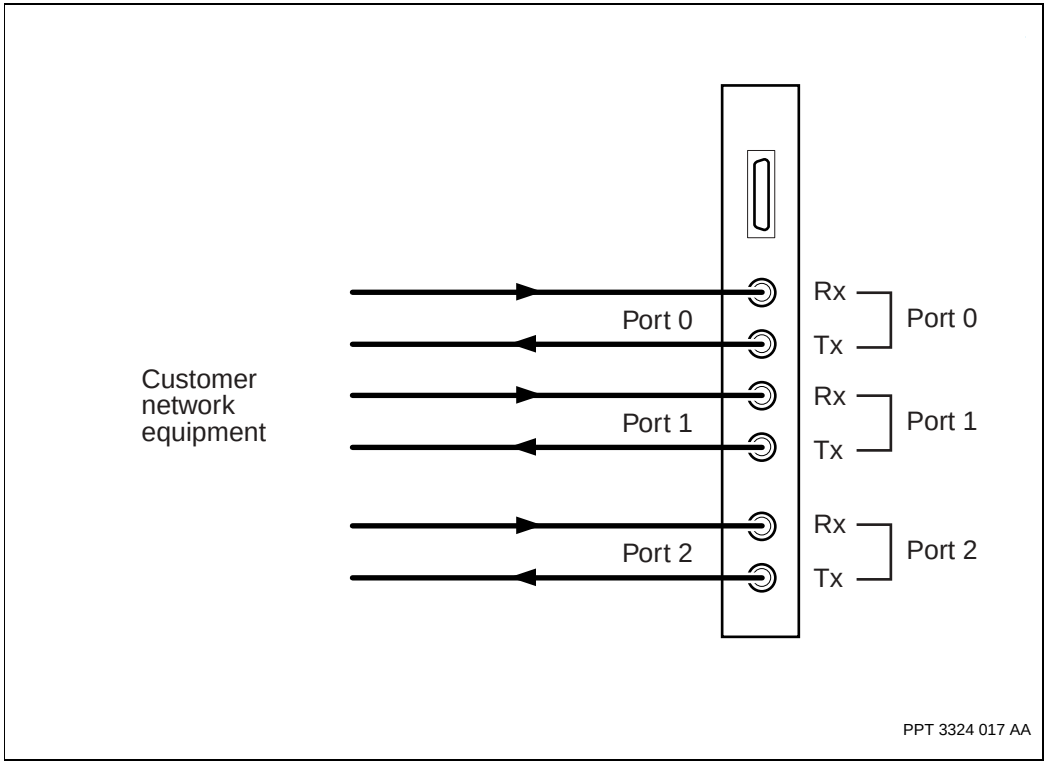
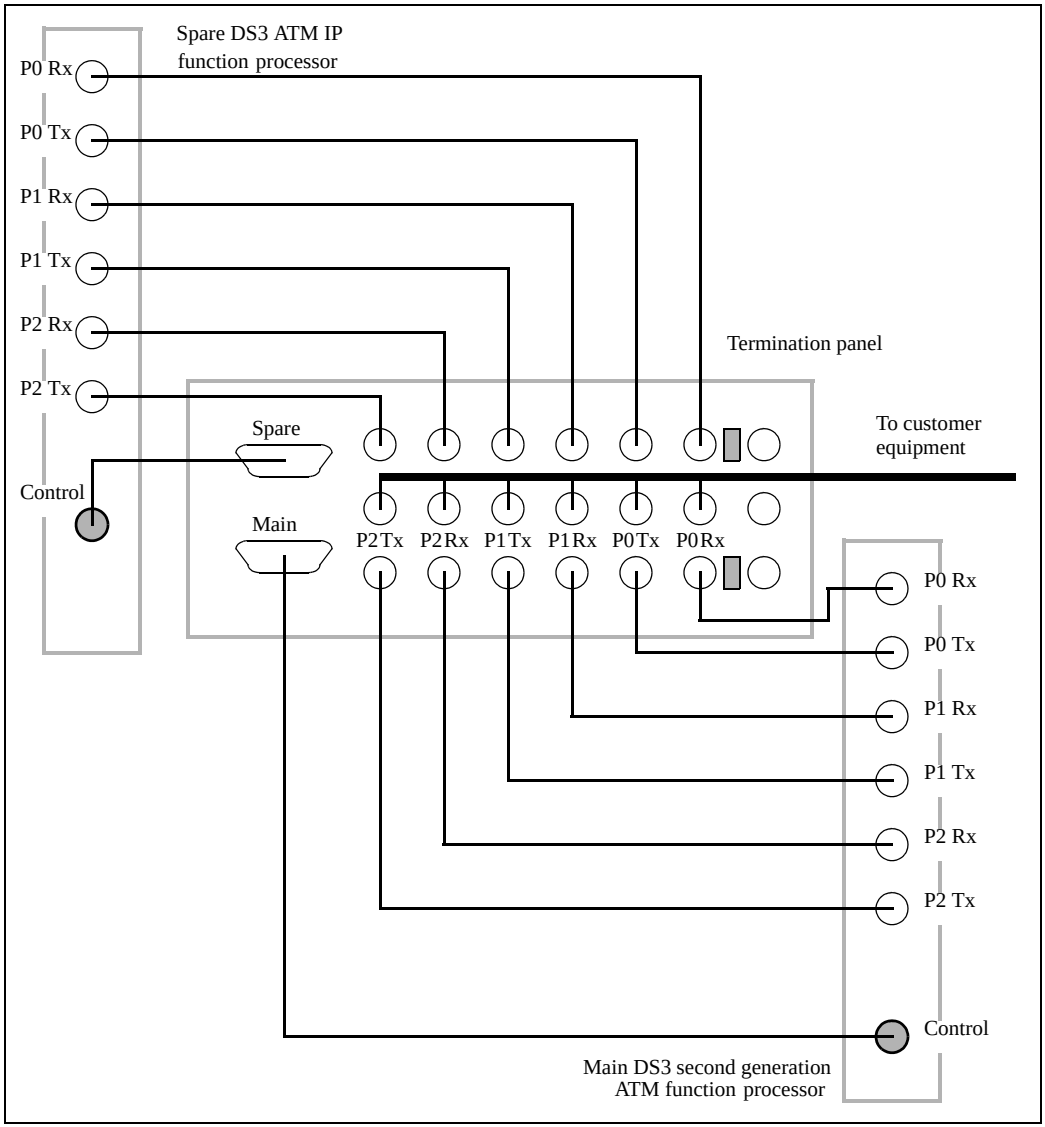


Figure 55
Connections for DS3 ATM IP



DS3 cable connections

CAUTION
Service interruption
Sparing requires all ports on the spare FP be connected to the termination panel sparing connectors, whether they are provisioned or not. Failure to do so will result in the termination panel dropping all ports on the spare FP.

Figure 56
Customer equipment connections to a DS3 FP

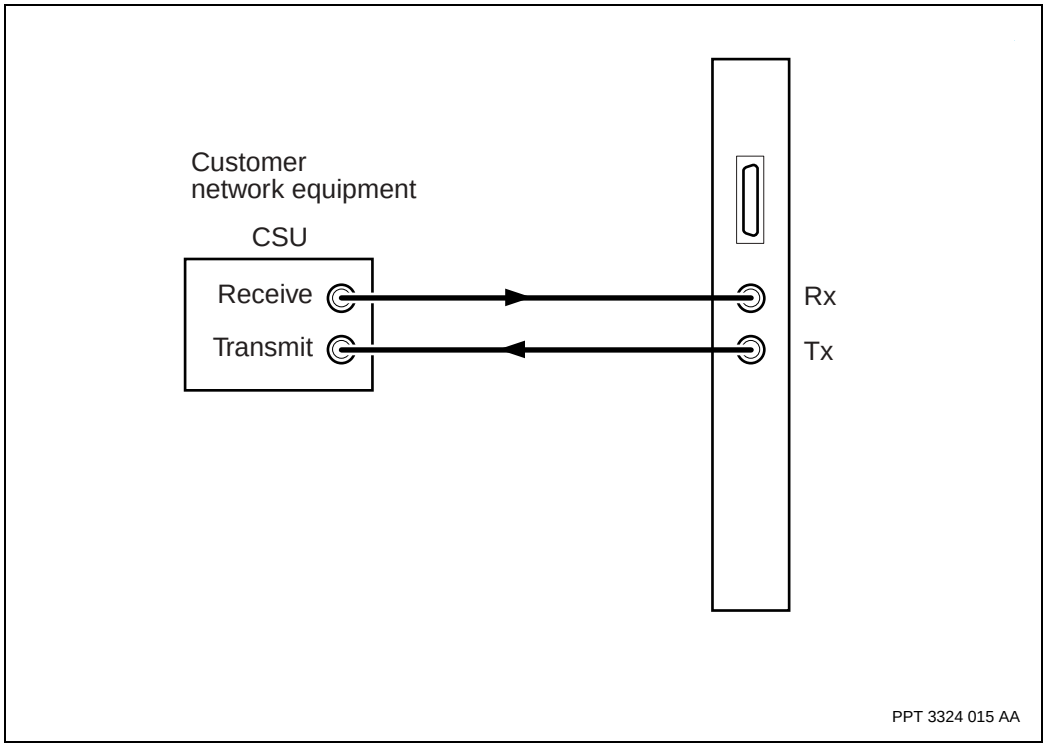
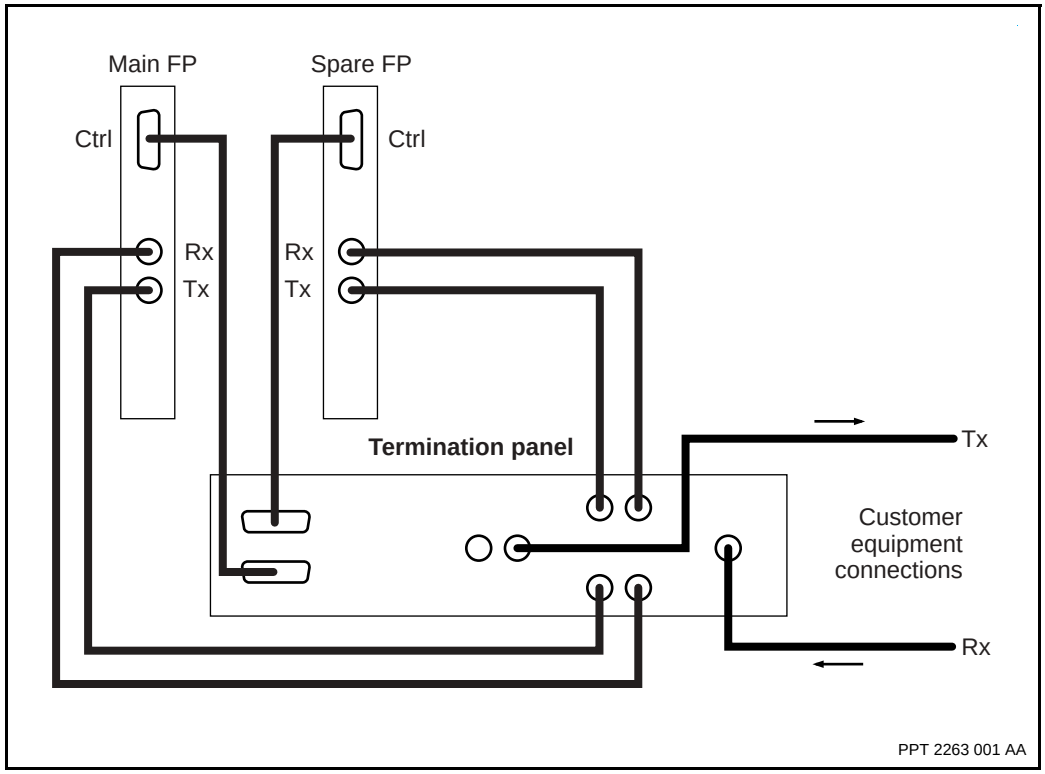


Figure 57
Customer equipment connections to a DS3 termination panel



DS3C cable connections

CAUTION
Service interruption
Sparing requires all ports on the spare FP be connected to the termination or sparing panel sparing connectors, whether they are provisioned or not. Failure to do so will result in the termination or sparing panel dropping all ports on the spare FP.

