

	DWG ISS	CD ISS	DWG ISS	CD ISS	DWG ISS	CD ISS
	1	1	2D	2D	3D	3D
	DWG ISS	CD ISS	DWG ISS	CD ISS	DWG ISS	CD ISS
	4A	4A	5D	5D	5D 6B 1B	APPX
	DWG ISS	CD ISS	DWG ISS	CD ISS	DWG ISS	CD ISS
	7AC	5D APPX 2AC	8D	6D	9D	7D
	DWG ISS	CD ISS	DWG ISS	CD ISS	DWG ISS	CD ISS
	10D	8D	11M	9M	12A	10A
	DWG ISS	CD ISS	DWG ISS	CD ISS	DWG ISS	CD ISS
	13M	11M	14M	12M	15B	13B
	DWG ISS	CD ISS	DWG ISS	CD ISS	DWG ISS	CD ISS
	16M	14M	17A	15A	18M	16M
	DWG ISS	CD ISS	DWG ISS	CD ISS	DWG ISS	CD ISS
	19B	17B	20A	18A	21M	19M
	DWG ISS	CD ISS	DWG ISS	CD ISS	DWG ISS	CD ISS
	22A	20A	23M	21M	24M	22M
	DWG ISS	CD ISS	DWG ISS	CD ISS	DWG ISS	CD ISS
	25M	23M	26M	24M	27M	25M
	DWG ISS	CD ISS	DWG ISS	CD ISS	DWG ISS	CD ISS
	28M	26M	29M	27M	30M	28M
	DWG ISS	CD ISS	DWG ISS	CD ISS	DWG ISS	CD ISS
	31M	30M				
	DWG ISS		CD ISS		DATE ISSUED	APPD
	32M		31M		12/19/96	
	33M		32M		09/18/98	
	34M		33M		05/13/99	
5ESS® SWITCHING EQUIPMENT ASSIGNMENT RULES (SEE PAGE INDEX BEGINNING ON PAGE 2)						
LUCENT TECHNOLOGIES PRINTED IN U.S.A.			SIZE 1S		BT13	
					SD-5D007-01 (SHEET 1 of 183)	

1. GENERAL

1.1 Purpose

The purpose of this document is to provide the assignment rules for scan points, signal distribute points, peripheral interface control buses (PICB), peripheral interface data buses (PIDB), facility interface control buses (FICB), metallic test buses (MTB), and other engineerable items in a 5ESS® switching system.

1.2 General Description

This document is divided into sections corresponding to hardware divisions in a 5ESS switching system. Subdivisions within the document generally correspond to the unit level of hardware.

Within subsections, assignment rules are divided in two categories - Fixed and variable. Fixed assignments are made as described in this document. Variable assignments are made by the user within the constraints defined in this document when applicable.

Equipment quantities which are traffic related and are calculated in the network switching and engineering practices (NSEP) shall be referred to as job engineered in this document.

In this document the terms Switching Module (SM) and Switching Module 2000 (SM2000) are used to distinguish between two different versions of switching module hardware. SM hardware is capable of supporting up to four or six (US and international applications respectively) LTP cabinets while SM2000 hardware is capable of supporting up to 28 LTP cabinets.

It should be noted that in an actual office, all switching modules will be referred to as SMxxx (where xxx is a three digit number) regardless of whether the switching module uses SM or SM2000 hardware.

1.3 Scan and Signal Distribute Points

Scan points are generally utilized in a 5ESS switching system to monitor power and alarm status and to provide a low level communications link to the system for craft intervention. Scan points may be provided by the 3B IOP or the MMSU/MSU by equipping circuit packs designed for this purpose.

Signal distribute points are used to activate audible and visual indicators such as office alarms or RQIP and OOS LEDs on control and display circuit packs. SD points are provided by the 3B IOP or the MMSU/MSU by equipping circuit packs designed for this purpose.

Note: in some cases it may be necessary to provide resistor panel terminations in conjunction with SD points. See Resistor Panel Section for detailed information.

1.4 Peripheral Interface Control Bus (PICB)

In SM applications, PICBs are assigned from their respective peripheral units to the Switching Module Processor Unit (SMPU) of the same switching module. The SMPU provides 46 duplicated PICB ports. In offices utilizing the Time Slot Interchange Unit Model 2 (TSIU2), Module Controller/Time Slot Interchanger Unit (MCTU), or the Module Controller/Time Slot Interchanger Unit Model 2 (MCTU2), PICB assignments are made at those units within the guidelines stated above. In SM2000 applications, PICBs are assigned from their respective peripheral units to the Switching Module Processor Unit, Model 4 (SMPU4) of the same SM2000. The SMPU4 provides 92 duplicated PICB ports. Fixed or variable assignments of PICB are explained on a unit basis in this document. **Note: for a detailed description of PICB assignments see the SMPU, MCTU, MCTU2, or SMPU4 sections of this document.**

1.5 Peripheral Interface Data Bus (PIDB)

In SM applications, PIDBs are assigned to their respective peripheral units from the Time Slot Interchange Unit (TSIU), Time Slot Interchange Unit Model 2, Module Controller/Time Slot Interchanger Unit (MCTU), or Module Controller/Time Slot Interchanger Unit Model 2 of the same

switching module. The TSIU, TSIU2, MCTU, or MCTU2 provide 32 duplicated PIDB ports. In SM2000 applications, PIDBs are assigned to their respective peripheral units from the Time Slot Interchange Unit, Model 4 (TSIU4) of the same SM2000. The TSIU4 provides 144 duplicated PIDB ports. Fixed or variable assignments of PIDBs are explained on a unit basis in this document. **Note: for a detailed description of PIDB assignments see the TSIU, TSIU2, MCTU, MCTU2, or TSIU4 sections of this document.**

1.6 Directly connected PIDB (DPIDB)

DPIDB's are assigned from the IDCU and/or ISLU/ISLU2 to the PSU in ISDN applications. Up to 8 DPIDB's may be equipped for providing non-switched out-of-band control information via the D channel. **Note: for a detailed description of DPIDB assignments refer to IDCU, ISLU/ISLU2, and PSU sections of this document.**

1.7 Facility Interface Data Bus (FIDB)

All FIDBs are assigned to their respective Digital Line Trunk Unit (DLTU) from the Facilities Interface Unit (FIU) of the same RSM. The FIU is capable of providing up to 20 duplicated FIDBs to DLTUs terminating T1 umbilicals. **Note: for a detailed description of FIDB assignments see the FIU section of this document.**

1.8 Peripheral Link Interface (PLI)

In SM2000 applications, PLIs are assigned to their respective peripheral units from the Time Slot Interchange Unit, Model 4 (TSIU4) of the same SM2000. The PLI carries both control and data information to the peripheral units. The TSIU4 provides a maximum of 36 PLI links in a non-squared TSI configuration and a maximum of 19 PLIs in a squared TSI configuration (a squared configuration is a configuration in which the number of time slots allocated as peripheral time slots equals the number of time slots allocated as network time slots). Fixed or variable assignments of PLIs are explained on a unit basis in this document.

1.9 Metallic Test Bus (MTB)

All MTBs are assigned to their respective equipment from either the Metallic Service Unit (MSU) or the Modular Metallic Service Unit (MMSU). The number for MTBs required is detailed on a unit basis.

2. COMMUNICATIONS MODULE ASSIGNMENT RULES

2.1 Message Switch/Time Multiplexed Switch Complex

The duplicated Message Switch and Time Multiplexed Switch Cabinets are a 4 bay arrangement which can accommodate up to 30 local/host SM's or 48 combined SM's. For offices prior to 5E1(2), no Time Multiplexed Switch Cabinets are provided.

2.1.1 Message Switch Cabinet (MSG)

The MSG is a two cabinet complex with an office dependent equipment configuration ranging from a minimum configuration with a one SM capacity to the fully equipped configuration with a 48 module capacity. The MSG is always provided as a two cabinet complex for duplex operation regardless of office size. Reference: SD5D146, J5D006C (7-foot cabinet SD5D116, J5D006B). **Note: for single SM applications see SD-5D010-02 for Foundation Peripheral Controller (FPC) information.**

2.1.1.1 Fan Unit

Scan Points

a. Fixed

- (1) Scan points for MSG0 fan unit are duplicated and are assigned to PC02 of 3B IOP-0 and 3B IOP-1 basic units. Two types of scan points are provided for the fan unit in the MSG. The fan failure alarm reports to the IOP directly while the fan fuse alarm reports to the IOP via the Z scan output of the control and display circuit pack located in MICU-0. See "Tables and Figures" section for specific scan point assignments.
- (2) Scan points for MSG1 fan unit are duplicated and are assigned to PC02 of 3B IOP-0 and 3B IOP-1 basic units. Two types of scan points are provided for the fan unit in the MSG. The fan failure alarm reports to the IOP directly while the fan fuse alarm reports to the IOP via the Z scan output of the control and display circuit pack located in MICU-1. See "Tables and Figures" section for specific scan point assignments.

b. Variable - none

SD Points

a. Fixed

- (1) SD points for fan alarm remote reset in MSG0 are duplicated and are assigned to PC02 (UN33B circuit pack) of 3B IOP-0 and 3B IOP-1 basic units. See "Tables and Figures" section for specific SD point assignments.
- (2) SD points for fan alarm remote reset in MSG1 are duplicated and are assigned to PC02 (UN33B circuit pack) of 3B IOP-0 and 3B IOP-1 basic units. See "Tables and Figures" section for specific SD point assignments.

b. Variable - none

PICB - none

PIDB - none

MTB - none

2.1.1.2 Message Interface Clock Unit (MICU)

The MICU is required in all office applications. The unit may appear in a single SM or multimodule configuration. The network clock housed in this unit may also appear in multiple configurations. Reference: SD5D125, J5D006AA.

Scan Points

a. Fixed

- (1) Scan points for MICU-0 are duplicated and are assigned to PC02 (UN33B circuit pack) in 3B IOP-0 and 3B IOP-1 basic units. See "Tables and Figures" section for specific scan point assignments.
- (2) Scan points for MICU-1 are duplicated and are assigned to PC02 (UN33B circuit pack) in 3B IOP-0 and 3B IOP-1 basic units. See "Tables and Figures" section for specific scan point assignments.

b. Variable - none

SD Points

a. Fixed

- (1) SD points for MICU-0 are duplicated and are assigned to PC02 (UN33B circuit pack) in 3B IOP-0 and 3B IOP-1 basic units. See "Tables and Figures" section for specific

distribute point assignments.

- (2) SD points for MICU-1 are duplicated and are assigned to PC02 (UN33B circuit pack) in 3B IOP-0 and 3B IOP-1 basic units. See "Tables and Figures" section for specific distribute point assignments.

b. Variable - none

PICB - none

PIDB - none

MTB - none

2.1.1.3 Message Interface Clock Unit, Model 2 (MICU2)

The MICU2 is required in place of MICU in all office applications utilizing any Network Clock 2 option. These applications include export local, export toll and domestic toll offices. Reference: SD5D082-01, J5D006ED

Equipment Rules

1. The network clock may be equipped in the following configurations:
 - Medium stability (Stratum 3), 24 channel, external synchronization.
 - Medium stability (Stratum 3), 24 channel, stand alone mode.
 - Medium stability (Stratum 3), 24 channel, external synchronization, Network Clock 2 for domestic local applications.
 - Medium stability (Stratum 3), 24 channel, external synchronization, Network Clock 2 for export local applications.
 - High stability (Stratum 2), 24 channel, external synchronization, Network Clock 2 for domestic toll applications.
 - High stability (Stratum 2), 24 channel, external synchronization, Network Clock 2 for export toll applications.
 - Medium stability, 30 channel, external synchronization, Network Clock 2 for export local applications, equipped for four digital or three digital and one analog reference source.
 - High stability, 30 channel, external synchronization, Network Clock 2 for export toll applications, equipped for four digital or three digital and one analog reference source.