Figure 58
Customer equipment connections to a DS3C FP

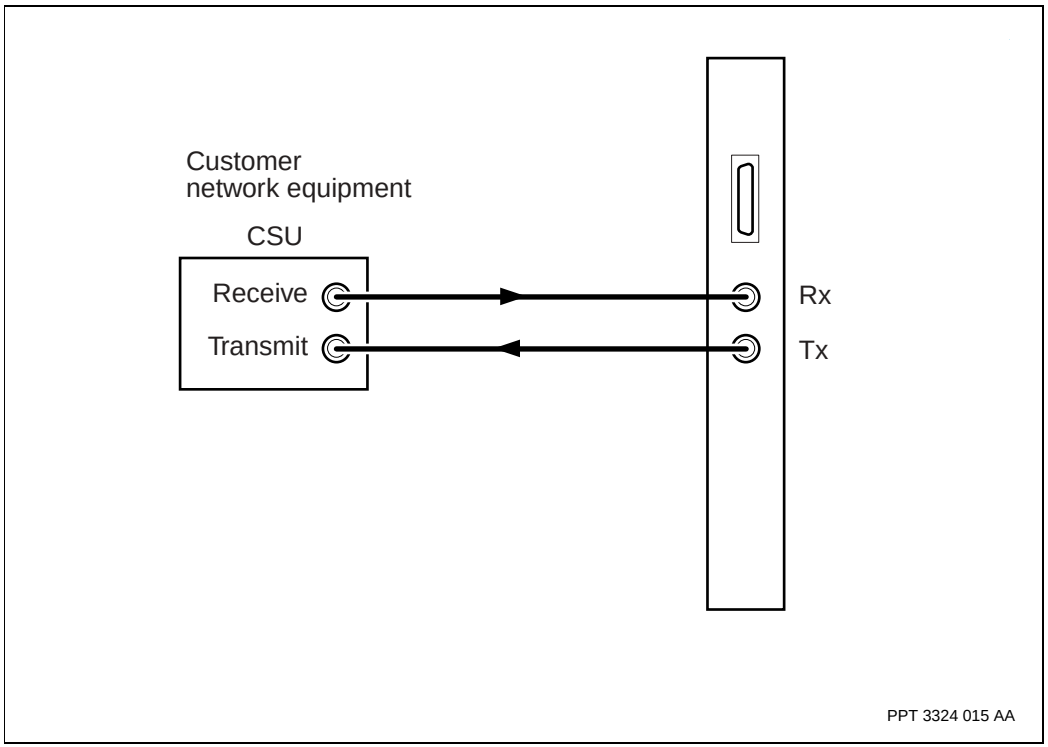


Figure 59
Connections for a DS3C FP—one-for-one sparing

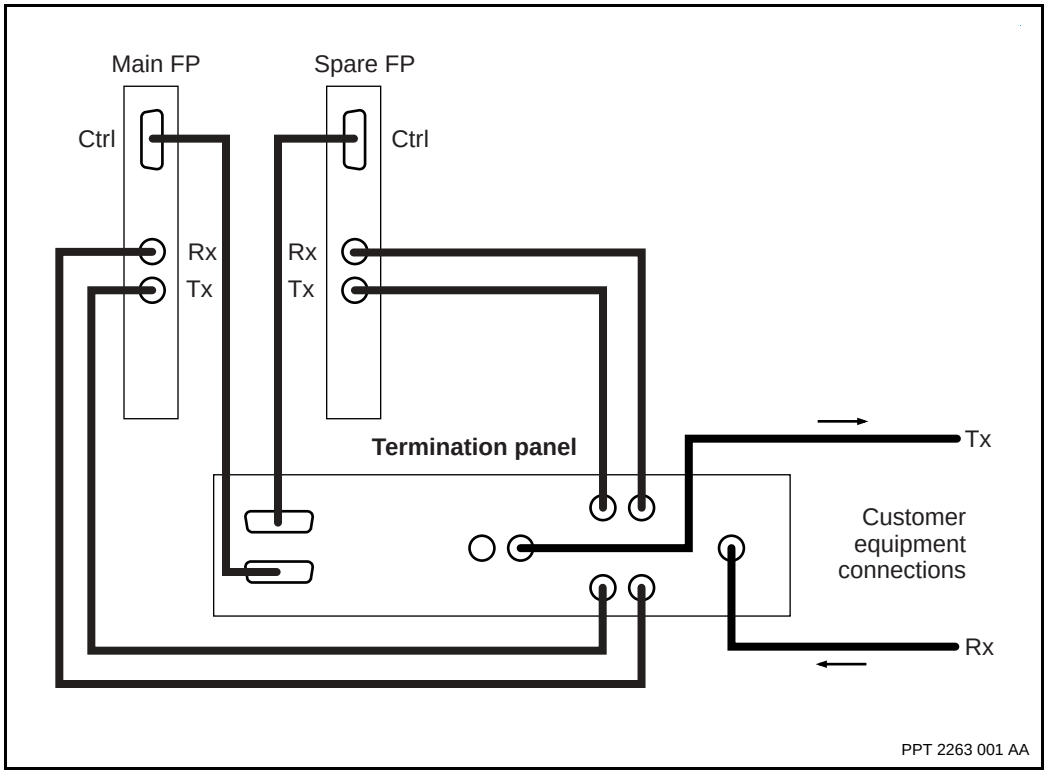
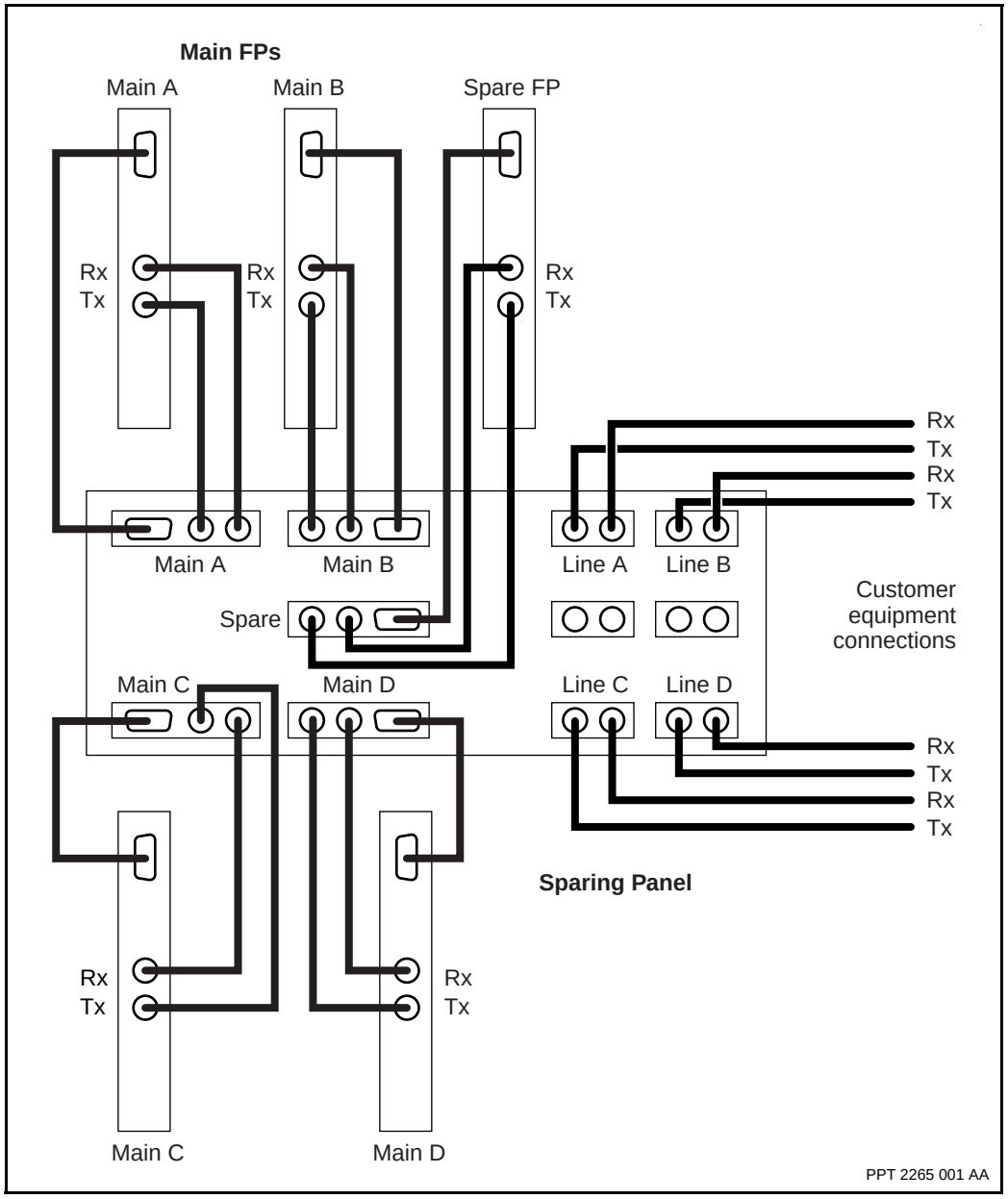
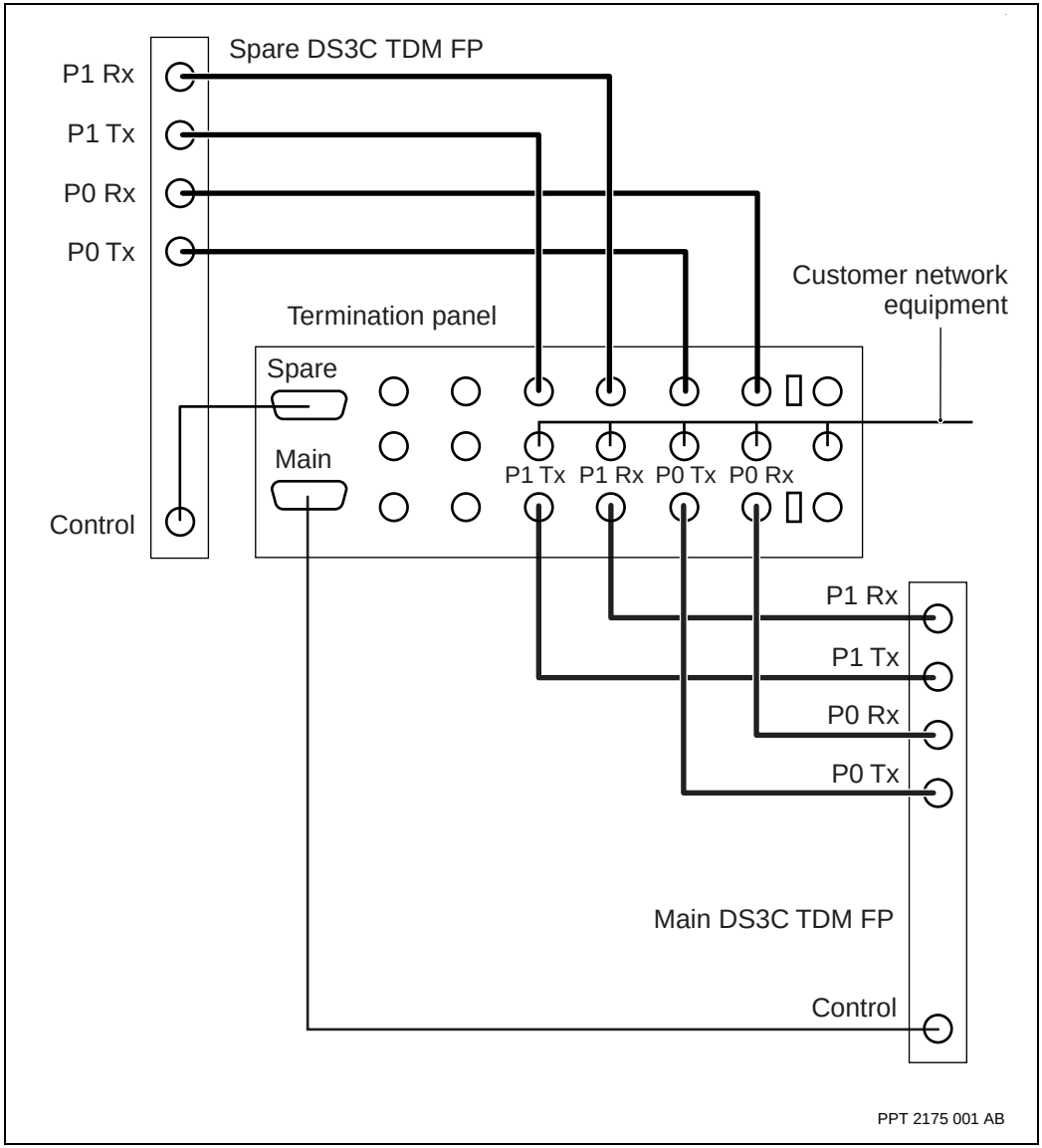


Figure 60
Connections for a DS3C FP—one-for-n sparing



DS3C TDM FP cable connections

Figure 61
Connections for a DS3C TDM FP



E1 AAL1 FP cable connections

CAUTION
Service interruption
Sparing requires all ports on the spare FP be connected to the termination panel sparing connectors, whether they are provisioned or not. Failure to do so will result in the termination panel dropping all ports on the spare FP.

Mapping between an E1 AAL1 FP and termination panel connectors

This table summarizes the mapping between the connectors for the E1 AAL1 FP and its termination panel.

Table 14
Mapping between an E1 AAL1 FP and termination panel connectors

Type of termination panel	Faceplate connector	Termination panel port number
Balanced E1 AAL1	0	0 and 1
	1	2 and 3
Unbalanced E1 AAL1	0	0 and 1 (TX and RX)
	1	2 and 3 (TX and RX)

Figure 62
Connections for an E1 AAL1 FP to a balanced termination panel

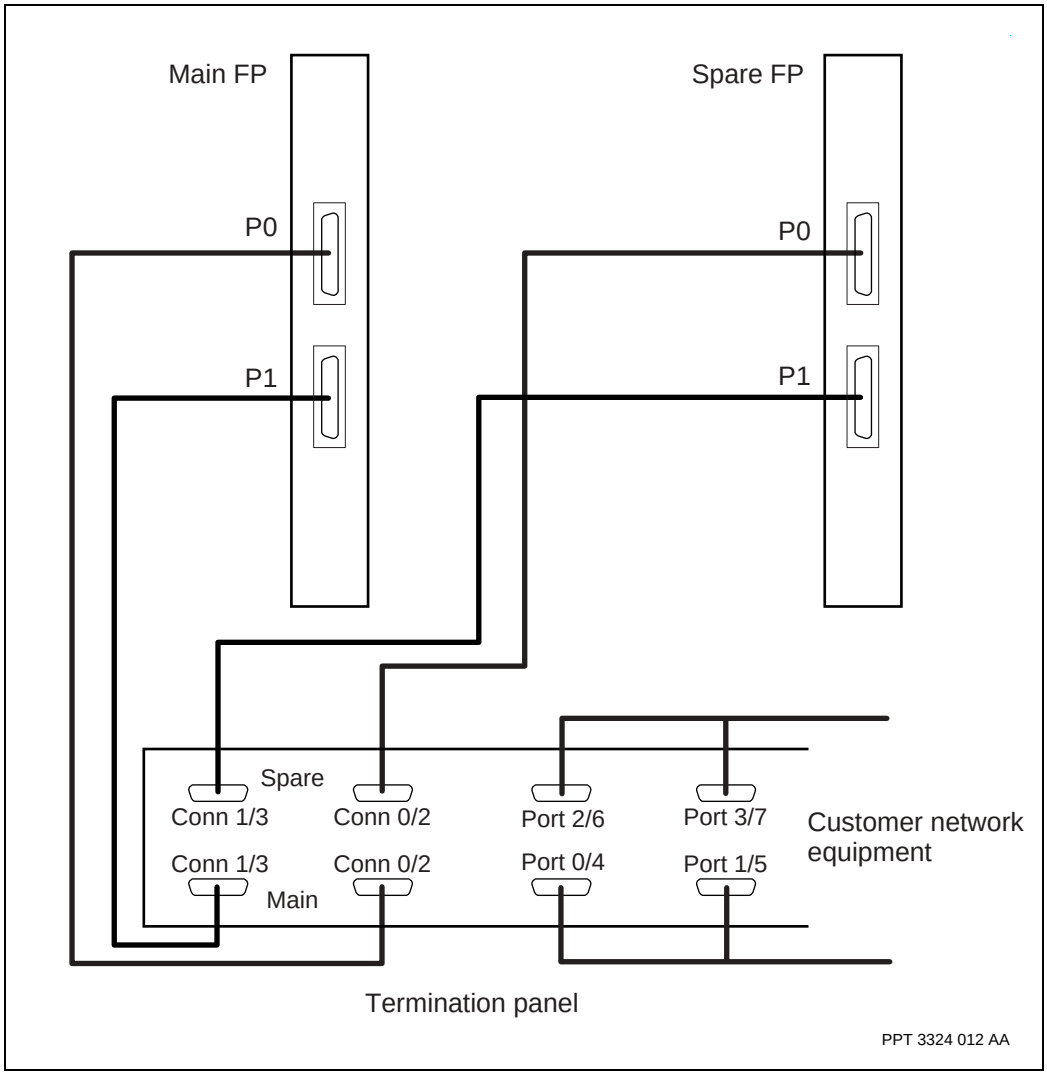
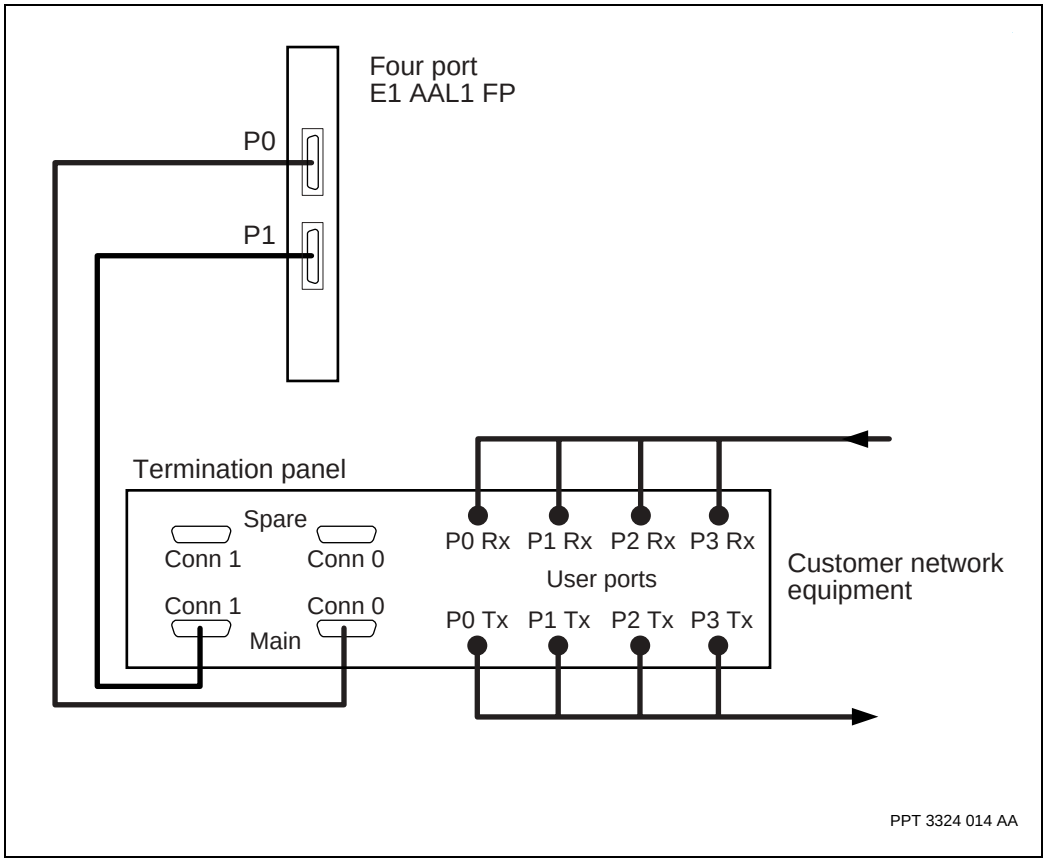


Figure 63
Connections for an E1 AAL1 FP to an unbalanced termination panel



E1C FP cable connections

CAUTION
Service interruption
Sparing requires all ports on the spare FP be connected to the termination panel sparing connectors, whether they are provisioned or not. Failure to do so will result in the termination panel dropping all ports on the spare FP.

The C1 connector on the FP supplies power to the termination panel. You must connect a cable between the C1 connector from either the main or spare FPs to the termination panel. Do so even if the ports associated with connector C1 are not in use.

Mapping between an E1C FP and termination panel connectors

This table summarizes the mapping between the connectors for the E1C FP and its termination panel.

Table 15
Mapping between an E1C FP and termination panel connectors

Function processor	Faceplate connector	Termination panel port number
Balanced E1C	0	0 and 1
	1	2 and 3
Unbalanced E1C	0	0 and 1 (TX and RX)
	1	2 and 3 (TX and RX)

Figure 64
Connections for an E1C FP—balanced termination panel

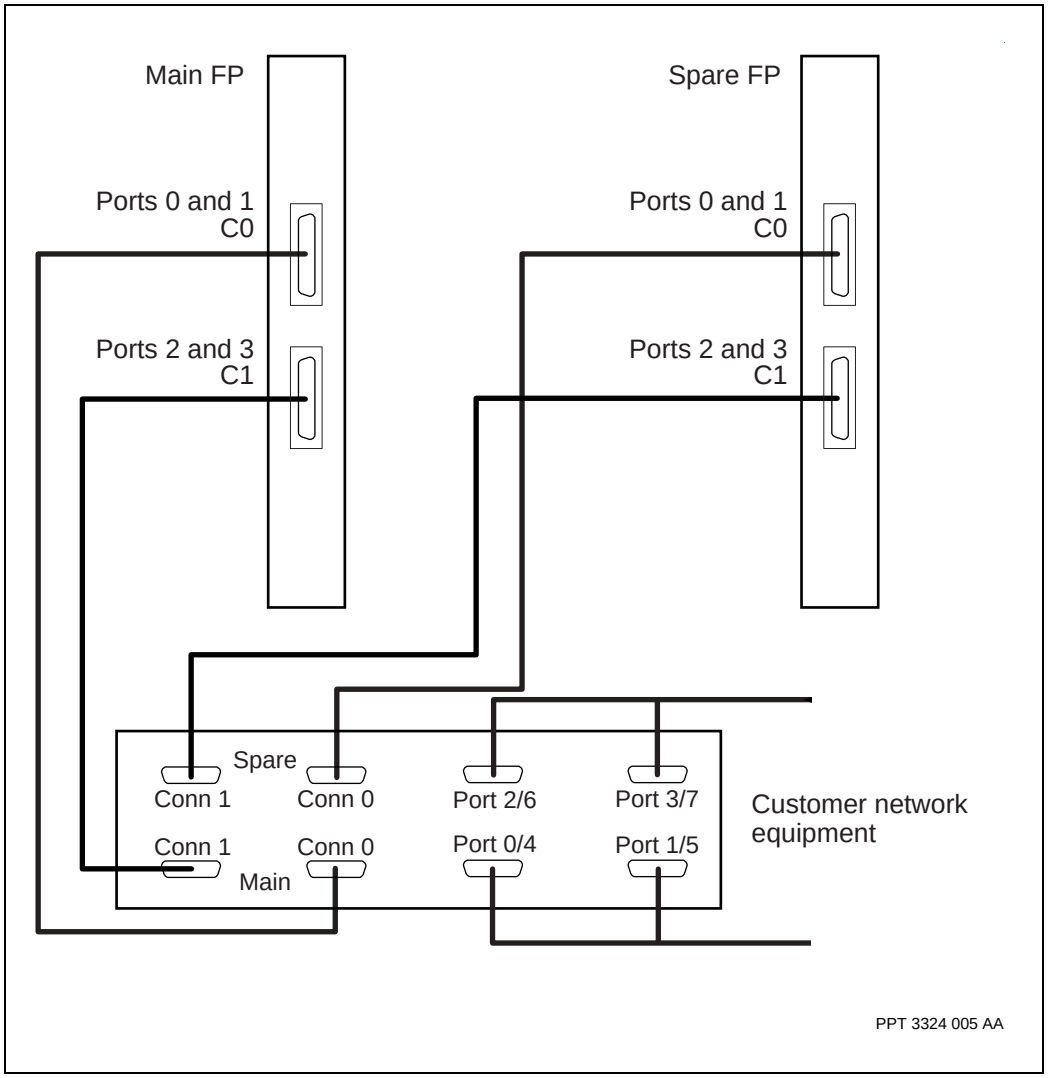
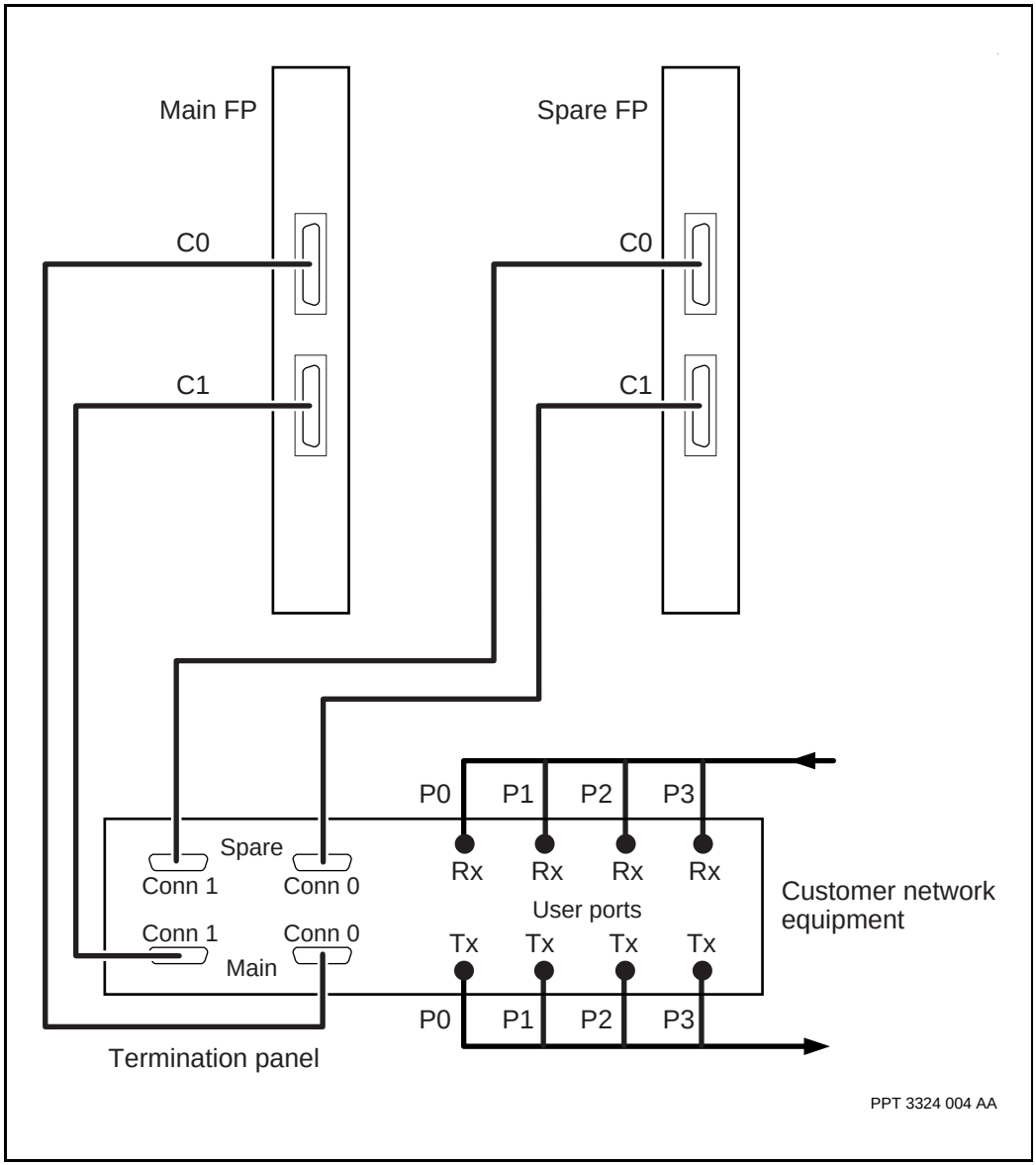


Figure 65
Connections for an E1C FP—unbalanced termination panel



E3 ATM FP cable connections

CAUTION

Service interruption

Sparing requires all ports on the spare FP be connected to the termination panel sparing connectors, whether they are provisioned or not. Failure to do so will result in the termination panel dropping all ports on the spare FP.