Scan Points

a. Fixed

- (1) Scan points for MICU2-0 are duplicated and are assigned to PC02 (UN33B circuit pack) in 3B IOP-0 and 3B IOP-1 basic units. See "Tables and Figures" section for specific scan point assignments.
- (2) Scan points required for all NCLK2-0 are assigned to PC12 (UN33B circuit pack) in 3B IOP 0 and IOP 1 basic units. See "Tables and Figures" section for specific scan point assignments.
- (3) Scan points for MICU2-1 are duplicated and are assigned to PC02 (UN33B circuit pack) in 3B IOP-0 and 3B IOP-1 basic units. See "Tables and Figures" section for specific scan point assignments.
- (4) Scan points required for all NCLK2-1 are assigned to PC12 (UN33B circuit pack) in 3B IOP 0 and IOP 1 basic units. See "Tables and Figures" section for specific scan point assignments.

b. Variable - none

SD Points

a. Fixed

- (1) SD points for MICU2-0 are duplicated and are assigned to PC02 (UN33B circuit pack) in 3B IOP-0 and 3B IOP-1 basic units. See "Tables and Figures" section for specific distribute point assignments.
- (2) SD points required for NCLK2-0 are assigned to PC12 (UN33B circuit pack) in 3B IOP 0 and IOP 1 basic units. See "Tables and Figures" section for specific distribute point assignments.
- (3) SD points for MICU2-1 are duplicated and are assigned to PC02 (UN33B circuit pack) in 3B IOP-0 and 3B IOP-1 basic units. See "Tables and Figures" section for specific distribute point assignments.
- (4) SD points required for NCLK2-1 are assigned to PC12 (UN33B circuit pack) in 3B IOP 0 and IOP 1 basic units. See "Tables and Figures" section for specific distribute point assignments.

b. Variable - none

PICB - none

PIDB - none

MTB - none

2.1.1.4 Message Switch Control Unit (MSCU)

The MSCU is required for all applications of two or more modules. The basic configuration of the MSCU is equipped for up to 32 modules. Providing an additional UN25B circuit pack in conjunction with the addition of an MSPU2 in the MSG will equip the MSCU for up to 48 modules. (30 SM maximum) Reference: SD5D026, J5D006AB

Scan Points

a. Fixed

- (1) Scan points for MSCU-0 are duplicated and are assigned to PC10 (UN33B circuit pack) in 3B IOP-0 and 3B IOP-1 basic units. See "Tables and Figures" section for specific scan point assignments.
- (2) Scan points for MSCU-1 are duplicated and are assigned to PC10 (UN33B circuit pack) in 3B IOP-0 and 3B IOP-1 basic units. See "Tables and Figures" section for specific scan point assignments.

b. Variable - none

SD points

a. Fixed

- (1) Distribute points for MSCU-0 are duplicated and are assigned to PC10 (UN33B circuit pack) in 3B IOP-0 and 3B IOP-1 basic units. See "Tables and Figures" section for specific distribute point assignments.
- (2) Distribute points for MSCU-1 are duplicated and are assigned to PC10 (UN33B circuit pack) in 3B IOP-0 and 3B IOP-1 basic units. See "Tables and Figures" section for specific distribute point assignments.

b. Variable - none

PICB - none

PIDB - none

MTB - none

2.1.1.5 Message Switch Peripheral Unit (MSPU)

The MSPU is required for all applications of two or more modules. The multimodule configuration of the MSG will always be equipped with three (3) MSPUs per cabinet. Of the three MSPUs two units are utilized for equipping Module Message Processors (MMP) which are added in pairs (one in each unit within a simplex cabinet) as the number of modules in a 5ESS switching office increases. One MSPU is dedicated to the Foundation Peripheral Controller (FPC) and Pump Peripheral Controller (PPC). Reference: SD5D136, J5D006AD.

Scan Points

a. Fixed

- (1) Scan points for MSPUs in cabinet 0 are duplicated and are assigned to PC10 (UN33B circuit pack) in 3B IOP-0 and 3B IOP-1 basic units. See "Tables and Figures" section for specific scan point assignments.
- (2) Scan points for MSPUs in cabinet 1 are duplicated and are assigned to PC10 (UN33B circuit pack) in 3B IOP-0 and 3B IOP-1 basic units. See "Tables and Figures" section for specific scan point assignments.

b. Variable - none

SD Points

a. Fixed

- (1) Distribute points for MSPUs in cabinet 0 are duplicated and are assigned to PC10 (UN33B circuit pack) in 3B IOP-0 and 3B IOP-1 basic units. See "Tables and Figures" section for specific distribute point assignments.
- (2) Distribute points for MSPUs in cabinet 1 are duplicated and are assigned to PC10 (UN33B circuit pack) in 3B IOP-0 and 3B IOP-1 basic units. See "Tables and Figures" section for specific distribute point assignments.

b. Variable - none

PICB - none

PIDB - none

MTB - none

2.1.1.6 Message Switch Peripheral Unit, Model 2 (MSPU2)

The MSPU2 is a single shelf dual community growth unit. The MSPU2 can be equipped with up to two additional duplicated MMPs, extending the capacity of the MSG by sixteen modules. Reference: SD5D066-01, J5D006AF-1.

Scan Points

a. Fixed

- (1) Scan points for each of two communities in the MSPU2 in cabinet 0 are duplicated and are assigned to PC10 in 3B-IOP-0 and 3B-IOP-1 basic units. See "Tables and Figures" section for specific scan point assignments.
- (2) Scan points for each of two communities in the MSPU2 in cabinet 1 are duplicated and are assigned to PC10 in 3B-IOP-0 and 3B-IOP-1 basic units. See "Tables and

Figures" section for specific scan point assignments.

b. Variable - none

SD Points

a. Fixed

- (1) SD points for each of two communities in the MSPU2 in cabinet 0 are duplicated and are assigned to PC10 in 3B-IOP-0 and 3B-IOP-1 basic units. See "Tables and Figures" section for specific distribute point assignments.
- (2) SD points for each of two communities in the MSPU2 in cabinet 1 are duplicated and are assigned to PC10 in 3B-IOP-0 and 3B-IOP-1 basic units. See "Tables and Figures" section for specific distribute point assignments.

b. Variable - none

PICB - none

PIDB - none

MTB - none

2.1.2 Time Multiplexed Switch (TMS)

The TMS is a two bay complex which provides duplicated Time Multiplexed Switch Control Units (TMCU) and Time Multiplexed Switch Units (TMSU) in applications of two or more modules. Reference: SD5D147-01, J5D001C

2.1.2.1 Fan Unit

Scan Points

a. Fixed

- (1) Scan points for TMS 0 fan unit are duplicated and are assigned to PC 10 of 3B IOP 0 and 3B IOP 1. Two scan point functions are provided for the TMS fan unit. The fan failure alarm reports to the IOP directly while the fan fuse alarm reports to the IOP via the Z scan point of the TMCU. See "Tables and Figures" section for specific scan point assignments.
- (2) Scan points for TMS 1 fan unit are duplicated and are assigned to PC 10 of 3B IOP 0 and 3B IOP 1. Two scan point functions are provided for the TMS fan unit. The fan failure alarm reports to the IOP directly while the fan fuse alarm reports to the IOP via the Z scan point of the TMCU. See "Tables and Figures" section for specific scan point assignments.

b. Variable - none

SD points

a. Fixed

- (1) SD points for TMS 0 fan alarm remote reset are duplicated and are assigned to PC 10 of 3B IOP 0 and 3B IOP 1. See "Tables and Figures" section for specific SD point assignments.
- (2) SD points for TMS 1 fan alarm remote reset are duplicated and are assigned to PC 10 of 3B IOP 0 and 3B IOP 1. See "Tables and Figures" section for specific SD point assignments.

b. Variable - none

PICB - none

PIDB - none

MTB - none

2.1.2.2 Time Multiplexed Switch Control Unit (TMCU)

The TMCU is always equipped in the TMS cabinet.

Scan Points

a. Fixed

- (1) Scan points for TMCU 0 are duplicated and are assigned to PC 10 of 3B IOP 0 and 3B IOP 1. See "Tables and Figures" section for specific scan point assignments.
- (2) Scan points for TMCU 1 are duplicated and are assigned to PC 10 of 3B IOP 0 and 3B IOP 1. See "Tables and Figures" section for specific scan point assignments.

b. Variable - none

SD Points

a. Fixed

- (1) SD points for TMCU 0 are duplicated and are assigned to PC 10 of 3B IOP 0 and 3B IOP 1. See "Tables and Figures" section for specific SD point assignments.
- (2) SD points for TMCU 1 are duplicated and are assigned to PC 10 of 3B IOP 0 and 3B IOP 1. See "Tables and Figures" section for specific SD point assignments.

b. Variable - none

PICB - none

PIDB - none

MTB - none

2.1.2.3 Time Multiplexed Switch Unit (TMSU)

The TMSU is always equipped in the TMS cabinet.

Scan Points - none

SD Points - none

PICB - none

PIDB - none

MTB - none

2.2 Communications Module, Model 2 (CM2)

The CM2 is a 2 to 12 bay growable complex, combining the TMS and MSG functions and providing communication module processing. The CM2 is available in single or dual fabric configurations. In applications in which a CM2 interfaces with only SMs and NOT SM2000, a single fabric CM2 provides a capacity of up to 94 SMs (plus two RSMs) while the dual fabric capacity is 190 SMs (plus two RSMs). In applications in which a CM2 interfaces with a SM2000, a single fabric CM2 equipped with QLI2 circuit packs provides a capacity of up to 92 NCT2 links (and supports two SMs) while a dual fabric CM2 equipped with QLI2 circuit packs provides a capacity of 188 NCT2 links (and supports two SMs). The CM2 is grown outward in two directions from the center two bays (05 and 06) and the line up is mirror imaged about the center line.

For a CM2 that only interfaces to SMs and not SM2000s, the first two bays (05 and 06) provide a duplicated CM2 with a 30 SM (60 NCT link) capacity for both single and dual fabric configurations. Since only 30 SMs maybe associated with CM2 bays 05 and 06 due to NCT link availability, CM2 bays 05 and 06 may support an additional two RSMs (which do not require NCT links) in order to fully utilize the capacity of these bays. The addition of the second two bays (04 and 07) provide a duplicated CM2 with a 62 SM (124 NCT link) capacity while the addition of a third pair of bays (03 and 08) provide a duplicated CM2 with a 94 SM (188 NCT link) capacity for both single and dual fabric configurations. The addition of a fourth pair of bays provides a duplicated CM2 with a 126 SM (152 NCT link) capacity in the dual fabric configuration. The addition of a fifth pair of bays (01 and 10) provides a duplicated CM2 with a 158 SM (316 NCT link) capacity while the final two growth bays (00 and 11) provide a duplicated CM2 with a capacity of up to 190 SMs (380 NCT link) in a dual fabric configuration.

For a CM2 that interfaces to only SM2000s, the first two bays (05 and 06) provide a duplicated CM2 with a 28 NCT2 link capacity for both single and dual fabric configurations. Since only 28 NCT2 links may be associated with CM2 bays 05 and 06 due to NCT2 link availability, CM2 bays 05 and 06 may support an additional two SMs (which do not require NCT2 links but use NCT links) in order to fully utilize the capacity of these bays. The addition of the second two bays (04 and 07) provide a duplicated CM2 with a 60 NCT2 link capacity while the addition of a third pair of bays (03 and 08) provide a duplicated CM2 with a 92 NCT2 link capacity for both single and dual fabric configurations. The addition of a fourth pair of bays provides a duplicated CM2 with a 124 NCT2 link capacity in the dual fabric configuration. The addition of a fifth pair of bays (01 and 10) provides a duplicated CM2 with a 156 NCT2 link capacity while the final two growth bays (00 and 11) provide a duplicated CM2 with a capacity of up to 188 NCT2 links in a dual fabric configuration.

It is possible to provide both NCT links and NCT2 links within a CM2. All SMs must be assigned to a NCT link while all SM2000s must be assigned to a NCT2 link. When assigning SMs to NCT links in offices which are also equipped with a SM2000, the maximum number of SMs supported by the CM2 (previously mentioned) are no longer valid since SM2000 is also equipped in the office.