Do not connect the control cable to an unused port on a main function processor. Only connect a control cable to a port that is going to be in service.

Figure 66
Connections for an E3 ATM FP

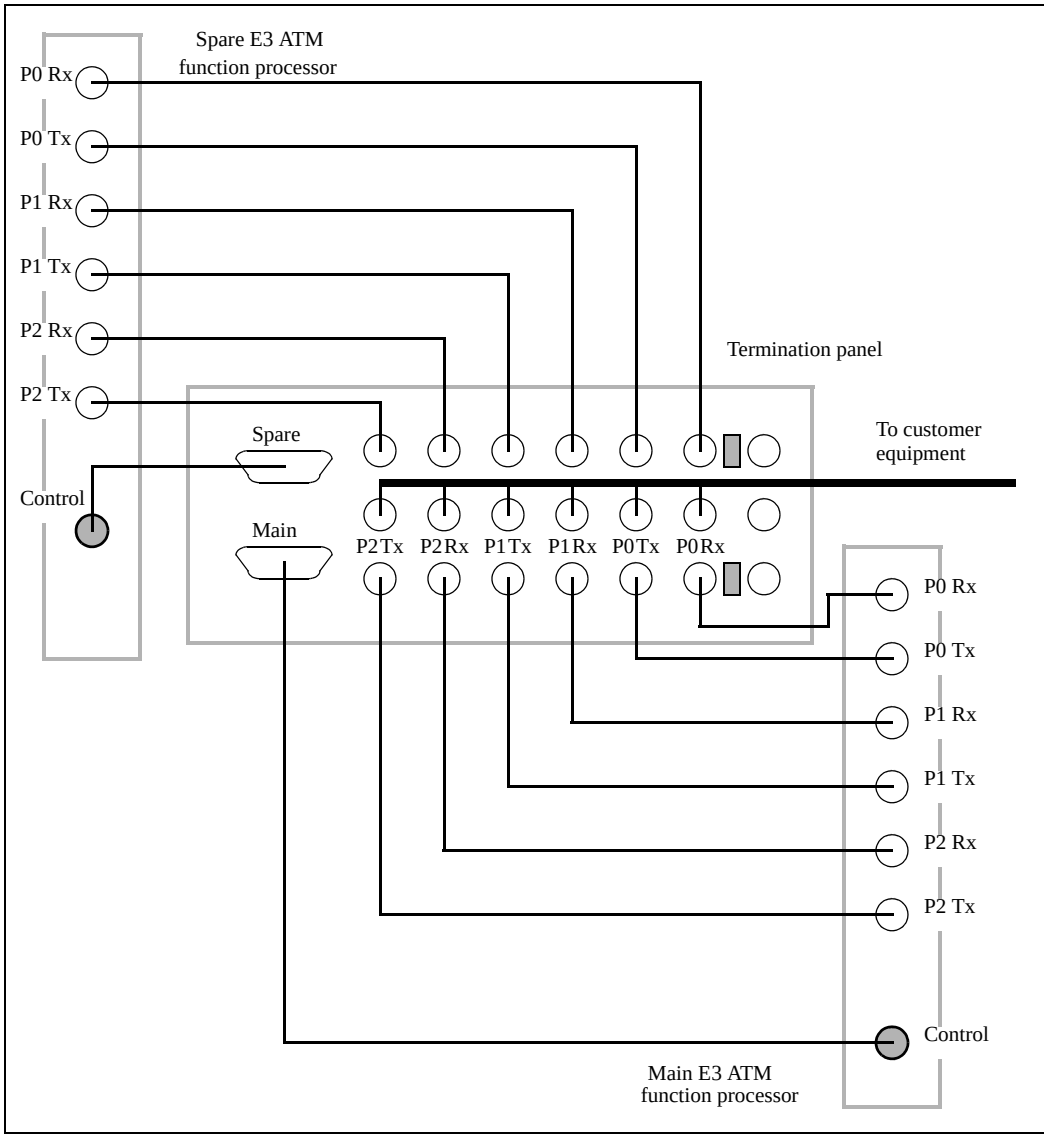
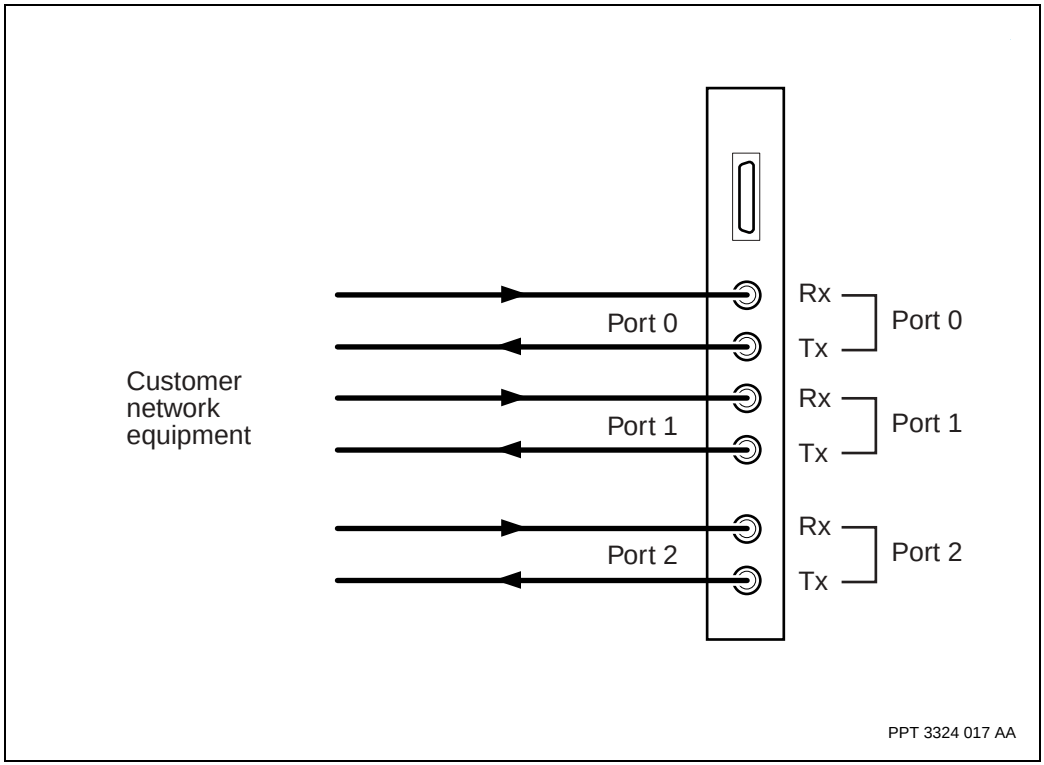


Figure 67
Customer equipment connections for an E3 ATM FP



E3 ATM IP FP cable connections

CAUTION
Service interruption
Sparing requires all ports on the spare FP be connected to the termination panel sparing connectors, whether they are provisioned or not. Failure to do so will result in the termination panel dropping all ports on the spare FP.

Do not connect the control cable to an unused port on a main function processor. Only connect a control cable to a port that is going to be in service.

Figure 68
Customer equipment connections for an E3 ATM IP FP

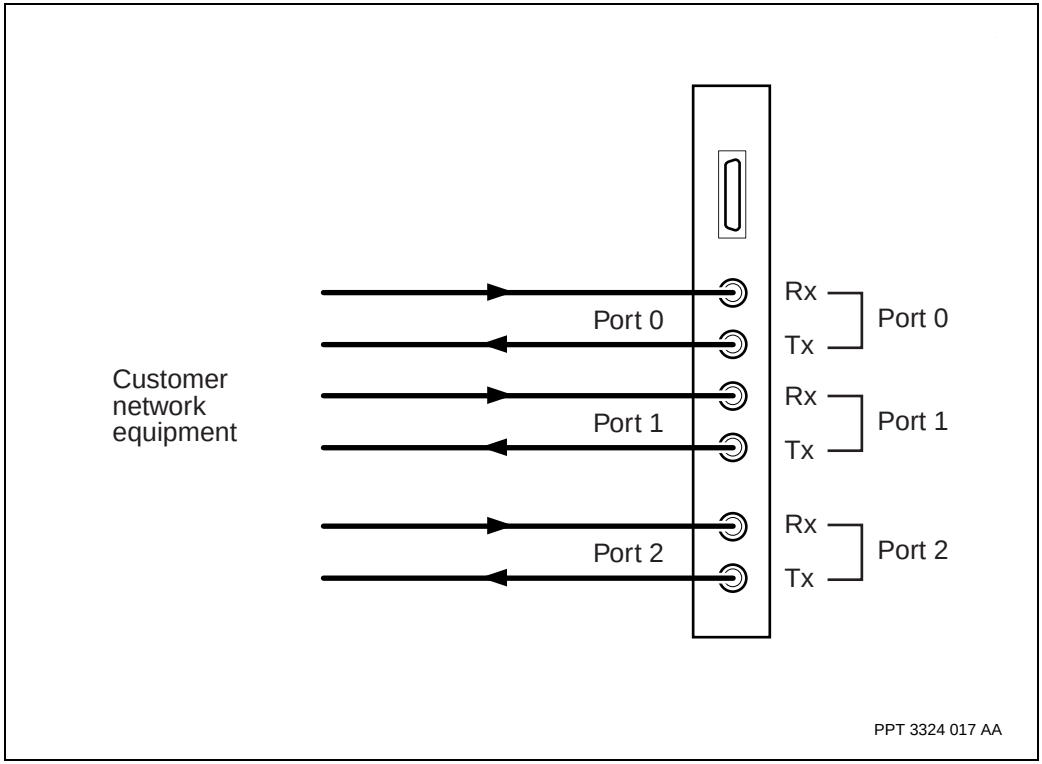
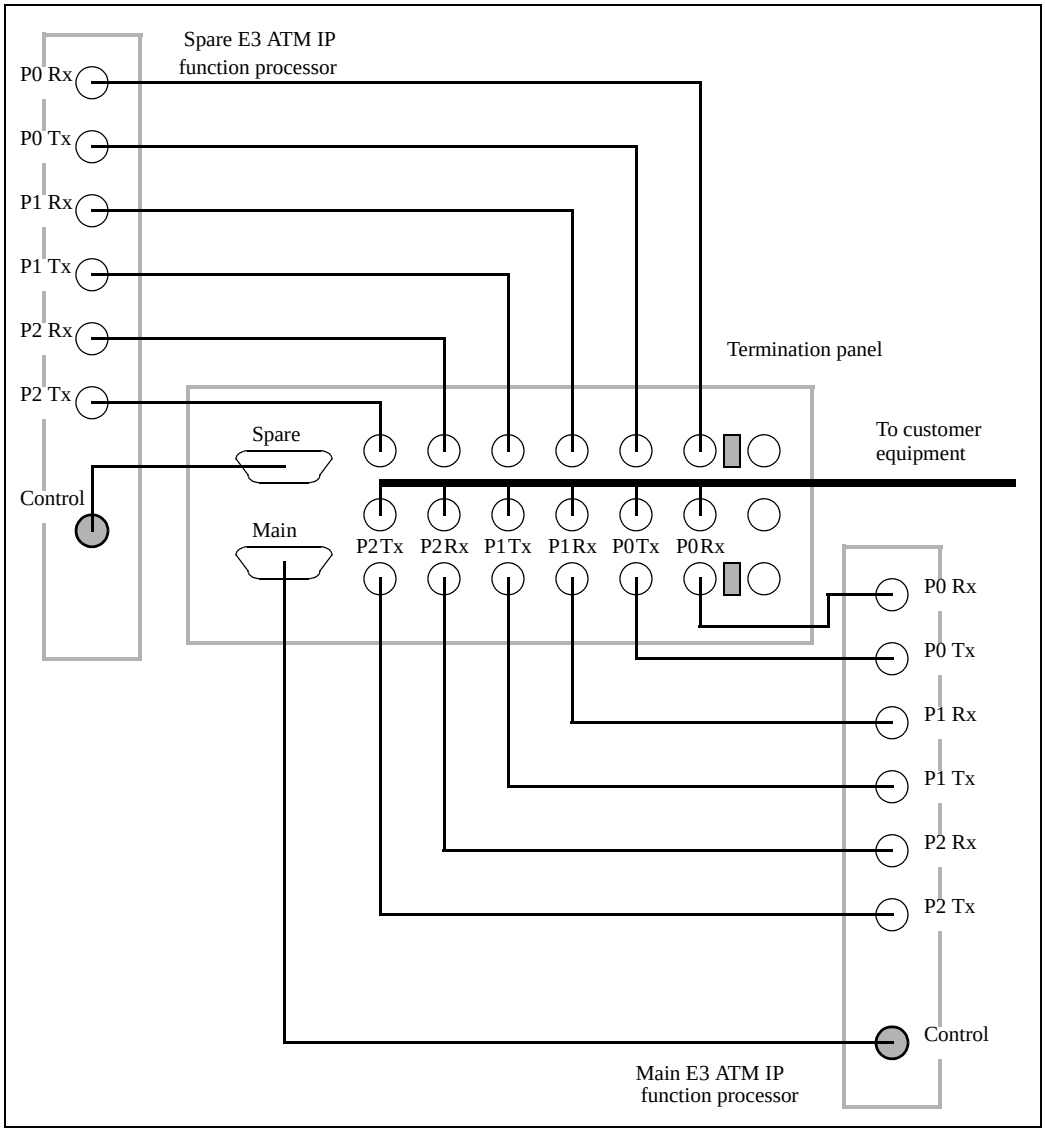


Figure 69
Connections for an E3 ATM IP FP



E3 FP cable connections

CAUTION
Service interruption
Sparing requires all ports on the spare FP be connected to the termination panel sparing connectors, whether they are provisioned or not. Failure to do so will result in the termination panel dropping all ports on the spare FP.