The CM2 will be equipped with single Module Message Processors (MMP) in offices prior to the 5E6 generic. 5E6 or later generic offices may provide single or dual MMPs. Dual MMPs improve both reliability and performance by providing two links, as opposed to one link provided by single MMP, for each SM utilizing the dual MMPs. For OSPS applications and applications requiring reliability which exceeds LSSGR specifications (some possible applications are ISDN SMs with Application Processors which contain high message traffic, ISDN Shared DN, high concentration of analog lines that are members of a Shared DN group, etc.) the dual MMP configuration is required. Reference: J5D020A (bays 05 and 06), J5D020B (all other bays), SD5D140-01 (Single fabric), SD5D144-02 (Dual fabric)

Peripheral Controller (PC) communities within the CM are defined as follows:

<u>PC Community</u>	<u>Defined Community</u>
0	CMPU-0
1	FPC/PPC-1
2-7	MMP (2-7)
8	CMPU-8
9	Unassigned
10-15	MMP (10-15)

2.2.1 Communications Module Control Unit (CMCU)

The CMCU provides TMS control, message interface, and network clock functions. The CMCU can be equipped in single or dual fabric configurations and with several application oriented network clock options. Reference: J5D020AA, SD5D060-01

Equipment Rules

1. The network clock may be equipped in the following configurations:
 - Medium stability (Stratum 3), 24 channel, external synchronization, Network Clock 2 for domestic local applications
 - Medium stability (Stratum 3), 24 channel, external synchronization, Network Clock 2 for export local applications
 - High stability (Stratum 2), 24 channel, external synchronization, Network Clock 2 for domestic toll applications
 - High stability (Stratum 2), 24 channel, external synchronization, Network Clock 2 for export toll applications
 - Medium stability, 30 channel, external synchronization, Network Clock 2 for export local applications, equipped for four digital or three digital and one analog reference source.
 - High stability, 30 channel, external synchronization, Network Clock 2 for export toll applications, equipped for four digital or three digital and one analog reference source.

Scan Points

- a. Fixed
 - (1) Scan points for CMCU-0 are duplicated and are assigned to PC12 in 3B IOP 0 and 1. See "Tables and Figures" section for specific scan assignments.
 - (2) Scan points for Network Clock, Model 2 - 0 (NCLK2) are duplicated and are assigned to PC13 in 3B IOP 0 and 1. See "Tables and Figures" section for specific scan assignments.
 - (3) Scan points for CMCU-1 are duplicated and are assigned to PC12 in 3B IOP 0 and 1. See "Tables and Figures" section for specific scan assignments.
 - (4) Scan points for Network Clock, Model 2 - 1 (NCLK2) are duplicated and are assigned to PC13 in 3B IOP 0 and 1. See "Tables and Figures" section for specific scan assignments.
- b. Variable - none

SD Points

- a. Fixed
 - (1) SD points for CMCU-0 are duplicated and are assigned to PC12 in 3B IOP 0 and 1. See "Tables and Figures" section for specific SD assignments.
 - (2) SD points for Network Clock, Model 2 - 0 (NCLK2) are duplicated and are assigned to PC13 in 3B IOP 0 and 1. See "Tables and Figures" section for specific SD assignments.
 - (3) SD points for CMCU-1 are duplicated and are assigned to PC12 in 3B IOP 0 and 1. See "Tables and Figures" section for specific SD assignments.
 - (4) SD points for Network Clock, Model 2 - 1 (NCLK2) are duplicated and are assigned to PC13 in 3B IOP 0 and 1. See "Tables and Figures" section for specific SD assignments.

assignments.

b. Variable - none

PICB - none

PIDB - none

MTB - none

2.2.2 COMMUNICATION MODULE PROCESSOR UNIT (CMPU)

The CMPU is required in all offices of a 5E6 or later software release in order to provide call processing. The CMPU is a single shelf unit providing two communities. Reference: SD5D178-01, J5D020AF

(NOTE: Reference the CM2C section of this document for engineering rules related to the use of the CMPU in CM2C applications.)

Equipment Rules For CM2 Applications

1. The leftmost community, as view from the front of the unit, is designated as community 8 while the rightmost community is designated as community 0.
2. Community 0 provides two communication module processors (CMPs),
3. CMP-00 and CMP-01 as viewed from the front of the unit.
4. Community 0, CMP-00 is always required.
5. Each CMP equipped within community 0 requires one CMP core (TN1368) circuit pack and from one to three Auxiliary Memory (TN1369) circuit packs or one CMP core (TN1800) circuit pack and one Auxiliary Memory (TN1369) circuit pack. The number of Auxiliary Memory (TN1369) circuit packs is office engineered.
6. In community 0, the auxiliary memory (TN1369) circuit packs shall be equipped from the leftmost auxiliary memory circuit pack position, as viewed from the front of the unit, to the rightmost auxiliary memory circuit pack position within the CMP being equipped. Community 8 is used for Gateway applications.
7. In Gateway applications, community 8 of each CMP can be equipped with either one or two Quad Gate Links (QGL) grown from left to right as viewed from the front of the unit.
8. A Quad Gate Link (QGL) consists of two circuit packs. The TN1683 Gateway Processor circuit pack and the TN1684 Gateway Link circuit pack.

Scan Points

a. Fixed

Scan points for CMP communities are duplicated and are assigned to PC10 in 3B IOP 0 and 1. See "Tables And Figures" section for specific scan point assignments.

b. Variable - none

SD Points

a. Fixed

SD Points for CMP communities are duplicated and are assigned to PC10 in 3B IOP 0 and 1. See "Tables And Figures" section for specific SD point assignments.

b. Variable - none

PICB - none

PIDB - none

MTB - none

2.2.3 6-Fan Unit

The 6-Fan Unit utilized in CM2 houses six fans in a single shelf enclosure. Each fan is monitored for fan failures which are reported via scan outputs. A remote reset feature is provided for the fan failure alarms via an SD point. Fan fuses are also monitored and alarmed via scan points. Reference: J5D003BN, SD5D081-02

Equipment Rules - none

Scan Points

a. Fixed

- (1) Fan fuse alarms are reported directly to the "Z" scan input of a TMSU in the same cabinet and to the IOP via the CMCU of the associated CM2. See "Tables and Figures" section for specific scan point assignments.
- (2) All fan failure alarm leads for CM2-0 are combined and report on a duplicated basis to PC12 of IOP 0 and 1. See "Tables and Figures" section for specific scan assignments.
- (3) All fan failure alarm leads for CM2-1 are combined and report on a duplicated basis to PC13 of IOP 0 and 1. See "Tables and Figures" section for specific scan assignments.

b. Variable - none

SD Points

a. Fixed

- (1) All fan alarm remote reset leads for CM2-0 are combined and terminate on a duplicated basis to PC12 of IOP 0 and 1. See "Tables and Figures" section for specific SD assignments.
- (2) All fan alarm remote reset leads for CM2-1 are combined and terminate on a duplicated basis to PC13 of IOP 0 and 1. See "Tables and Figures" section for specific SD assignments.

b. Variable - none

PICB - none

PIDB - none

MTB - none

2.2.4 Message Switch Control Unit, Model 2 (MSCU2)

The MSCU2 provides the growable Message Switch Control function and the Foundation Peripheral Controller (FPC) and Pump Peripheral Controller (PPC) functions in two independent service groups. Reference: J5D020AB, SD5D077

Note: For the purpose of this description, SM is synonymous with local, host, remote SM.

Equipment Rules

1. The first set of IOMI circuit packs equipped in the MSCU2 can support up to 32 SM/SM2000s. The addition of the second set of IOMI circuit packs can support up to 96 SM/SM2000s while the addition of the third set of IOMI circuit packs can support up to 128

SM/SM2000s. The addition of the fourth set of IOMI circuit packs can support up to 192 SM/SM2000s.

Scan Points

a. Fixed

- (1) Scan points for MSCU2-0 are duplicated and are assigned to PC12 in 3B IOP 0 and 1. See "Tables and Figures" section for specific scan assignments.
- (2) Scan points for FPC0/PPC0 are duplicated and are assigned to PC12 in 3B IOP 0 and 1. See "Tables and Figures" section for specific scan assignments.
- (3) Scan points for MSCU2-1 are duplicated and are assigned to PC13 in 3B IOP 0 and 1. See "Tables and Figures" section for specific scan assignments.
- (4) Scan points for FPC1/PPC1 are duplicated and are assigned to PC13 in 3B IOP 0 and 1. See "Tables and Figures" section for specific scan assignments.

b. Variable - none

SD Points

a. Fixed

- (1) SD points for MSCU2-0 are duplicated and are assigned to PC12 in 3B IOP 0 and 1. See "Tables and Figures" section for specific SD assignments.
- (2) SD points for FPC0/PPC0 are duplicated and are assigned to PC12 in 3B IOP 0 and 1. See "Tables and Figures" section for specific SD assignments.
- (3) SD points for MSCU2-1 are duplicated and are assigned to PC13 in 3B IOP 0 and 1. See "Tables and Figures" section for specific SD assignments.
- (4) SD points for FPC1/PPC1 are duplicated and are assigned to PC13 in 3B IOP 0 and 1. See "Tables and Figures" section for specific SD assignments.

b. Variable - none

PICB - none

PIDB - none

MTB - none

2.2.5 Message Switch Peripheral Unit, Model 3 (MSPU3)

The MSPU3 is a single shelf unit with two service groups. For dual Module Message Processor (MMP) CM2 configurations, both service groups are equipped. For single MMP CM2 configurations, one service group is equipped. Reference: J5D020AC, SD5D078-01

Note: For the purposes of this description SM is synonymous with local, host, or remote SM.

Equipment Rules

1. Each equipped MMP provides an 8 SM/SM2000 growth increment in the single MMP mode.
2. The MSPU3 is equipped in 8 SM/SM2000 growth increments, with MMP's provided in a left to right sequence, (as viewed from the equipment side of the unit) to a maximum of 32 SM/SM2000s per unit.
3. For single MMP CM2 configurations, the left most community (as viewed from the equipment side of the unit) is equipped.

4. For dual MMP CM2 configurations, both MMP communities within a unit are identically equipped with each duplicated MMP providing an 8 SM/SM2000 growth increment.

Scan Points

- a. Fixed
 - (1) Scan points for MSPU3 communities associated with CM2-0 are duplicated and are assigned to PC10 and PC12 in 3B IOP 0 and 1. See "Tables and Figures" section for specific scan assignments. **See "Conversion Considerations" section for additional information**
 - (2) Scan points for MSPU3 communities associated with CM2-1 are duplicated and are assigned to PC10 and PC13 in 3B IOP 0 and 1. See "Tables and Figures" section for specific scan assignments. **See "Conversion Considerations" section for additional information**
- b. Variable - none

SD Points

- a. Fixed
 - (1) SD points for MSPU3 communities associated with CM2-0 are duplicated and are assigned to PC10 and PC12 in 3B IOP 0 and 1. See "Tables and Figures" section for specific SD point assignments. **See "Conversion Considerations" section for additional information**
 - (2) SD points for MSPU3 communities associated with CM2-1 are duplicated and are assigned to PC10 and PC13 in 3B IOP 0 and 1. See "Tables and Figures" section for specific SD point assignments. **See "Conversion Considerations" section for additional information**
- b. Variable - none

PICB - none

PIDB - none

MTB - none

Conversion Considerations

Note: Prior to an office conversion to CM2, the 5ESS Switching System must be operating on the 5E2(2) generic. The UN33B's (scan/SD circuit pack) in PC10 of IOP 0 and 1 are utilized for the Message Switch and Time Multiplexed Switch in offices not equipped with CM2 hardware. PC12 and 13 are equipped to provide scan and SD points to support a CM2 of up to a 126 SM capacity (in SM applications). Subsequent to a MSG/TMS to CM2 conversion, the UN33B in PC10 may be removed or utilized for CM2 growth beyond 126 SM's.

In new offices shipping with CM2, PC10 will not be equipped if office size is not expected to exceed 126 SM's (in SM applications).

2.2.6 Time Multiplexed Switch Unit, Model 2 (TMSU2)

The TMSU2 provides a growable switch fabric to switch up 64 NCT links (32 SMs) per bay or 32 NCT2 links for SM2000 applications. (NOTE: Only 60 NCT links (30 SMs) maybe associated with CM2 bays 5 and 6 due to NCT link availability within the bays. Only 28 NCT2 links may be associated with CM2 bays 5 and 6 due to NCT2 link availability within these bays.) Reference: J5D020AD, SD5D061

Note: For the purpose of this description, SM is synonymous with local SM or host SM or both as opposed to remote SM.

Equipment Rules

1. The TN888 Quad Link Interface (QLI) circuit pack provides four NCT links per pack. The QLI is used to interface to a SM.
2. The TN1681 Quad Link Interface 2 (QLI2) circuit pack provides 2 NCT2 links per pack. The QLI2 is used to interface to a SM2000.
3. It is possible to mix TN888 QLI packs and TN1681 QLI2 packs within the same TMSU2.
4. All applications requiring the TN1682 Quad Link Packet Switch (QLPS) circuit pack must have two QLPS circuit packs equipped in CM2 side 0 and two QLPS circuit packs equipped in the corresponding cabinet on CM2 side 1.
5. In single fabric configurations, the TN1682 QLPS circuit packs required for a given CM2 side may be equipped within the same TMSU or between separate TMSUs.
6. In dual fabric configurations, the TN1682 QLPS circuit packs required for a given CM2 side must be equipped in separate TMSUs located within the same cabinet.
7. TMSU2 and TMSU3 units can NOT be equipped in the same cabinet for CM2 cabinets 5 or 6.
8. TMSU2 and TMSU3 units may be equipped in the same cabinet for CM2 cabinets 0, 1, 2, 3, 4, 7, 8, 9, 10, or 11.

Scan Points

- a. Fixed
 - (1) Scan functions for TMSU's associated with CM2 side 0 are combined and report to PC12 of 3B IOP 0 and 1 via CMCU-0. See "Tables and Figures" section for specific scan point assignments.
 - (2) Scan functions for TMSU's associated with CM2 side 1 are combined and report to PC13 of 3B IOP 0 and 1 via CMCU-1. See "Tables and Figures" section for specific scan point assignments.
- b. Variable - none

SD Points

- a. Fixed
 - (1) SD points for TMSU's associated with CM2 side 0 are combined and report to PC12 of 3B IOP 0 and 1 via CMCU-0. See "Tables and Figures" section for specific SD point assignments.
 - (2) SD points for TMSU's associated with CM2 side 1 are combined and report to PC13 of 3B IOP 0 and 1 via CMCU-1. See "Tables and Figures" section for specific SD point assignments.
- b. Variable - none

PICB - none

PIDB - none

MTB - none

2.2.7 Time Multiplexed Switch Unit, Model 3 (TMSU3)

The TMSU3 provides a growable switch fabric to switch up 64 NCT links (32 SMs) per bay or 32 NCT2 links for SM2000 applications. (NOTE: Only 60 NCT links (30 SMs) may be associated with CM2 bays 5 and 6 due to NCT link availability within the bays. Only 28 NCT2 links may be associated with CM2 bays 5 and 6 due to NCT2 link availability within these bays.) Reference:

Note: For the purpose of this description, SM is synonymous with local SM or host SM or both as opposed to remote SM. SM2000 refers to a local or host SM2000.

Equipment Rules

1. The TN888 Quad Link Interface (QLI) circuit pack provides four NCT links per pack. The QLI is used to interface to a SM.
2. The TN1681 Quad Link Interface 2 (QLI2) circuit pack provides 2 NCT2 links per pack. The QLI2 is used to interface to a SM2000.
3. It is possible to mix TN888 QLI packs and TN1681 QLI2 packs within the same TMSU3.
4. All applications requiring the TN1682 Quad Link Packet Switch (QLPS) circuit pack must have two QLPS circuit packs equipped in CM2 side 0 and two QLPS circuit packs equipped in the corresponding cabinet on CM2 side 1.
5. In single fabric configurations, the TN1682 QLPS circuit packs required for a given CM2 side may be equipped within the same TMSU or between separate TMSUs.
6. In dual fabric configurations, the TN1682 QLPS circuit packs required for a given CM2 side must be equipped in separate TMSUs located within the same cabinet.
7. TMSU2 and TMSU3 units can NOT be equipped in the same cabinet for CM2 cabinets 5 or 6.
8. TMSU2 and TMSU3 units may be equipped in the same cabinet for CM2 cabinets 0, 1, 2, 3, 4, 7, 8, 9, 10, or 11.

Scan Points

- a. Fixed
 - (1) Scan functions for TMSU's associated with CM2 side 0 are combined and report to PC12 of 3B IOP 0 and 1 via CMCU-0. See "Tables and Figures" section for specific scan point assignments.
 - (2) Scan functions for TMSU's associated with CM2 side 1 are combined and report to PC13 of 3B IOP 0 and 1 via CMCU-1. See "Tables and Figures" section for specific scan point assignments.
- b. Variable - none

SD Points

- a. Fixed
 - (1) SD points for TMSU's associated with CM2 side 0 are combined and report to PC12 of 3B IOP 0 and 1 via CMCU-0. See "Tables and Figures" section for specific SD point assignments.
 - (2) SD points for TMSU's associated with CM2 side 1 are combined and report to PC13 of 3B IOP 0 and 1 via CMCU-1. See "Tables and Figures" section for specific SD point assignments.
- b. Variable - none

PICB - none

PIDB - none

MTB - none

2.3 Communications Module, Model 2 Compact (CM2C)

The CM2C is a two to three shelf complex. A CM2C always requires a Communication Module Unit (CMU) while the Communications Module Processor Unit (CMPU) is optional. The CM2C can reside in either the SMC or LTP cabinet. It provides the TMS functions, MSG functions, network clock functions, and provides communication module processing. The CM2C can support either single or dual Module Message Processors (MMP). It also supports a single fabric configuration but not a dual fabric configuration. A single fabric CM2C provides up to four NCT links which can support the following:

- One SM (Int'l and US applications)
- One SM2000 (Int'l applications)
- Two SMs (Int'l and US applications)
- One SM2000 and one SM (Int'l applications)

The Peripheral Controller (PC) communities within the CM are defined as follows:

<u>PC Community</u>	<u>Defined Community</u>
0	CMPU-0
1	FPC/PPC-1
2-3	MMP (2-3)

2.3.1 Communications Module Unit (CMU)

The CMU is a two shelf unit with which is divided into side 0 and side 1. Side 0 is located in the bottom unit location of the CMU while side 1 is located in the top unit location of the CMU. The CMU provides all of the TMS, MSG, and communication module processing functions along with the network clock functions. Reference: J5D020AJ, SD5D513-01

Equipment Rules

1. The network clock may be equipped in the following configurations:
 - Medium stability (Stratum 3), 24 channel, external synchronization, Network Clock 2 (TN1286B).
 - High stability (Stratum 2), 24 channel, external synchronization, Network Clock 2 (TN1284B).
 - Medium stability (Stratum 3), 30 channel, external synchronization, Network Clock 2 (TN1285B).
 - High stability (Stratum 2), 30 channel, external synchronization, Network Clock 2 (TN1283B).
2. 24 channel network clock applications require a "NCLK2 Synchronization - 24 channel" (TN1274B) circuit pack.
3. 30 channel network clock applications require a "NCLK2 Synchronization - 30 (TN1275B) circuit pack.

4. Medium stability network clock applications require a "NCLK2 Control, Medium Stability" (MC5D215A2) circuit pack.
5. High stability network clock applications require a "NCLK2 Control - High Stability" (MC5D222A1) circuit pack.
6. In single MMP applications, MMP community 2 is equipped in CMU side 0 while MMP community 3 is equipped in CMU side 1.
7. Each equipped NCT link requires one pair of Optical Data Links (one 982TRC and one 982TSC) on each side of the CMU.
8. When interfacing with a SM2000, the TSIU4 must be equipped with a Network Link Interface 1 circuit pack. Reference the TSIU4 in the Switching Module section of this document.

Scan Points

- a. Fixed
 - (1) Scan points for the CMU are duplicated and are assigned to PC02 in 3B21D IOP 0 and 1. See "Tables and Figures" section for specific scan assignments.
- b. Variable - none

SD Points

- a. Fixed
 - (1) Scan points for the CMU are duplicated and are assigned to PC02 in 3B21D IOP 0 and 1. See "Tables and Figures" section for specific scan assignments.
- b. Variable - none

PICB - none

PIDB - none

MTB - none

2.3.2 COMMUNICATION MODULE PROCESSOR UNIT (CMPU)

The CMPU is required in US applications in order to provide call processing. The CMPU is a single shelf unit providing two sides (0 and 1). Reference: SD5D178-01, J5D020AF

(NOTE: Reference the CM2 section of this document for engineering rules related to the use of the CMPU in CM2 applications.)

Equipment Rules For CM2C Applications

1. The leftmost side (as view from the front of the unit) is designated as side 0 while the rightmost side is designated as side 1.
2. Each side (0 and 1) provides one communication module processor (CMP).
3. Side 0 provides CMP-00 as viewed from the front of the unit while side 1 provides CMP-10 as viewed from the front of the unit.
4. Each CMP requires one CMP Core (TN1368) circuit pack and one Auxiliary Memory (TN1369) circuit pack.
5. The Auxiliary Memory (TN1369) circuit pack shall be equipped adjacent to and to the left of the CMP Core (TN1368) circuit pack in each CMP.

Scan Points

a. Fixed

Scan points for each CMP side are duplicated and are assigned to PC10 in 3B IOP 0 and 1. See "Tables And Figures" section for specific scan point assignments.

b. Variable - none

SD Points

a. Fixed

SD Points for each CMP side are duplicated and are assigned to PC10 in 3B IOP 0 and 1. See "Tables And Figures" section for specific SD point assignments.

b. Variable - none

PICB - none

PIDB - none

MTB - none

3. SWITCHING MODULE

The switching module is a 1 to 5 bay complex consisting of one Switching Module Control cabinet (SMC) and up to 4 Line and Trunk Peripheral (LTP) cabinets as required. (See SD-5D012-01 for 7-foot frames and cabinets or SD-5D012-02 for 6-foot cabinets.)

3.1 Switching Module Control (SMC) Cabinet

The SMC cabinet is always required and provides the functions of module processor, time slot interchanger, and a local digital service unit. In addition, peripheral units may be equipped in the SMC cabinet as appropriate. Reference: SD5D118, J5D003E

3.1.1 Digital Service Unit - Local (DSU)

The DSU - local is a single shelf unit providing two service groups for equipping tone decoder and tone generator circuit packs as required.

Equipment Rules

1. Each DSU service group provides eight service slots for equipping tone decoder and tone generator circuit packs as required. Each service group is always provided with a common circuit pack (DSCCOM) in the first available slot on the left of the service group (as viewed from the equipment side).
2. The first available service circuit slot (left most) is equipped with the tone generator circuit pack. Provide one tone generator for every DSU service group housing tone decoders.
3. Tone generator circuit packs are available in two forms for domestic applications, TN132 and TN892 (available 5E1(2)1 and later). These codes are interchangeable and may be mixed within a unit in all 5E1(2)1 or later release offices. (maximum 1 per service group)
4. Tone decoder circuit packs are available in two forms for domestic applications, TN130 providing 2 decoder circuits and TN133 (available 5E1(2)2 and later) providing 4 decoder circuits. These codes are not directly interchangeable and may be mixed within a unit but not within the same service group. The number of tone decoders required is a traffic related item (maximum 7 packs per service group).
5. Revertive pulsing transceiver circuit packs (TN853) are required in local DSU's equipped in SM's providing the revertive pulsing feature. Provide one TN853 per service group in the rightmost service circuit slot as viewed from the equipment side of unit. **Note: refer to TSIU section for other revertive pulsing requirements.**

Scan Points - none

SD Points - none

PICB

a. Fixed

- (1) The duplicated PICB from DSU-local, service group 0, will be assigned to control ports 0 of CI 0 of the SMPU or TSIU2.
- (2) The duplicated PICB from DSU-local, service group 1, will be assigned to control ports 1 of CI 0 of the SMPU or TSIU2.

b. Variable - none

PIDB

Note: PIDB for the DSU-local will be assigned to the dedicated data ports, resident in the TSIU or TSIU2. These data ports are not part of the 16 data ports available for general PIDB assignments.