United Kingdom customers must connect the Tx output of the E3 function processor to “TFC in” at the network termination point, and the Rx input to “TFC out” at the network termination point.

To meet EMC requirements, ensure that any cables you connect from the Receive port of the E3 FP or termination panel to the customer equipment are of type NT734 and include two ferrite beads. For more information, see “Ferrite beads on E3 receive cable” (page 119).

Figure 70
Connections for an E3 FP

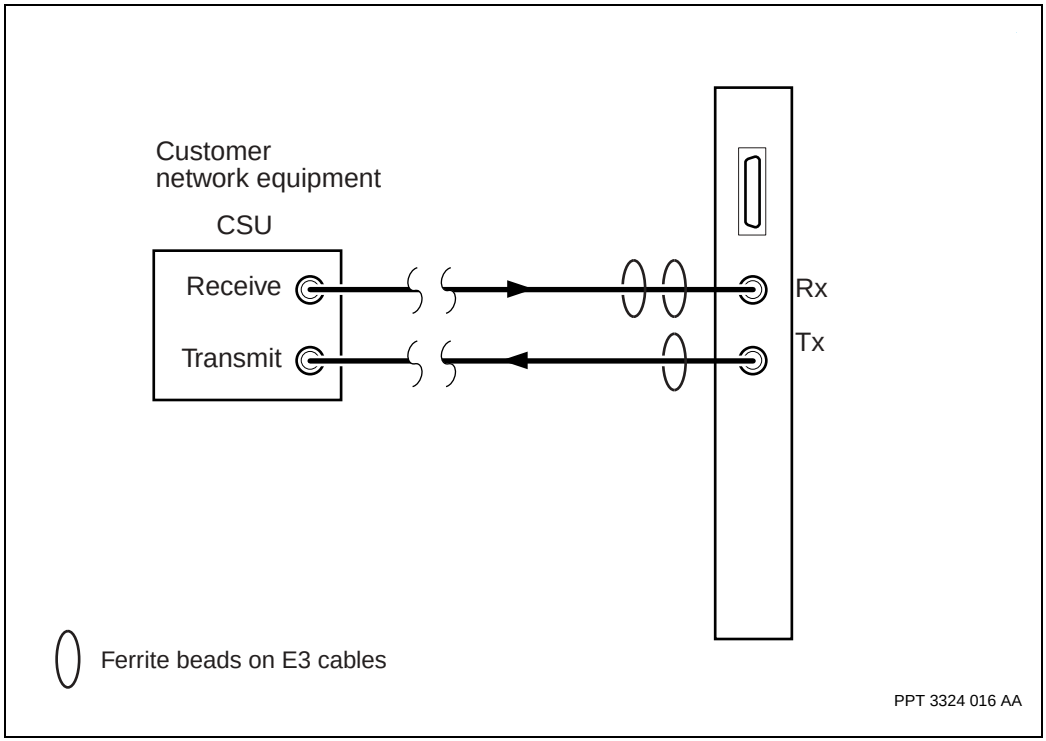
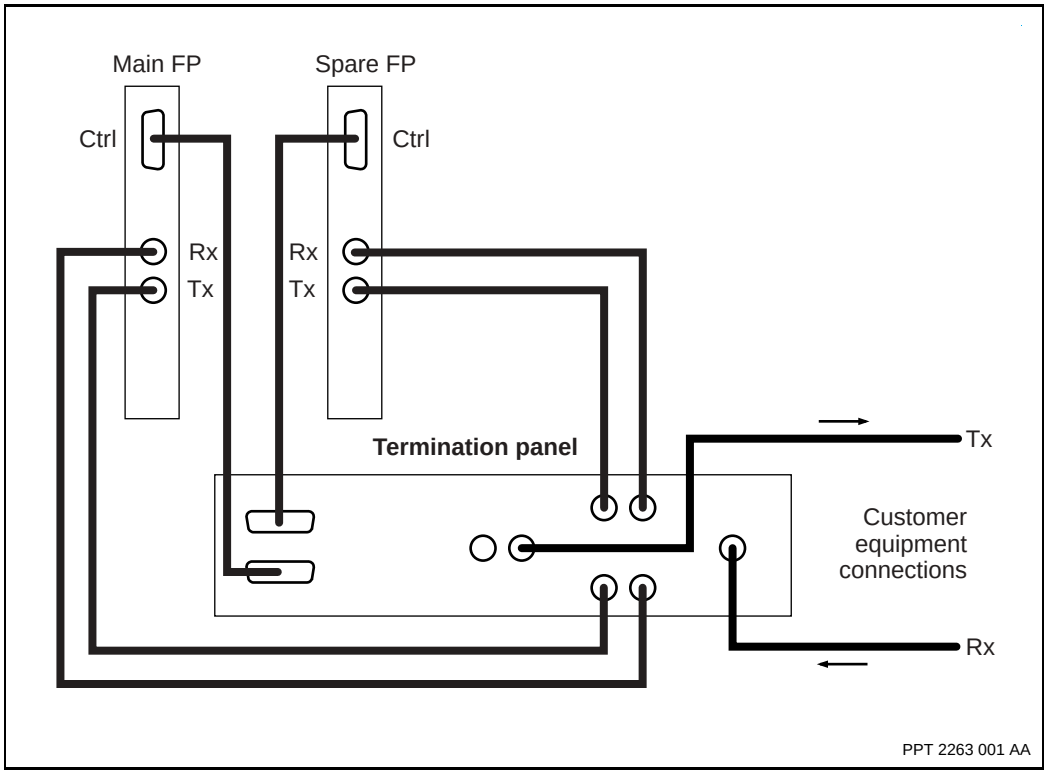


Figure 71
Cable connections from an E3 FP to a termination panel and customer equipment

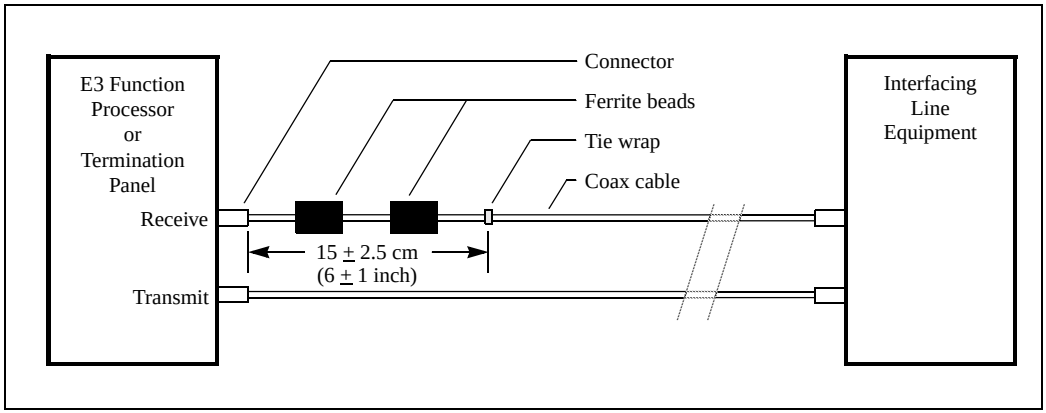


Ferrite beads on E3 receive cable

When you use the E3 card with the insulated receive shield, you must install two ferrite beads on the coaxial cable that runs from the receive port of the interface line equipment to the device. Depending on the site configuration, the device connection is either the receive port of an E3 FP or the receive port of a termination panel.

Place the two ferrite beads and the tie wrap on the receive coax cable at the end of the cable closest to the E3 FP.

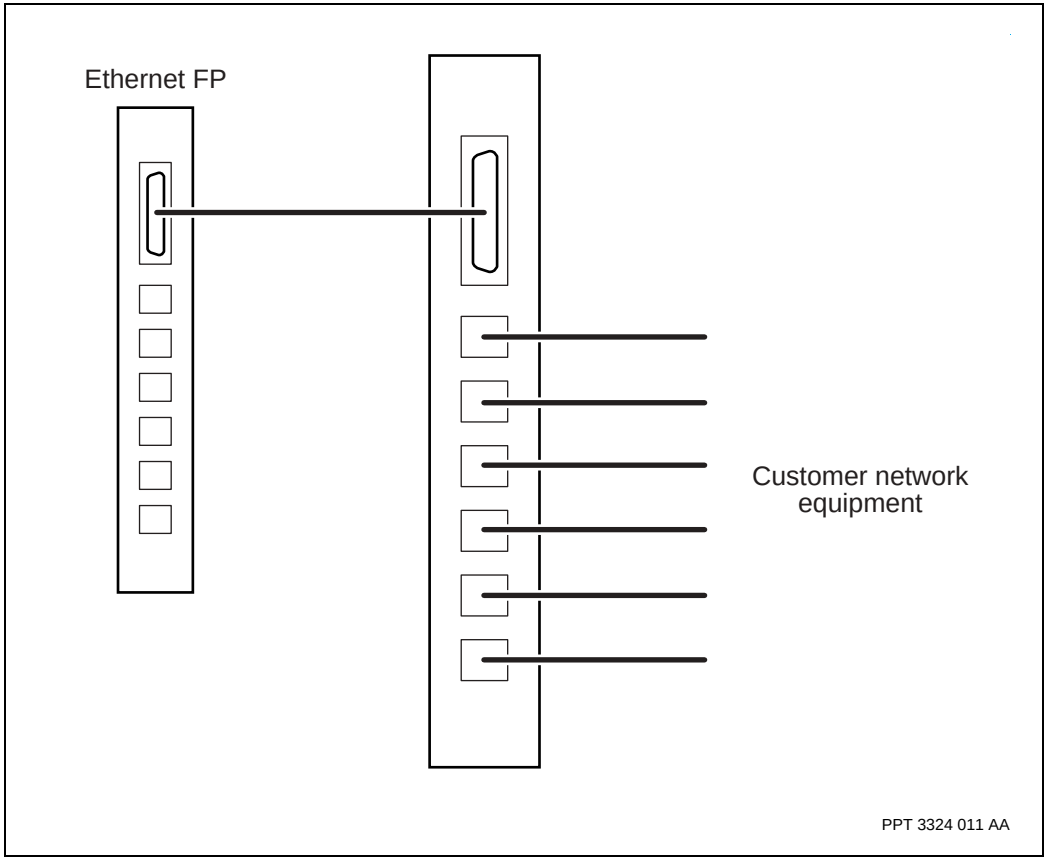
Figure 72
Installation of ferrite beads on E3 receive coax cable



6-port Ethernet 10BaseT FP cable connections

The figure “Connections for a 6-port Ethernet10BaseT FP (NTNQ36)” (page 121) shows the connection of cables between a 6-port Ethernet 10BaseT FP with PEC NTNQ36, its termination panel, and customer equipment cables.

Figure 73
Connections for a 6-port Ethernet10BaseT FP (NTNQ36)



Ethernet 100BaseT FP cable connections

Customer equipment connects directly to the ports on the faceplate of an Ethernet 100BaseT FP, as shown in the figures

- “Customer equipment connections for a 2-port Ethernet 100BaseT FP (NTNQ37)” (page 123)
- “Customer equipment connections for a 4-port Ethernet 10/100BaseT FP (NTNQ95)” (page 124)

Although the NTNQ92 and NTNQ95 are compatible with 10BaseT signaling, the 100BaseT method of connection is recommended.

CAUTION

Risk of electromagnetic interference

To comply with electromagnetic interference (EMI) for Class B, use shielded cables and route all cables connected to 100BaseT Ethernet ports through the cable management guides on the device.

CAUTION

Risk of electromagnetic interference

To comply with electromagnetic interference (EMI) for Class B, use shielded cables for NTNQ92 and NTNQ95 and route all cables connected to 100BaseT Ethernet ports through the cable management guides on the device.