MTB - none

3.1.2 Digital Service Unit, Model 2 (DSU2)

The DSU2 provides the local DSU functions of tone decoding, tone generation, tone transceiver, recorded announcement functions, service announcement system functions, integrated services test functions, and transmission test functions in a single shelf unit. Reference: SD5D092-01, J5D003EA

Equipment Rules

1. The DSU2 is functionally divided into 4 service groups numbered 0,2,1,3 from left to right as viewed from the front of the unit. Each service group is associated with a separate fuse group.
2. To provide the local DSU functions of tone generation and tone decoding, provide a pair of digital service circuit (TN833) packs to the left-most slot in service groups 0 and 1 as viewed from the front of the unit.
3. To provide a recorded announcement function, provide a Digital Service Circuit (DSC) pack (TN833) and a Recorded Announcement Function (RAF) circuit pack (TN1053 for software releases of 5E3 or later and TN1634 for software releases of 5EE3 or later) in the following circuit pack positions of the affected DSU2 service group. Care must be taken to insure that the following circuit pack positions have not already been dedicated for other DSU2 functions. **(NOTE: The DSC pack is always located in the first EQL position listed).**
 - EQLs 018 & 028 for SG0
 - EQLs 108 & 118 for SG1
 - EQLs 058 & 068 for SG2
 - EQLs 148 & 158 for SG3
4. For additional recorded announcement storage, provide an Expansion Announcement Storage circuit pack (TN1054 for software releases of 5E3 or later and TN1635 for software releases of 5EE3 or later) in the two right most circuit pack locations, as viewed from the front of the unit, of the affected DSU2 service group. The circuit pack location adjacent to the RAF pack should be equipped first while the right most circuit pack location is equipped last. (Note: Care must be taken when engineering the office to insure that the right most circuit pack position of the affected DSU2 service group has not already been dedicated for ISTF, TTF2, or SAS.)

5. The recorded announcement facilities are equipped in sequential (0,1,2,3) order across DSU2 service groups.
6. The number of recorded announcement facilities is traffic engineered. A minimum of two facilities (equipped in service groups 0 and 1) must be equipped when the recorded announcement function is used, providing one spare recorded announcement facility at all times.
7. A maximum of four recorded announcement facilities may be equipped per DSU2 shelf.
8. To provide Integrated Services Test Functions (ISTF), provide a Digital Service Circuit (TN833) in the right most circuit pack location of the affected DSU2 service group. (Note: Care must be taken when engineering the office to insure that the right most circuit pack position of the affected DSU2 service group has not already been dedicated for RAF, TTF2, or SAS circuitry.)
9. To provide Transmission Test Function 2 (TTF2), provide a digital service circuit (TN833) in any DSU2 circuit pack location except 028, 068, 118, or 158. (Note: Care must be taken when engineering the office to insure that the circuit pack location to be used for TTF2 has not already been dedicated for LDSU, ISTF, RAF, or SAS circuitry.)
10. Each Service Announcement System (SAS) is composed of two to five circuit packs. This grouping of packs is referred to as a SAS Physical Service Group (SAS-PSG). The SAS-PSG must not be confused with the four service/fuse groups mentioned earlier in this section.
11. It is recommended that each SAS-PSG be located within a single DSU2 service/fuse group, however, it is possible for a SAS-PSG to span two service/fuse groups within the DSU2 but this is **NOT recommended**.
12. A maximum of two SAS-PSG can be equipped within the same DSU2 service/fuse group. This includes any part of a SAS-PSG which spans more that one service/fuse group.
13. Each SAS-PSG requires one TN1841 SAS Digital Service Circuit (SASDSC) board which can be located in any EQL **except** EQLs 008 and 178. (Note: Care must be taken when engineering the office to insure that the circuit pack location to be used for the SASDSC board has not already been dedicated for LDSU, ISTF, RAF, or other SAS circuitry.)
14. Each SAS-PSG also requires one to four TN1842 SAS Memory (SASMEM) boards which are grown adjacent and to the right of the SASDSC board as viewed from the front of the unit. The SASMEM boards can be equipped in any EQL **except** EQLs 008 and 018. (Note: Care must be taken when engineering the office to insure that the circuit pack location to be used for the SASMEM board has not already been dedicated for LDSU, ISTF, RAF, or other SAS circuitry.)
15. Each TN1842 SAS Memory Board can be equipped with one to eight flash cards.
16. Each flash card is identified via a PID code and comcode number.
17. Each 4 Mbyte flash card provides up to 422 seconds of speech recording space.
18. The number of SAS-PSGs is traffic engineered. A minimum of two SAS-PSG (equipped in separate service/fuse groups) must be equipped when Service Announcement Systems are used providing one spare Service Announcement System at all times.
19. A maximum of eight SAS-PSG can be equipped per DSU2.
20. It is permissible to mix SAS, LDSU, RAF, TTF2, and/or ISTF functions within the same DSU2 shelf and within the same service group.

Scan Points - none

SD Points - none

PICB

a. Fixed

- (1) In SM applications, the duplicated PICB from DSU2 section 0 will be assigned to control ports 0 of CI 0 on the MCTU/MCTU2.
- (2) In SM applications, the duplicated PICB from DSU2 section 1 will be assigned to control ports 1 of CI 0 on the MCTU/MCTU2.
- (3) In SM2000 applications, the duplicated PICB will be assigned to any available CI.

b. Variable

- (1) Each recorded announcement facility requires one duplex PICB assignable to any available control port.
- (2) Each SAS-PSG requires one duplex PICB assignable to any available control port.

PIDB

a. Fixed

- (1) In SM applications, PIDB required for the local DSU functions of the DSU2 are assigned to dedicated data ports on the MCTU/MCTU2 and are not part of the 16 data ports available for general PIDB assignment.
- (2) In SM2000 applications, PIDB required for the DSU2 functions of ASP, ISTF, RAF, SAS and TTF2 are assigned to any available PIDB port on any DX.

b. Variable

- (1) Each recorded announcement facility requires one duplexed PIDB assignable to any available data port.
- (2) Each SAS-PSG requires one duplexed PIDB assignable to any available data port.

MTB - none

3.1.3 Digital Service Unit, Model 3 (DSU3)

The DSU3 provides the local DSU functions of tone decoding, tone generation, tone transceiver, and voice band services in a single shelf unit for SM2000 applications. Reference: SD5D197-01, J5D003NC

Equipment Rules

1. The DSU3 is functionally divided into 6 power groups (A, B, C, D, E, & F) arranged from the left to the right as viewed from the front of the unit.
2. Power groups should be equipped in alphabetical order.
3. It is NOT necessary to fully equip a power group before equipping the next power group.
4. To provide the local DSU functions of tone generation, tone decoding, tone transceiver, and voice band services provide a pair of Digital Service Circuit 3 (UN363) packs in the leftmost slot of power groups A and B (as viewed from the front of the unit) of the first equipped DSU3.

Scan Points - none

SD Points - none

PICB

a. Fixed

- (1) The Local DSU function, equipped in the left most slot of power groups A and B of the first equipped DSU3, is assigned to PICB ports 00 and 01 (provided by CI-00 and CI-10).

b. Variable

- (1) Each additional DSC3 circuit pack requires one duplicated PICB assignable to any available control port.

PIDB

a. Fixed

- (1) The Local DSU function, equipped in the left most slot of power groups A and B of the first equipped DSU3, is assigned to PIDB ports (0-7) of DX-00 and DX-10.

b. Variable

- (1) Each additional DSC3 circuit pack requires four duplexed PIDB assignable to any available data port on the same DX.

MTB - none

3.1.4 3-Fan Unit

The 3-fan unit is a single shelf unit which houses three fans in a single shelf enclosure. Each fan is individually powered and alarmed. Reference J5D003BE, SD5D019-02

Equipment Rules - none

Scan Points

a. Fixed - none

- (1) Variable - none

(NOTE: The 3-fan unit associated with the LTP or SMC cabinets require no scan point assignments within the 3B20D Processor IOP. Each fan is monitored for fan failures which are reported via scan outputs through the SN516 circuit packs located in the LTP or SMC cabinet.

SD Points

a. Fixed - none

- (1) Variable - none

(NOTE: The 3-fan unit associated with the LTP or SMC cabinets require no SD point assignments within the 3B20D Processor IOP. A remote reset feature is provided for the fan failure alarms via SD points accessed via the SN516 circuit packs located in the LTP or SMC cabinet.)

PICB - none

PIDB - none

MTB - none

3.1.5 6-Fan Unit

The 6-fan unit utilized in the SMC and LTP houses six fans in a single shelf enclosure. Each fan is individually powered. Reference: J5D003BN, SD5D081-02

Equipment Rules

1. The 6-fan unit is required in all cabinets equipped with either a MCTU2 or a PSU.

Scan Points

- a. Fixed - none
 - (1) Variable - none

(NOTE: The 6-fan unit associated with the LTP or SMC cabinets require no scan point assignments within the 3B20D Processor IOP. Each fan is monitored for fan failures which are reported via scan outputs through the SN516 circuit packs located in the LTP or SMC cabinet.)

SD Points

- a. Fixed - none
 - (1) Variable - none

(NOTE: The 6-fan unit associated with the LTP or SMC cabinets require no SD point assignments within the 3B20D Processor IOP. A remote reset feature is provided for the fan failure alarms via SD points accessed via the SN516 circuit packs located in the LTP or SMC cabinet.)

PICB - none

PIDB - none

MTB - none

3.1.6 Bi-Directional Fan Unit

The Bi-Directional Fan Unit utilized in the SMC and LTP houses six fans in a single shelf enclosure located in the middle of the cabinet. The front three fans blow air upward while the rear three fans blow air downward. Reference: J5D003FH, SD5D168-01

Equipment Rules

1. The bi-directional fan unit is required in LTP cabinets equipped with an ISLU2 and in the SMC cabinet of a SM2000 type switching module.

Scan Points

- a. Fixed - none
 - (1) Variable - none

(NOTE: The bi-directional fan unit associated with the LTP or SMC cabinets require no scan point assignments within the 3B20D Processor IOP. Each fan is monitored for fan failures which are reported via scan outputs through the SN516 circuit packs located in the LTP or SMC cabinet.)

SD Points

- a. Fixed - none
 - (1) Variable - none

(NOTE: The bi-directional fan unit associated with the LTP or SMC cabinets require no SD point assignments within the 3B20D Processor IOP. A remote reset feature is provided for the fan failure alarms via SD points accessed via the SN516 circuit packs located in the LTP or SMC cabinet.)

PICB - none

PIDB - none

MTB - none

3.1.7 6-Fan Exhaust Unit

The 6-fan exhaust unit utilized in the LTP houses six fans in a single shelf enclosure which is located at the top unit position in the cabinet. The fan unit pulls air upward to increase the air flow within the cabinet. Each fan is individually powered. Reference: J5D003BW, SD5D162-01

Equipment Rules

1. The 6-fan exhaust unit is used in conjunction with the 6-fan unit in LTP cabinets equipped with more than three PSUs which are equipped with PH3 circuit packs.
2. A baffle is required directly below the 6-fan exhaust unit if only four shelves of hardware are equipped in the cabinet.

Scan Points

- a. Fixed - none
- (1) Variable - none

(NOTE: The 6-fan exhaust unit associated with the LTP cabinet requires no scan point assignments within the 3B20D Processor IOP. Each fan is monitored for fan failures which are reported via scan outputs through the SN516 circuit packs located in the LTP cabinet.

SD Points

- a. Fixed - none
- b. Variable - none

(NOTE: The 6-fan exhaust units associated with the LTP cabinet requires no SD point assignments within the 3B20D Processor IOP. A remote reset feature is provided for the fan failure alarms via SD points accessed via the SN516 circuit packs located in the LTP or SMC cabinet.)

PICB - none

PIDB - none

MTB - none

3.1.8 Local Digital Service Unit - Export (LDSU-E)

The LDSU-E is a two shelf unit with each shelf comprising a service group. The LDSU-E provides 16 service circuit slots per service group for equipping tone generator and tone decoder circuit packs as required. Reference: SD5X200, J5D003BB.

Equipment Rules

1. A common circuit pack TN848 is always provided in each service group in the center slot at EQL 096.
2. One tone generator TN852 is always provided in each service group.
3. Tone decoder circuit packs (TN850) are provided in pairs, one per service group and are equipped in the left most available service circuit slot. The number of tone decoder circuit packs required is traffic engineered (maximum 15 per service group).

Scan Points - none

SD Points - none

PICB

a. Fixed

- (1) The duplicated PICB from LDSU-E service group 0 will be assigned to control port 0 of CI 0 of the TSIU2.
- (2) The duplicated PICB from LDSU-E service group 1 will be assigned to control port 1 of DI 0 of the TSIU2.

b. Variable - none

PIDB

a. Fixed

- (1) PIDB for LDSU-E will be assigned to dedicated data ports residing on the TSIU2 and are not part of the 16 data ports available for general PIDB assignment.

b. Variable - none

MTB - none

3.1.9 Memory Expansion Unit (MEU)

The MEU is a single shelf unit providing memory growth capabilities for the SMPU, SMPU2, and MCTU. The MEU is divided into two service groups for duplication of equipped memory packs and is mounted in the SMC cabinet directly below the SMPU, SMPU2, or MCTU. An MEU is required in SMPU and SMPU2 applications equipped with 1Mb (TN28) circuit packs that require more than 5Mb of module processor memory. When a SMPU2 or MCTU is equipped with 2Mb (TN56) circuit packs, provide a MEU for module applications requiring more than 10Mb of module processor memory. When a SMPU2 or MCTU is equipped with 4Mb (TN2012) circuit packs, provide a MEU for module applications requiring more than 20Mb of module processor memory. Reference: SD5D048-01, J5D003BH-1

Equipment Rules

1. Memory can be added to the MEU in increments of 1Mb (TN28), 2Mb (TN56), or 4Mb (TN2012).
2. To provide an additional increment of memory capacity, add an additional circuit pack to both service groups.
3. Circuit packs are added from left to right in service group 0 and from right to left in service group 1 as viewed from the equipment side of the unit.
4. Mixing of 1Mb (TN28), 2Mb (TN56), and 4Mb (TN2012) circuit packs within the MEU is not allowed.
5. Mixing of 1Mb (TN28), 2Mb (TN56), and 4Mb (TN2012) circuit packs between the MEU and its associated SMPU, SMPU2, or MCTU is not allowed.
6. A minimum of one memory increment must be equipped in the MEU. (1Mb, 2Mb, or 4Mb)
7. A maximum of three memory increments may be equipped in the MEU. (3Mb, 6Mb, or 12Mb)
8. One MEU is always required for RSMs utilizing the stand alone billing option.

Scan Points - none

SD Points - none

PICB - none

PIDB - none

MTB - none

3.1.10 Module Controller/Time Slot Interchange Unit (MCTU)

The MCTU is a two shelf unit providing the combined functions of the TSIU2 and SMPU2. The MCTU provides PIDB and PICB to all peripheral units in the same switching module. The MCTU consists of two data interface (DI) groups, 0 and 1, with each DI group providing two data interface buses. Each DI bus provides 16 data ports for PIDB assignment to peripheral units. The MCTU also contains two control interface (CI) groups, 0 and 1, with each CI group providing two control interface buses. Each CI bus provides 23 control ports for peripheral unit assignment.

The MCTU provides expandable memory capabilities divided into two memory controllers which are identically equipped. The memory capacity of the MCTU is 10Mb when equipped with 2Mb (TN56) circuit packs and 20Mb when equipped with 4Mb (TN2012) circuit packs. Reference: SD5D094-01, J5D003EC

Equipment Rules

1. Data interface buses in data interface (DI) 0 are 00 and 10. Data interface buses in DI 1 are 01 and 11.
2. Generally, PIDB assignments from a peripheral unit may not be shared between the two MCTU DIs. Exceptions are noted in applicable peripheral unit sections.
3. PIDB assignments from a peripheral unit must be assigned to consecutive data ports on the MCTU DI.
4. Control interface buses in control interface (CI) 0 are 00 and 10. Control interface buses in CI 1 are 01 and 11.
5. In local/host SMs CI 0 will be equipped and fully utilized before CI 1 is equipped. In RSM applications at the remote module, both CIs are always required.
6. PICB assignments from a peripheral unit must be assigned to consecutive control ports in the CI.
7. PICB assignments from a peripheral unit may not be shared between CIs.
8. Memory may be added to the MCTU in 2Mb (TN56) and 4Mb (TN2012) increments.
9. To provide an additional increment of memory capacity, add an additional circuit pack to both memory controllers.
10. A minimum of one memory increment must be equipped in the MCTU.

Scan Points - none

SD Points - none

PICB

a. Fixed

- (1) The duplicated PICB from the DSU local, service group 0 are assigned to control ports 0 of CI 0.
- (2) The duplicated PICB from the DSU local, service group 1 are assigned to control ports 1 of CI 0.

- (3) PICB 19 and 18 of CI 1 are assigned to DFIs 1 and 2 respectively at the remote module for interfacing RSM umbilicals.
- b. Variable
 - (1) Duplicated PICB required for even numbered service groups (service group 0) of all peripheral units will be assigned to even numbered control ports in the CI, to the same control port number of each control interface bus. **Note: See DCLU section for exceptions.**
 - (2) Duplicated PICB required for odd numbered service groups (service group 1) of all peripheral units will be assigned to odd numbered control ports in the CI, to the same control port number of each control interface bus. **Note: See DCLU section for exceptions.**

PIDB

- a. Fixed
 - (1) Duplicated PIDB from each DSU local service group are assigned to dedicated PIDB ports which are not part of the 16 ports available for peripheral unit assignment.
 - (2) The PIDB for fast pump is assigned to PIDB ports 15 in DI 1 for multimodule applications.
- b. Variable
 - (1) The duplicated PIDB required for peripheral units may be assigned to any available consecutive data ports within the DI as required. However, the duplicated PIDB for that peripheral unit service group must be assigned to the same data port number in the two data interface buses within the DI.

MTB - none

3.1.11 Module Controller/Time Slot Interchange Unit Model 2 (MCTU2)

The MCTU2 is a two shelf unit which provides the combined functions of the MCTU and LDSU. Side 0 of the MCTU2 is contained in the lower shelf while side 1 is contained in the top shelf. The MCTU2 provides PIDB and PICB to all peripheral units in the same switching module and consists of two data interface (DI) groups, 0 and 1, with each (DI) group providing two data interface buses. Each (DI) bus provides 16 data ports for PIDB assignment to peripheral units. The MCTU2 contains two control interface (CI) groups, 0 and 1, with each (CI) group providing two control interface buses. Each (CI) bus provides 23 control ports for peripheral unit assignment. Service groups 0 and 1 of the LDSU portion of the MCTU2 operate in a load-shared configuration rather than an active-standby mode. The MCTU2 also provides an interface between the SMP function of the MCTU2 and the Packet Switch Unit (PSU/PSU2).

The MCTU2 provides expandable memory capabilities divided into two memory controllers which are identically equipped. The memory capacity of the MCTU2 is 96MB (when only 16MB circuit packs is supported on the SM, RSM, ORM and VCDX. are equipped). Reference: SD5D151-01, J5D003LA

Equipment Rules

- (1a) Data interface buses for data interface (DI) side 0 are 00 and 10. Data interface buses for (DI) side 1 are 01 and 11.
- (1b) Generally, PIDB assignments from a peripheral unit may not be shared between the two MCTU2 DIs. Exceptions are noted in applicable peripheral unit sections.
- (1c) PIDB assignments from a peripheral unit must be assigned to consecutive data ports on the MCTU2 (DI).

- (2a) Control interface buses for control interface (CI) side 0 are 00 and 10. Control interface buses for (CI) side 1 are 01 and 11.
- (2b) In local/host SMs (CI) 0 will be equipped and fully utilized before (CI) 1 is equipped. In RSM applications at the remote module, both CIs are always required.
- (2c) PICB assignments from a peripheral unit must be assigned to consecutive control ports in the (CI).
- (2d) PICB assignments from a peripheral unit may not be shared between CIs.
- (3a) A minimum of one memory increment must be equipped in the MCTU2.
- (3b) Memory may be added to the MCTU2 in either 4MB (TN1374), 8MB (TN1376), or 16MB (TN1661) increments.
- (3c) To provide an additional increment of memory capacity, an additional memory circuit pack must be added to both controllers.
- (3d) It is permissible to mix 4MB (TN1374) and 8MB (TN1376) circuit packs within the MCTU2 in offices containing a 5E5/5EE4 software release or later.
- (3e) It is permissible to mix 4MB (TN1374), 8MB (TN1376), and 16MB (TN1661) circuit packs within the MCTU2 in offices which contain a 5E6/5EE4(2) software release or later.

Scan Points - none

SD Points - none

PICB

a. Fixed

- (1) The duplicated PICB from the DSU local, service group 0 are assigned to control ports 0 of (CI) 0.
- (2) The duplicated PICB from the DSU local, service group 1 are assigned to control ports 1 of (CI) 0.
- (3) PICB 19 and 18 of (CI) 1 are assigned to DFIs 1 and 2 respectively at the remote module for interfacing RSM umbilicals.

b. Variable

- (1) Duplicated PICB required for even numbered service groups (service group 0) of all peripheral units will be assigned to even numbered control ports in the (CI), to the same control port number of each control interface bus. **Note: See DCLU section for exceptions.**
- (2) Duplicated PICB required for odd numbered service groups (service group 1) of all peripheral units will be assigned to odd numbered control ports in the (CI), to the same control port number of each control interface bus. **Note: See DCLU section for exceptions.**

PIDB

a. Fixed

- (1) Duplicated PIDB from each LDSU service group portion of the MCTU2 are assigned to dedicated PIDB ports (referred to as LDSU buses) which are not part of the 16 ports available for peripheral unit assignment.
- (2) The PIDB for fast pump is assigned to PIDB ports 15 in DI 1.

b. Variable

- (1) The duplicated PIDB required for peripheral units may be assigned to any available consecutive data ports within the (DI) as required. However, the duplicated PIDB for

that peripheral unit service group must be assigned to the same data port number in the two data interface buses within the (DI).

MTB - none

3.1.12 Module Controller/Time Slot Interchange Unit, Model 3 (MCTU3)

The MCTU3 is a single shelf unit providing the combined functions of the MCTSI and LDSF. This feature is supported on the SM, RSM, ORM and VCDX. MCTU3 is duplex (side 0 and side 1). The MCTU3 provides PIDB and PICB to all peripheral units in the same switching module and consists of two data interface (DI) groups, 0 and 1, with each (DI) group providing two data interface buses. Each (DI) bus provides 16 data ports for PIDB assignment to peripheral units. The MCTU3 contains two control interface (CI) groups 0 and 1, with each (CI) group providing two control interface buses. Each (CI) bus provides 23 ports for peripheral unit assignment. Service groups 0 and 1 of the LDSF portion of the MCTU3 operate in a load-sharing configuration rather than an active-standby mode. The MCTU3 also provides an interface between the SMP function of the MCTU3 and the Packet Switch Unit (PSU/PSU2). The MCTU3 provides expandable memory capabilities. MCTU3 core board (International and US versions) are available in 3 memory increments, 32Mb, (KBN17 or KBN20), 64Mb (KBN18 or KBN21) and 96Mb (KBN19 or KBN22) respectively. Reference: SD5D536-01, J5D003LB.

Equipment Rules

- (1) Memory may be added to the MCTU3 in 3 increments
 - 32Mb using the KBN17 or KBN20
 - 64Mb using the KBN18 or KBN21
 - 96Mb using the KBN19 or KBN22 Note to increase memory increments, from 32Mb to 64Mb or 96Mb, the single board core (SB20CORE) processor board will required changing.
- (2) Data interface buses for data interface (DI) side 0 are 00 and 10. Data interface buses for (DI) side 1 are 01 and 11.
- (3) Control interface buses for control interface (CI) side 0 are 00 and 10. Control interface buses for (CI) side 1 are 01 and 11.
- (4) PICB assignments from a peripheral unit may not be shared between CIs.
- (5) KBN20B, KBN21B, KBN22B support MCTU3 on a CM1.

Scan Points - none

SD Points - none

PICB

- a. Fixed
 - (1) PICB for LDSF are part of the backplane wiring.
 - (2) PICB 19 and 18 of (CI) 1 are assigned to DFIs 1 and 2 respectively at the remote module for interfacing RSM umbilicals.
- b. Variable
 - (1) Duplicated PICB required for even numbered service groups (service group 0) of all peripheral units will be assigned to even numbered control ports in the (CI), to the same control port number of each control interface bus. **Note: See DCLU section for exceptions.**
 - (2) Duplicated PICB required for odd numbered service groups (service group 1) of all peripheral units will be assigned to odd numbered control ports in the (CI), to the same control port number of each control interface bus. **Note: See DCLU section for exceptions.**

PIDB

- a. Fixed
 - (1) PIDB for LDSF are part of the backplane wiring.
- b. Variable
 - (1) The duplicated PIDB required for peripheral units may be assigned to any available consecutive data ports within the (DI) as required. However, the duplicated PIDB for that peripheral unit service group must be assigned to the same data port number in the two data interface buses within the (DI).