Figure 74
Customer equipment connections for a 2-port Ethernet 100BaseT FP (NTNQ37)

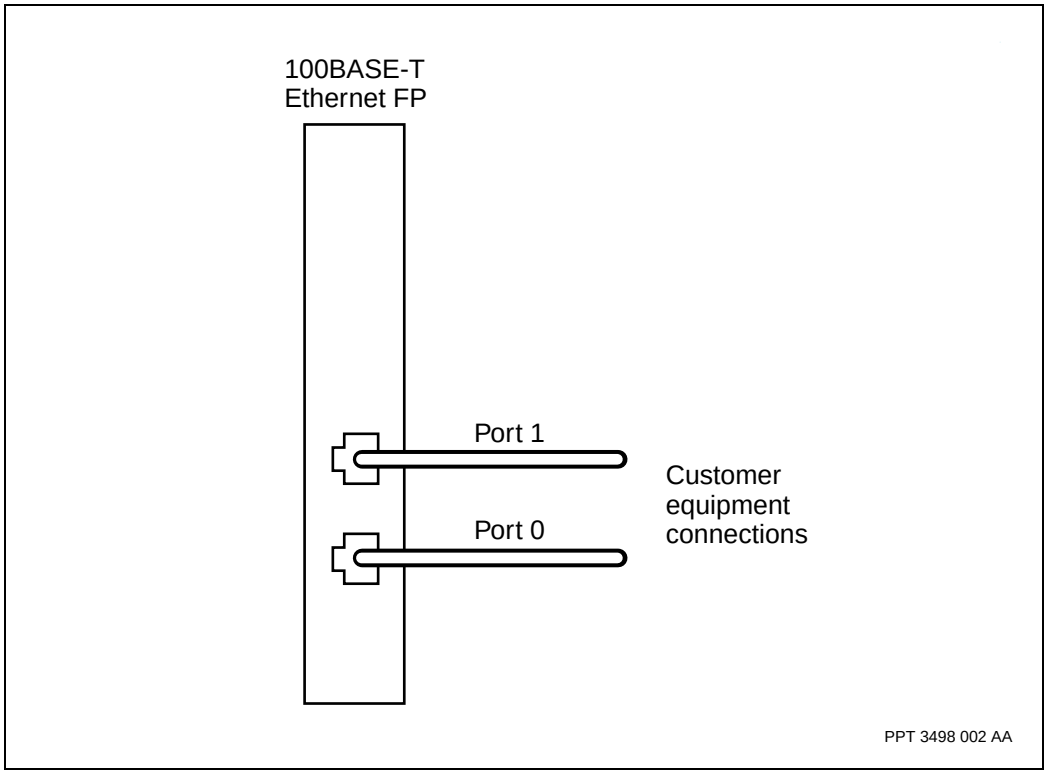


Figure 75
Customer equipment connections for a 4-port Ethernet 10/100BaseT FP (NTNQ95)

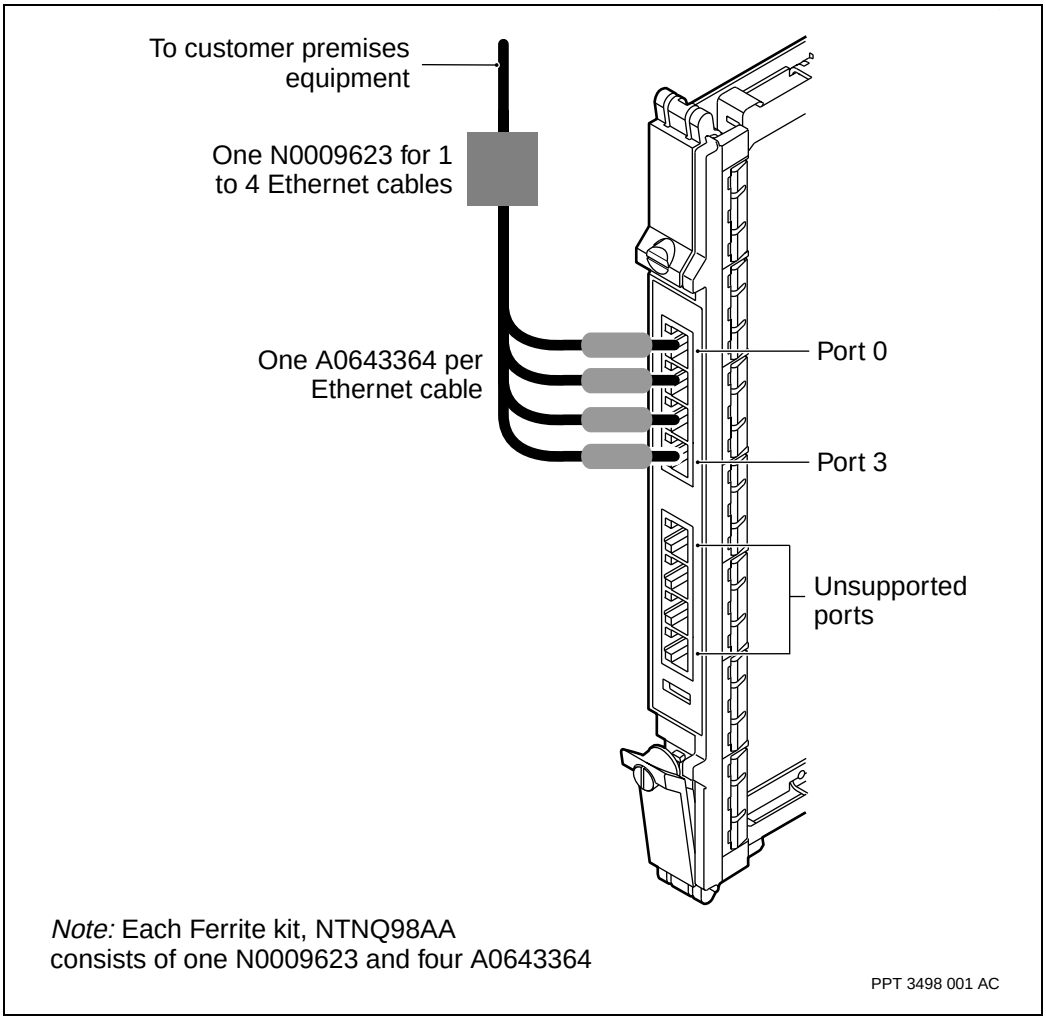
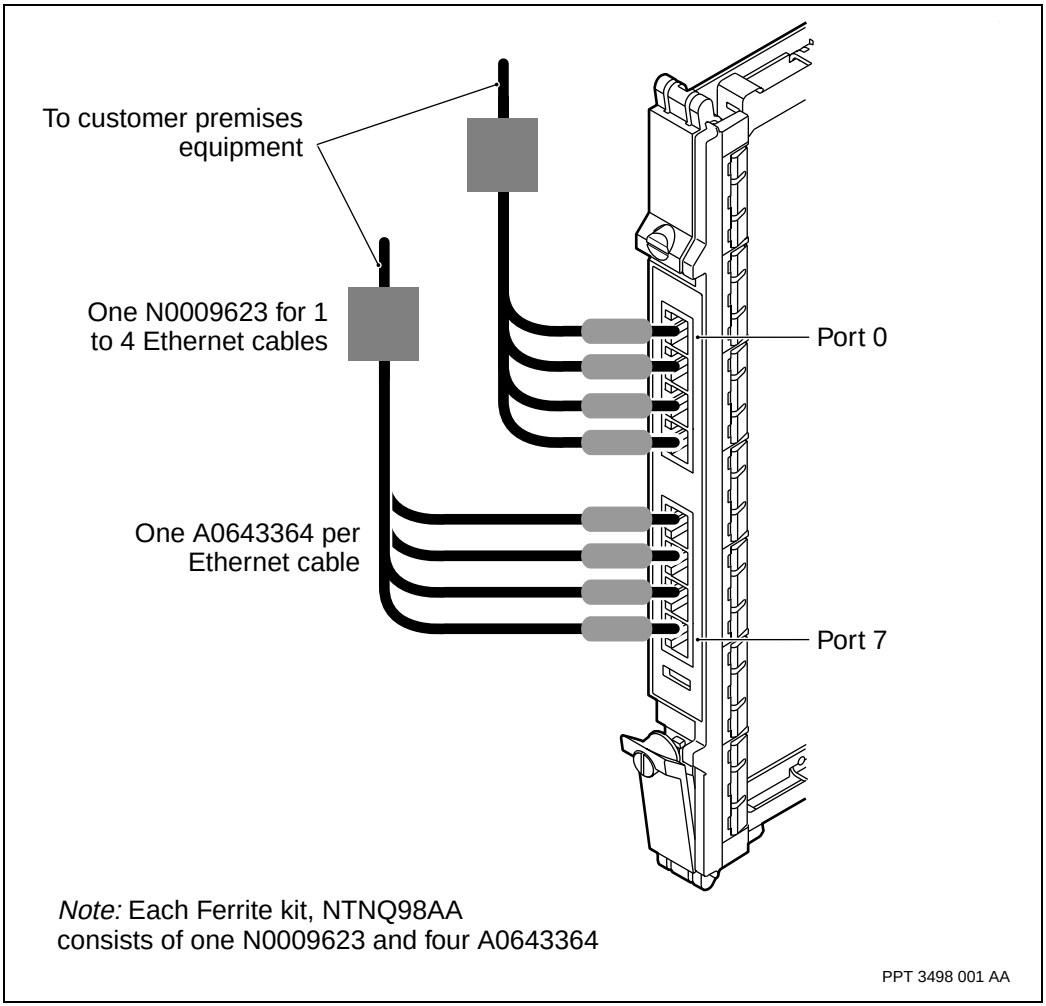


Figure 76
Customer equipment connections for an 8-port Ethernet 10/100BaseT FP (NTNQ92)



HSSI FP cable connections

Make sure you properly set the DIP switch on the FP. For more information, see “Setting switches on a HSSI function processor” in NN10600-175 *Nortel Networks Multiservice Switch 7400 Hardware Installation, Maintenance, and Upgrade*.

Figure 77
Cable connections for a HSSI FP—DCE mode

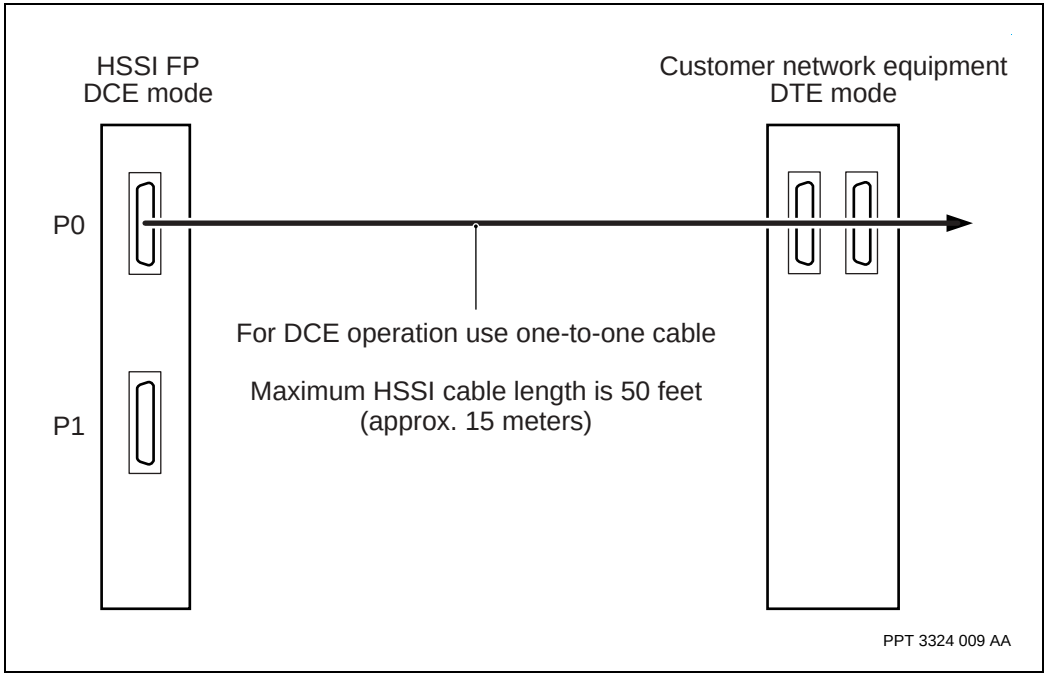
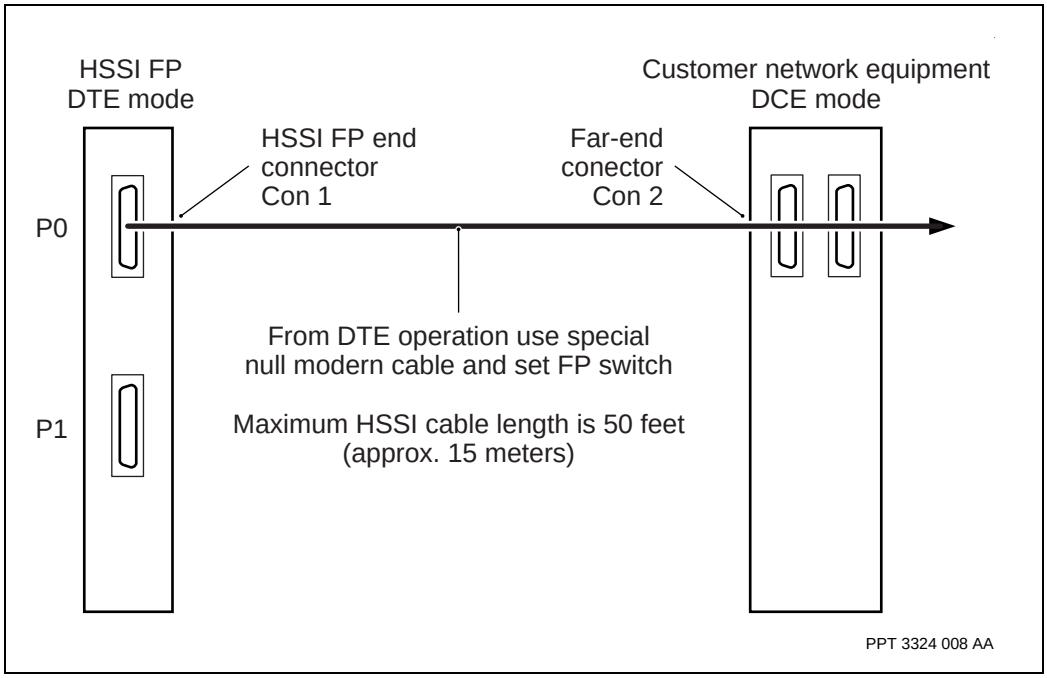


Figure 78
Connections for a HSSI FP—DTE mode



JT2 ATM FP cable connections

CAUTION
Service interruption
Sparing requires all ports on the spare FP be connected to the termination panel sparing connectors, whether they are provisioned or not. Failure to do so will result in the termination panel dropping all ports on the spare FP.