MTB - none

3.1.13 Switching Module Processor Unit (SMPU)

The SMPU is a two shelf unit providing PICBs to all peripheral units in the same switching module. The SMPU consists of two control interface (CI) groups, 0 and 1, with each CI providing two control interface buses. Each control interface bus provides 23 control ports for PICB assignment to peripheral units. Reference: SD5D040-02, J5D003AA

Equipment Rules

1. Control interface buses in CI 0 are 00 and 10. Control interface buses in CI 1 are 01 and 11.
2. In local/host SMs, CI 0 will be equipped and fully utilized before CI 1 is equipped. In RSM applications at the remote module, both CIs are always required.
3. PICB assignments from a peripheral unit must be assigned to consecutive control ports in the CI.
4. PICB assignments from a peripheral unit may not be shared between CIs.
5. The SMPU has a growable memory capacity of up to 8 Mb. Memory is added in 1 Mb increments by adding one TN28 circuit pack per controller. Memory capacity requirements are job engineered.

Scan points - none

SD points - none

PICB

- a. Fixed
 - 1) The duplicated PICB from the DSU local, service group 0 are assigned to control ports 0 of CI 0.
 - 2) The duplicated PICB from the DSU local, service group 1 are assigned to control ports 1 of CI 0.
 - 3) PICB 19 and 18 of CI 1 are assigned to DFI 1 and 2 respectfully at the remote module for interfacing RSM umbilicals.
- b. Variable
 - (1) Duplicated PICB required for even numbered service groups (service group 0) of all peripheral units will be assigned to even numbered control ports in the CI, to the same control port number of each control interface bus. **Note: See DCLU section for exceptions.**
 - (2) Duplicated PICB required for odd numbered service groups (service group 1) of all peripheral units will be assigned to odd numbered control ports in the CI, to the same control port number of each control interface bus. **Note: See DCLU section for**

exceptions.

PIDB

a. Fixed

- (1) In SM applications, the duplicated PIDB for SMPU fast pump is assigned to PIDB ports 15 in DI 1 on the TSIU for multi module applications.

b. Variable - none

MTB - none

3.1.14 Switching Module Processor Unit, Model 2 (SMPU2)

The SMPU2 is a single shelf processor unit providing expandable memory capabilities to the switching module. The SMPU2 is divided into two memory controllers which are identically equipped. The memory capacity of the SMPU2 is 5Mb for units equipped with 1Mb (TN28) circuit packs, 10Mb for units equipped with 2Mb (TN56) circuit packs, or 20Mb for units equipped with 4Mb (TN2012) circuit packs. Reference: SD5D129-01, J5D003AY-1

Equipment Rules

1. Memory may be added to the SMPU2 in increments of 1Mb (TN28), 2Mb (TN56) or 4Mb (TN2012).
2. To provide an additional increment of memory capacity, add an additional circuit pack to both memory controllers.
3. Mixing of 1Mb (TN28), 2Mb (TN56), and 4Mb (TN2012) circuit packs within the SMPU2 is not allowed.
4. A minimum of one memory increment must be equipped in the SMPU2. (1Mb, 2Mb, or 4Mb).

Scan Points - none

SD Points - none

PICB - none

PIDB

a. Fixed

- (1) In SM applications, one duplicated PIDB is required for fast pump and is assigned to ports 15 of DI 1 of the TSIU2 for multimodule applications.

b. Variable - none

MTB - none

3.1.15 Switching Module Processor Unit, Model 4 (SMPU4)

The SMPU4 is a two shelf unit providing PICBs to all peripheral units in the same SM2000. The SMPU is divided into two sides (0 and 1) with each side providing four control interface packs. Each control interface pack provides 23 control ports for PICB assignment to peripheral units. Reference: SD5D195-01, J5D003NA

Equipment Rules

1. Control ports are provided by the UN71B Control Interface circuit pack with each UN71B Control Interface circuit pack providing 23 control ports for a total of 92 duplicated control ports per SMPU4.

2. UN71B Control Interface circuit packs are grown evenly between side 0 and 1 of the SMPU4.
3. Control Interfaces in side 0 are 00, 01, 02, and 03. Control Interfaces in side 1 are 10, 11, 12, and 13.
4. Two 963E-2 shorting bergs are required to be equipped on the SMPU4 when equipped with an XCDU.
5. A CORE60 based circuit pack is required in the SMPU along with the Bus Service Node KBN8B.
6. The Application Controller Extended (APCX) UN555 circuit pack is required if any XCDU shelves are equipped. The APCX circuit pack is duplicated and located in the SMPU. APCX is for International releases only.
7. PICB assignments from a peripheral unit must be assigned to consecutive control ports in the CI.
8. PICB assignments from a peripheral unit may not be shared between CIs.
9. Each TN1042 Packet Interface circuit pack provides two 10 Mbyte/sec Packet Bus interfaces to the PSU/PSU2. Each UN395 Packet Interface circuit pack provides four (10 Mbyte/sec or 100 Mbyte/sec) Packet Bus interfaces to the PSU/PSU2.
10. It is NOT permissible to mix TN1042 and UN395 Packet Interface circuit packs within the same unit.
11. A Packet Interface circuit pack must be equipped in EQL 130 of both sides of the SMPU4 in order to provide the packet interface for applications in which a PSU is equipped in the SM2000.
12. The UN538 Message Handler circuit packs are grown evenly between side 0 and side 1 of the SMPU4. VCDX-2000 configuration (5EE7.1 and later) requires a maximum of one UN584 Message Handler circuit pack to be equipped at the first MH position (MH0). And with an RTCD configuration (5E12 and later) requires one UN584 to be equipped at the third MH position (MH2).
13. A maximum of three UN538 Message Handler circuit packs may be equipped per SMPU4 side.
14. A minimum of one memory increment must be equipped in the SMPU4.
15. A maximum of four memory increments can be equipped in the SMPU4.
16. A maximum of 128MB of memory can be equipped in offices of a 5EE6 software release.
17. A maximum of 256MB of memory can be equipped in offices of a 5EE7(1) software release or later.
18. Memory can be added to the SMPU4 in 32MB (TN1685) or 64MB (TN1806) increments.
19. To provide an additional increment of memory capacity, an additional memory circuit pack must be added to both sides of the SMPU4.
20. The 64MB (TN1806) circuit pack may be equipped in 5E10/5EE6(2) software releases or later.
21. It is permissible to mix 32MB (TN1685) and 64MB (TN1806) circuit packs within the SMPU4 in offices containing a 5E10/5EE6(2) software release or later.

Scan points - none

SD points - none

PICB

- a. Fixed
 - 1) PICB ports 000, 001, 100, and 101 (provided by CI-00 and CI-10) are assigned to the Local DSU function provided by the DSU3.
- b. Variable
 - (1) Duplicated PICB required for even numbered service groups (service group 0) of all peripheral units will be assigned to even numbered control ports in the CI, to the same control port number of each control interface bus. **Note: See DCLU section for exceptions.**
 - (2) Duplicated PICB required for odd numbered service groups (service group 1) of all peripheral units will be assigned to odd numbered control ports in the CI, to the same control port number of each control interface bus. **Note: See DCLU section for exceptions.**

PIDB

- a. Fixed - none
 - (1) Variable - none

MTB - none

3.1.16 Switching Module Processor Unit, Model 5 (SMPU5)

The SMPU5 is a two shelf unit with one shelf per service group which will support all of the SMPU4 plus a maximum of six DSC3 slots, three per shelf. SMPU5 unit is capable of supporting all SM-2000 configurations supported by SMPU4, and in particular Host, EXM, VCDX. Reference: J5D003NG-1, SD5D545-01, ED5D815-30, ED5D816-30

Equipment Rules

1. SMPU5 uses a single, combined power/control and display (PCD) board per side; there are six DSC3 slots, three per shelf in the SMPU5; and there are only two memory slots, per side in SMPU5.
2. The PCD board (UN589) provides the SMPU5 with a craft control/display interface in addition to supporting the auto power restart function.
3. SMPU5 can have a maximum of two additional memory boards.
4. Two 963E-2 shorting bergs are required to be equipped on the SMPU5 when equipped with an XCDU.
5. Each SMPU5 can physically interconnect with a maximum of three XCDU shelves that are located no further than 34 cable feet away.
6. Application Controller Extended (APCX) UN555 circuit pack is required if any XCDU shelves are equipped. The APCX circuit pack is duplicated and located in the SMPU5.
7. SMPU5 can support up to six DSC3 circuit packs within the SMPU shelf.
8. SMPU5 supports the CORE50, 66MHZ CORE60 and CORE60MM boards (UN588).
9. A minimum of one DSC3 per service group is required.
10. One UN588 is required it provides 60MHZ core60MM with 128MB of on-board memory and supports software release 5E12/5EE10 and later.
11. TN1685 provides 32MB memory circuit pack.
12. TN1806 provides 64MB memory circuit pack.

13. A minimum of one UN538 message handler circuit pack is always required.
14. Each SMPU5 shelf can support a minimum of one (UN71C), up to a maximum of four (CI2) Control Interface circuit packs for SM2000, EXM2000 and VCDX-2000 applications.
15. Each CI2 circuit pack provides 23 usable PICB ports. The circuit packs must be equipped left to right across EQL's.
16. In a VCDX-2000 feature, 5EE7.1 and later, a UN584 (MHEIB) is equipped at the first MH0 position, in place of the UN538.
17. Real Time Detail feature, 5E12 or later a UN584 (MHEIB) is equipped at the MH2 position.
18. One UN584 Message Handler Ethernet Interface circuit pack is required for VCDX-2000 and / or Real Time Call Detail Applications.
19. One (ASU2) Alarm Status Unit 2 connector (9822DU) is required for VCDX-2000 and EXM2000 applications.
20. One 982YPA Message Handler Ethernet Interface Connector is required to provide a switch selectable interface between VCDX-2000 or Real Time Call Detail functions.
21. One 982YN CPI Interface connector is required for VCDX-2000 applications.

Scan points - none

SD points - none

PICB

Fixed

- 1) PICB ports 000,001,100 and 101 (provided by CI-00 and CI-10) are assigned to the Local DSU function provided by the DSC3 circuit packs.

a. Variable

- (1) Duplicated PICB required for even numbered service groups (service group 0) of all peripheral units will be assigned to even numbered control ports in the CI, to the same control port number of each control interface bus. **Note: See DCLU section for exceptions.**
- (2) Duplicated PICB required for odd numbered service groups (service group 1) of all peripheral units will be assigned to odd numbered control ports in the CI, to the same control port number of each control interface bus. **Note: See DCLU section for exceptions.**

PIDB

a. Fixed

- (1) PIDB ports 000, 001, 002, 003, 004, 005, 006, 007, 100, 101, 102, 103, 104, 105, 106 and 107 (provided by DX-00 and DX-10) are assigned to the Local DSU function provided by the DSC3 circuit packs.

b. Variable - none

MTB - none

3.1.17 Time Slot Interchange Unit (TSIU)

The TSIU is a two shelf unit providing PIDB to all peripheral units in the same switching module. The TSIU consists of two data interface (DI) groups, 0 and 1, with each DI group providing two data interface buses. Each data interface bus provides 16 data ports for PIDB assignment to peripheral units. Reference: SD5D041, J5D003AB

Equipment Rules

1. Data interface buses in DI 0 are 00 and 10. Data interface buses in DI 1 are 01 and 11.
2. Generally, PIDB assignments from a peripheral unit may not be shared between the two TSIU DIs. Exceptions will be noted in applicable peripheral unit sections.
3. PIDB assignments from a peripheral unit must be assigned to
4. For revertive pulsing applications, all TN127 and TN315 circuit packs in the TSIU must carry a "B" or higher alpha suffix (TN127B, TN315B)

Scan Points - none

SD Points - none

PICB - none

PIDB

- a. Fixed
 - (1) Duplicated PIDB, from each DSU-local service group are assigned to dedicated PIDB ports, not part of the 16 data ports available for general assignments, in the TSIU.
 - (2) The fast pump for the SMPU will be connected to PIDB ports 15 in DI 1 for multimodule applications.
- b. Variable
 - (1) The duplicated PIDB, required for any peripheral unit may be assigned to any available consecutive data ports within the DI as required. However, the duplicated PIDB for that peripheral unit service group must be assigned to the same data port number in the two data interface buses within the DI.