Figure 79
Customer equipment connections for a JT2 ATM FP

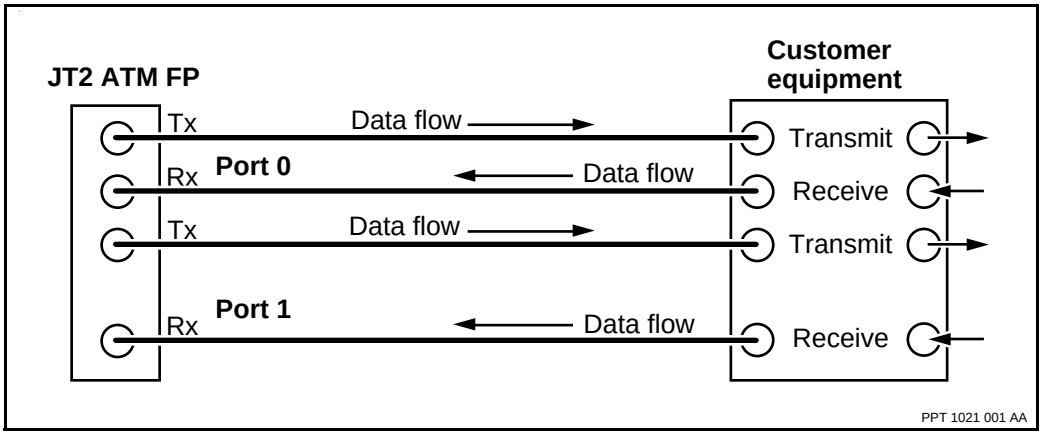
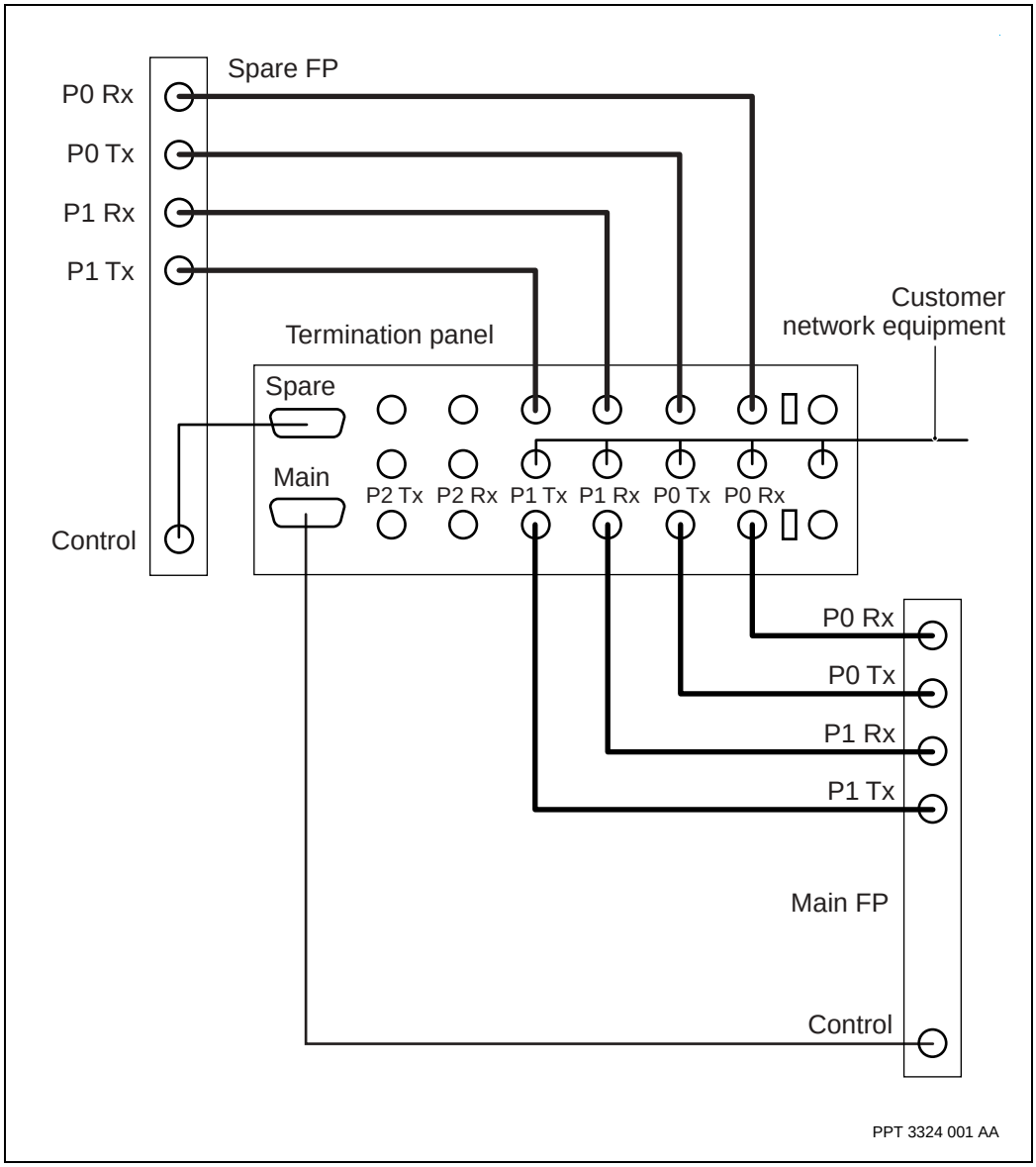


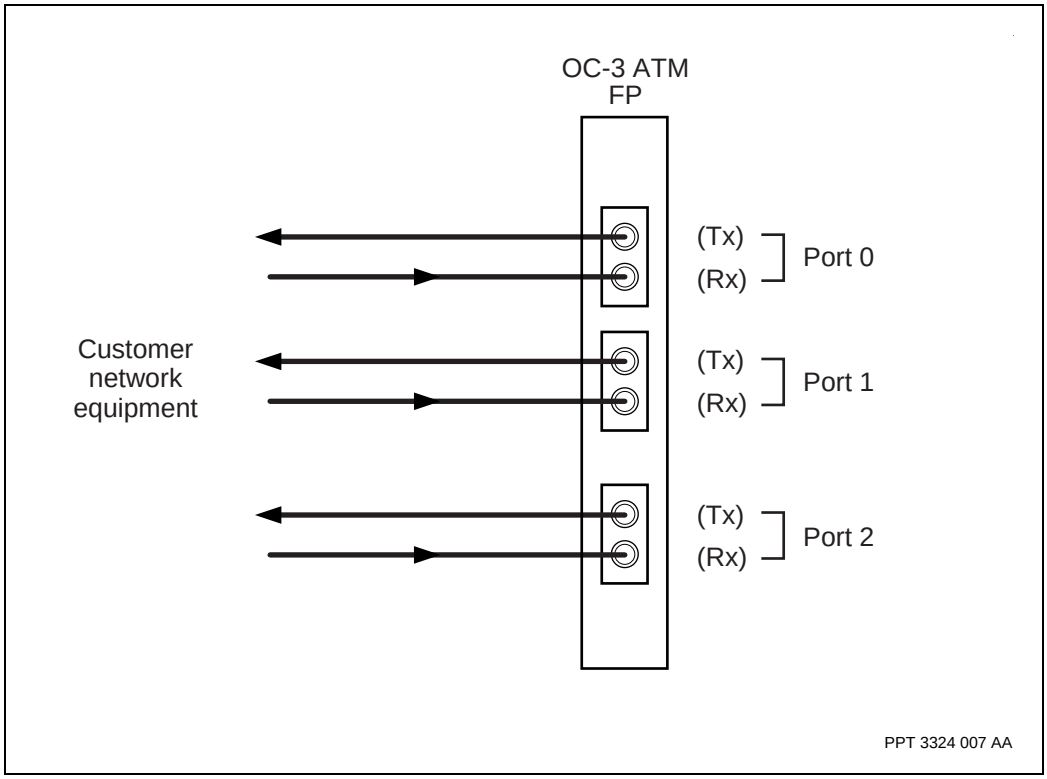
Figure 80
Connections for a JT2 ATM FP



OC-3 ATM FP cable connections

WARNING
Risk of invisible laser radiation
This product is a Class 1 laser product. Fiber optic cables carry invisible laser radiation. When handling fiber optic cables remember to avoid eye or skin exposure to direct or scattered radiation.

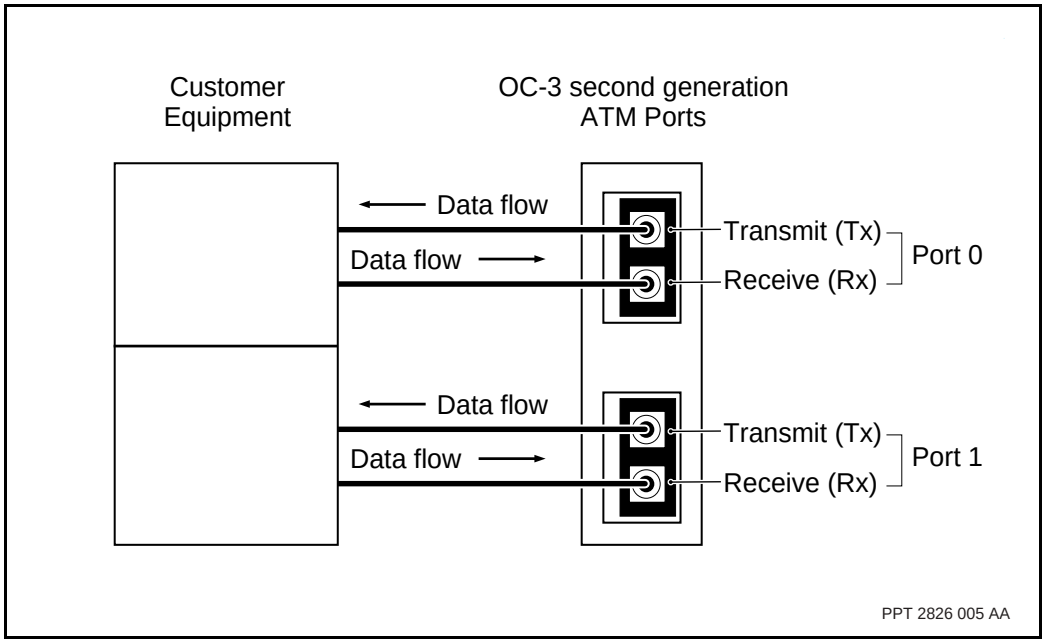
Figure 81
Connections for an OC-3 ATM FP



OC-3 ATM IP cable connections

WARNING
Risk of invisible laser radiation
This product is a Class 1 laser product. Fiber optic cables carry invisible laser radiation. When handling fiber optic cables remember to avoid eye or skin exposure to direct or scattered radiation.

Figure 82
Connections for an OC-3 ATM IP FP



V.11 FP cable connections

The following figures show where to connect cables between a V.11 FP, a termination panel, and customer equipment. Although these figures show dual DTE and DCE connections, you can also connect termination panels in single DTE or single DCE configurations.

Mapping between V.11 FP and termination panel connectors

This table summarizes the mapping between the connectors for the V.11 FP and its termination panel.

Table 16
Mapping between V.11 and termination panel connectors

Faceplate connector	Termination panel port number
P0 (DTE/DCE)	0, 1, 2, and 3
P1 (DTE/DCE)	4, 5, 6, and 7

Figure 83
Connections for a V.11 FP—dual DTE

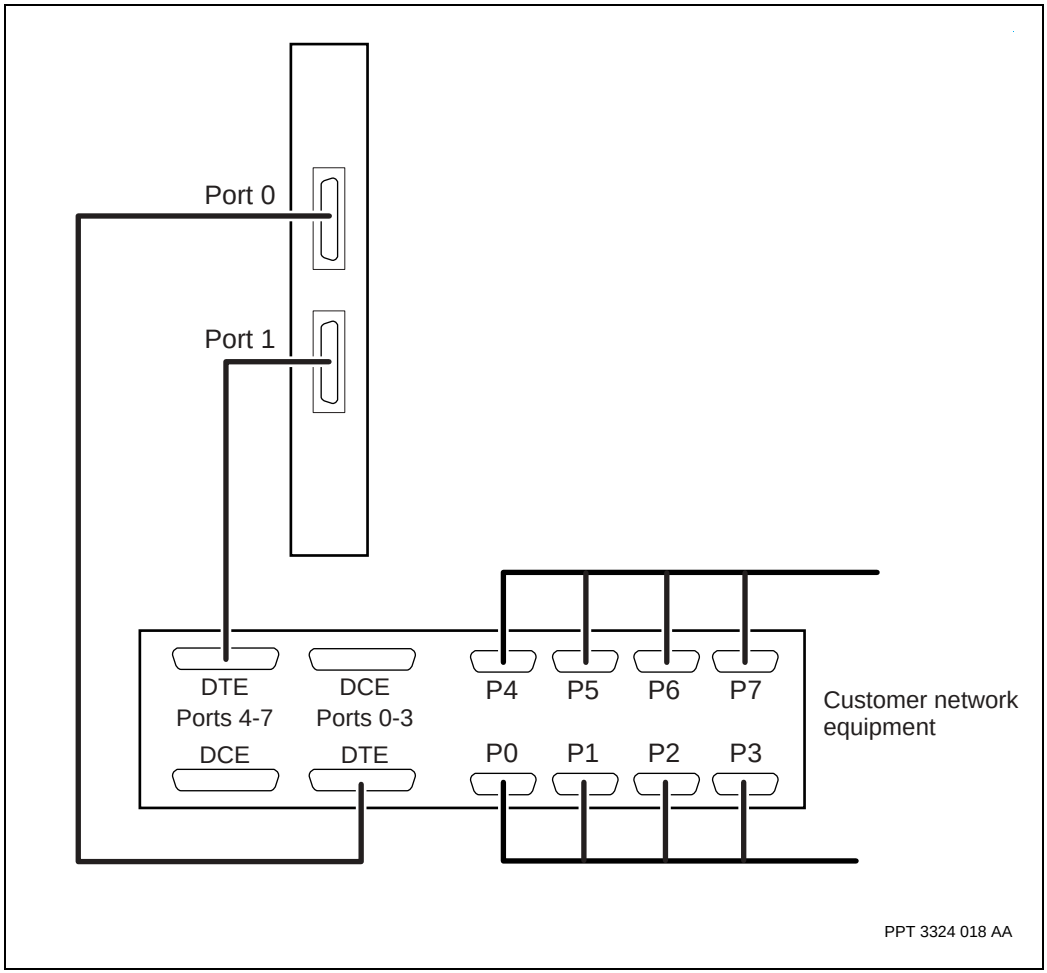
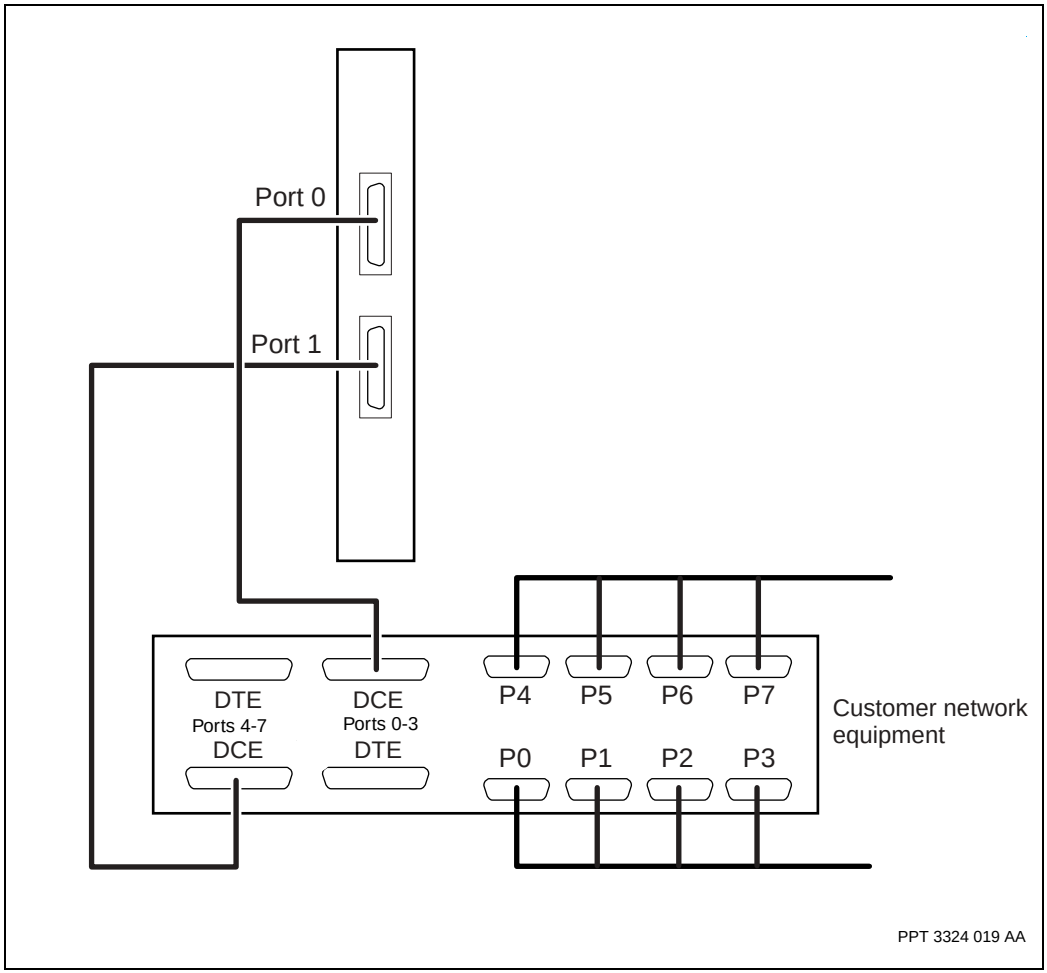


Figure 84
Connections for a V.11 FP—dual DCE



V.35 cable connections

The following figures show where to connect cables between a V.35 FP, a termination panel, and customer equipment. Although these figures show dual DTE and DCE connections, you can also connect termination panels as single DTE or single DCE configurations.

Mapping between a V.35 FP and termination panel connectors

This table summarizes the mapping between the connectors for the V.35 FP and its termination panel.

Table 17
Mapping between a V.35 FP and termination panel connectors

Faceplate connector	Termination panel port number
P0 (DTE/DCE)	0, 1, 2, and 3
P1 (DTE/DCE)	4, 5, 6, and 7

Figure 85
Connections for a V.35 FP—dual DTE

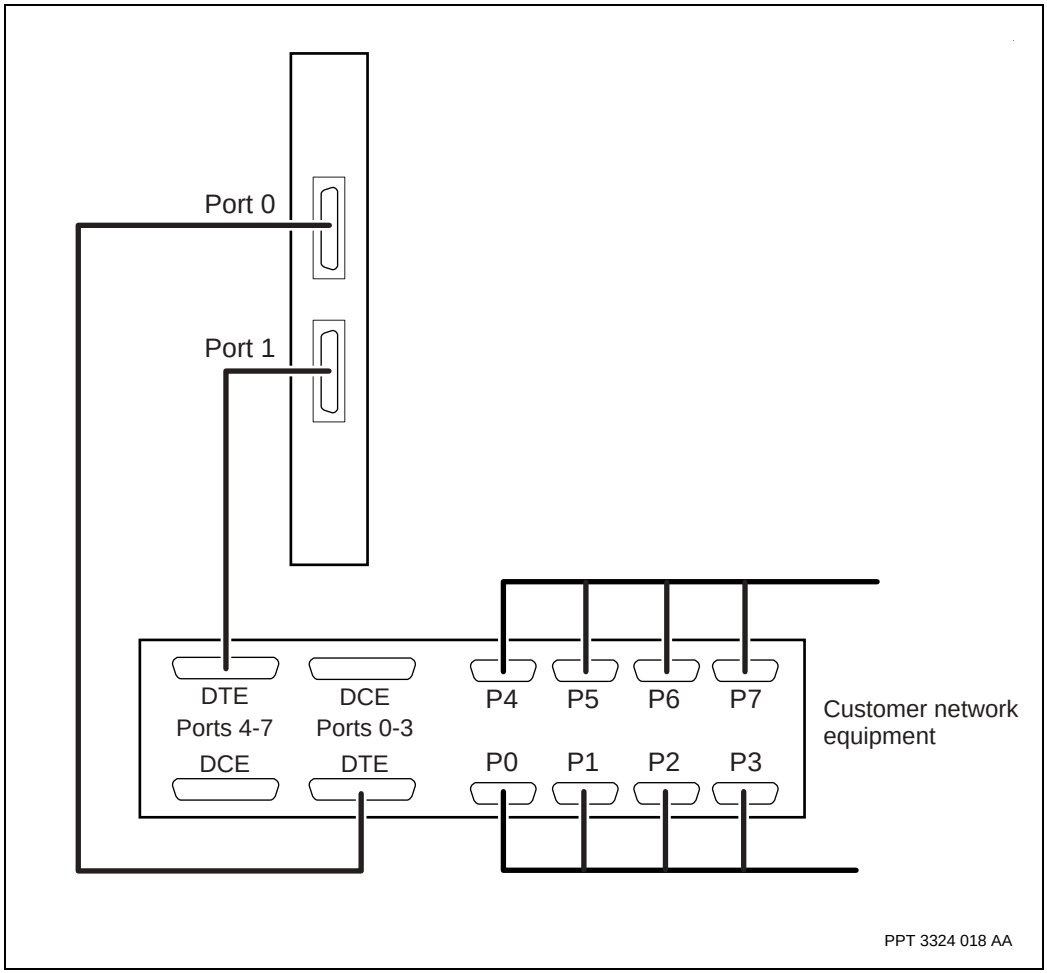
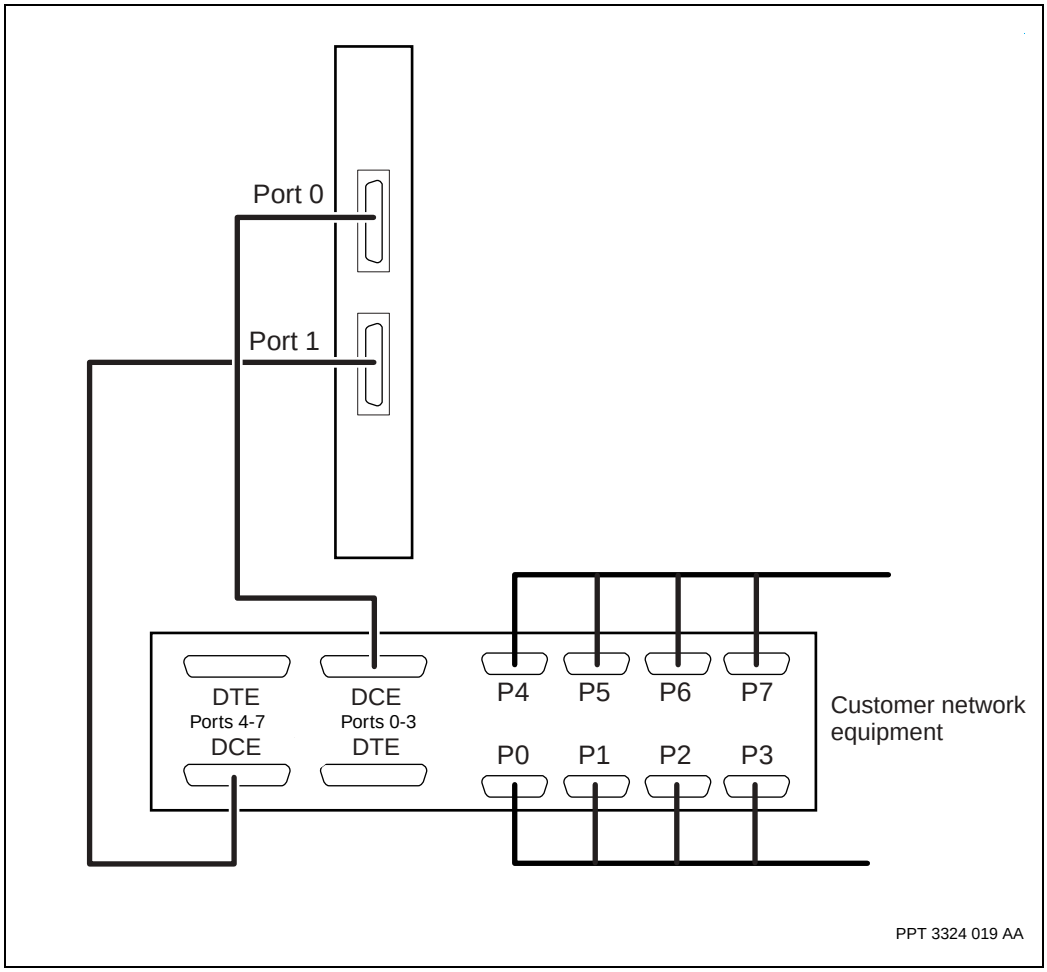


Figure 86
Connections for a V.35 FP—dual DCE



Multiservice Switch 7400
FP Cabling Reference

Release 6.1

Publication: NN10600-172
Document status: Standard
Document version: 6.1S2
Document date: November 2004
Printed in Canada

NORTEL NETWORKS