MTB - none

3.1.18 Time Slot Interchange Unit, Model 2 (TSIU2)

The TSIU2 is a two shelf unit providing PIDB and PICB to all peripheral units in the same switching module. The TSIU2 consists of two data interface (DI) groups, 0 and 1, with each DI providing two data interface buses. Each data interface bus provides 16 data ports for PIDB assignment to peripheral units. The TSIU2 also contains two control interface (CI) groups, 0 and 1, with each CI providing two control interface buses. Each control interface bus has 23 control ports for peripheral unit assignment. Reference: SD5D045, J5D003AT

Equipment Rules

1. Data interface buses in DI 0 are 00 and 10. Data interface buses in DI 1 are 01 and 11.
2. Generally, PIDB assignments from a peripheral unit may not be shared between the two TSIU DIs. Exceptions will be noted in appropriate peripheral unit sections.
3. PIDB assignments from a peripheral unit must be assigned to consecutive data ports on the TSIU DI. This does not apply to the DLTU.
4. Control interface buses in CI 0 are 00 and 10. Control interface buses in CI 1 are 01 and 11.
5. In local/host SMs, CI 0 will be equipped and fully utilized before CI 1 is equipped. In RSM applications at the remote module, CI 0 and CI 1 are always required.
6. PICB assignments from a peripheral unit must be assigned to consecutive control ports in the CI. This does not apply to the DLTU.
7. PICB assignments from a peripheral unit may not be shared between CIs.

8. For revertive pulsing applications, all TN127 and TN315 circuit packs equipped in the TSIU2 must carry a "B" or higher alpha suffix (TN127B, TN315B)

Scan Points - none

SD Points - none

PICB

a. Fixed

- (1) The duplicated PICB from the DSU local, service group 0 are assigned to control ports 0 of CI 0.
- (2) The duplicated PICB from the DSU local, service group 1 are assigned to control ports 1 of CI 0.
- (3) PICB 19 and 18 of CI 1 are assigned to DFIs 1 and 2 respectively at the remote module for interfacing RSM umbilicals.

b. Variable

- (1) Duplicated PICB required for even numbered service groups (service group 0) of all peripheral units will be assigned to even numbered control ports in the CI, to the same control port number of each control interface bus. **Note: See DCLU section for exceptions.**
- (2) Duplicated PICB required for odd numbered service groups (service group 1) of all peripheral units will be assigned to odd numbered control ports in the CI, to the same control port number of each control interface bus. **Note: See DCLU section for exceptions.**

PIDB

a. Fixed

- (1) Duplicated PIDB from each DSU local service group are assigned to dedicated PIDB ports which are not part of the 16 ports available for peripheral unit assignment.
- (2) The PIDB for SMPU2 fast pump is assigned to PIDB ports 15 in DI 1 for multimodule applications.

b. Variable

- (1) The duplicated PIDB required for peripheral units may be assigned to any available consecutive data ports within the DI as required. However, the duplicated PIDB for that peripheral unit service group must be assigned to the same data port number in the two data interface buses within the DI.

MTB - none

3.1.19 Time Slot Interchange Unit, Model 4 (TSIU4)

The TSIU4 is a two shelf unit with the top shelf containing 8" high circuit packs; the lower shelf containing 16" high circuit packs; and both shelves 10" deep allowing larger boards on backplane. The TSIU4 provides NLI interfaces to the Communication Module, PLI interfaces to peripheral units, and PIDB interfaces to peripheral units in the same switching module. The TSIU4 is divided into two sides (0 & 1) with each side providing more than 30,000 available time slots. Reference: SD5D196, J5D003NB

Equipment Rules

1. The TSIU4 is only used in SM-2000 applications (SM2000, EXM2000, & VCDX2000).
2. The TSIU4 is divided into side 0 and side 1. Each side can accommodate up to six Data Expansion (UM73) circuit packs (DX-0 through DX-5).

3. Each Data Expansion (UM73) circuit pack provides up to 24 PIDBs.
4. EQLs 28 and 124 of the top shelf must always be equipped with UM73 Data Expansion circuit packs in order to provide the PIDB interface to the DSC3.
5. Data Expansion (UM73) circuit packs must be grown in numerical order starting from DX-0 and growing to DX-5.
6. Data Expansion (UM73) circuit packs are grown evenly between side 0 and side 1.
7. In the TSIU4 the KLU1B circuit board is required to support the XCDU. Other TSIS circuit boards that are not connected to the XCDU can be a non-B suffix type TSIS (e.g. KLU1).
8. Duplexed PIDB assignments from a peripheral unit may not be shared between the two different DX interfaces. Exceptions will be noted in the appropriate peripheral unit sections.
9. PIDB assignments from a peripheral unit must be assigned to consecutive data ports (n, n+1 where n is an even number) on the DX interface. This does not apply to the DLTU, DLTU2, or DLTU-E.
10. Each side of the TSIU4 can accommodate up to 10 Time Slot Interchange Slice (KLU1) circuit packs.
11. KLU1 Time Slot Interchange Slice (TSIS) circuit packs must be grown in numerical order starting from TSIS-0 and growing to TSIS-9. NOTE: In a VCDX2000 application the minimum equipage of TSIS(KLU1) circuit packs is two (TSIS 0 & 1) per side.
12. Time Slot Interchange Slice (KLU1) circuit packs are grown evenly between sides 0 and 1.
13. Each Time Slot Interchange Slice (KLU1) circuit pack can terminate four Time Slot Interchange (TSI) links with each link providing 768 available time slots (or 3,072 available time slots maximum per Time Slot Interchange Slice circuit pack).
14. A maximum of 40 TSI ports (0 - 39) can be equipped in the TSIU4 with port 0 always being assigned to the SMPU4 and port 1 always being assigned to DX-0 on TSIS 0.
15. The bottom two ports on TSIS 0 are for network links only.
16. The bottom two ports on the remaining TSIS (1-9) may be assigned as either network links or peripheral links but not both.
17. The top two ports on the remaining TSIS (1-9) may be assigned as either network links or peripheral links but not both.
18. A BKD1 Network Link Interface circuit pack must be plugged on to the backplane of the TSIU4, at a TSIS port that is supported by an equipped TSIS circuit pack, in order to interface with the network.
19. Refer to J5D003NB for the recommended equipage of the Network Link Interface (BKD1) circuit packs.
20. Even numbered Network Link Interfaces (NLIs), as assigned by the CM2 or CM2C, must be assigned to even numbered TSIS ports.
21. Odd numbered Network Link Interfaces (NLIs), as assigned by the CM2 or CM2C, must be assigned to odd numbered TSIS ports.
22. A BKD2 Peripheral Link Interface (PLI) circuit pack must be plugged on to the backplane of the TSIU4, at a TSIS port that is supported by an equipped TSIS circuit pack, in order to interface with the peripheral unit.
23. A 486AA Power Converter must be equipped in EQLs 088 and 184 when TSIS-3 (the 4th TSIS board) or DX-5 (the 6th DX board) is grown in the TSIU4.
24. When a 486AA Power Converter is not equipped in either EQL 088 or 184, a 982AAE Power Interlock Board (PIB) must be equipped at EQLs 084 and 180 on the TSIU4 backplane. When 486AA Power Converters are equipped in EQLs 088 and 184, the PIB

are not required.

Scan Points - none

SD Points - none

PICB

- a. Fixed - none
 - (1) Variable - none

PIDB

- a. Fixed
 - (1) PIDB ports (0-7) of DX-00 and DX-10 are assigned to the Local DSU functions provided by the DSU3.
- b. Variable
 - (1) The duplicated PIDB required for peripheral units may be assigned to any available consecutive data ports within the Data Expansion pack as required.

PLI

- a. Fixed - none
 - (1) Variable
- b. Duplicated PLI required for peripheral units must be assigned to the same TSI port on each side of the TSIU4.

MTB - none

3.2 Line and Trunk Peripheral (LTP) Cabinet

The LTP cabinet may be equipped with any peripheral unit associated with a switching module. Reference SD5D119, J5D003F

3.2.1 Analog Trunk Unit Export (ATU-E)

The ATU-E is a single shelf unit divided into two service groups. Each service group requires duplicated PICB, duplicated PIDB, and one MTB. Reference: SD5X203, J5D003AG

Equipment Rules

1. Each ATU-E service group has eight slots which may be equipped, to meet job engineered requirements, with any of the following:
 - SN372 — 2 Wire Semicontinuous DC Loop Supervision Incoming Trunk (2WSI)
 - SN373 — 2 Wire Semicontinuous DC Loop Supervision Outgoing Trunk (2WSO)
 - SN374 — 2 Wire Strowger-Incoming (2WSTGI)
 - SN375 — 2 Wire Strowger-Outgoing (2WSTGO)
 - SN376 — 3 Wire Strowger-Incoming (3WSTGI)
 - SN377 — 3 Wire Strowger-Outgoing (3WSTGO)
 - SN378 — 4-wire E&M trunk (4EM)
 - SN382 — 3 Wire EMD Type M Incoming
 - SN383 — 3 Wire EMD Type M Outgoing
 - SN384 — Universal Test and Access
2. Trunks within the same trunk group should be distributed across all available trunk unit service groups as necessary.
3. Trunk types should be distributed across trunk units as evenly as practical.

Scan Points - none

SD Points - none

PICB

- a. Fixed - none
- b. Variable
 - (1) Duplicated PICB for the ATU-E will be assigned to the same CI, to consecutive control ports. ATU-E service group 0 to even numbered control ports, ATU-E service group 1 to odd numbered control ports.

PIDB

- a. Fixed - none
- b. Variable
 - (1) Duplicated PIDB for the ATU-E will be assigned to the same DI/DX, to consecutive data ports.

MTB

Note: the ATU-E always requires two MTB.

- a. Fixed - none
- b. Variable
 - (1) MTB cabled to ATU-E service group 0 will be assigned to MSU service group 0.
 - (2) MTB cables to ATU-E service group 1 will be assigned to MSU service group 1.

3.2.2 Digital Carrier Line Unit (DCLU)

The DCLU is a 2 or 3 shelf unit. The first two shelves are always required and are divided into two service groups (the bottom shelf is service group 0 and the top shelf is service group 1). Each of those shelves has ten slots available for SLC-DFI (SDFI) circuits (ANN4) The third shelf is a supplementary shelf, and is used to provide five additional SDFI slots for each service group (totals 15 slots for SDFI circuits per each service group). Reference SD5D201-01, SD5D202-01, J5D003AR, and J5D003AS.

The DCLU may be equipped to provide either Mode I or Mode II remote terminal service with the following assignment constraints.

Equipment Rules

1. A minimum of one SDFI circuit is required for each Mode I remote terminal. A maximum of five (four operational and one standby) SDFI maybe provided for each Mode I remote terminal.
2. A minimum of one SDFI circuit is required for each Mode II remote terminal. A maximum of three (two operational and one standby) SDFI maybe provided for each Mode II remote terminal.
3. There is a maximum of three remote terminals per service group (Mode I or Mode II).
4. Mode I and Mode II functions may be mixed within the same service group.
5. SDFI circuits required for a given remote terminal must be assigned to the same service group of the same DCLU.
6. It is recommended that, when equipping DCLUs with SDFI circuits, that:
 - a. Mixing of Mode I and Mode II functions within a DCLU be minimized, in so far as practical.

- b. Service groups 0 and 1 within a DCLU, be loaded with SDFI circuits, evenly.

Note: for Integrated SLC-96 applications a Test Bus Control Unit (TBCU) is required and equipped in the transmission lineup. See TBCU section for details.

- 7. The DCLU will accommodate two different ranges of line concentration ratios (LCR). They are LCR 4.5:1 and lower and LCR 6:1 to 9:1. These two ranges are job engineered and require different PIDB assignments (see below), and are not to be mixed within the same DCLU. **(Note: the two LCRs are mixable within an application.)**
- 8. Equalizer circuit packs are equipped in DCLU's to compensate for cable length of the span between the DCLU and DSX bay. Circuit pack codes are selected on the basis of cable length and are provided, one per DCLU service group, as follows:

Equalizer Pack Code	Distance to DSX (feet)	
	600-S CABLE	1249-S CABLE
SN215	000 - 133	000 - 090
SN216	134 - 267	090 - 180
SN217	268 - 400	180 - 270
SN218	401 - 533	270 - 360
SN219	534 - 655	360 - 450

Scan Points - none

SD Points - none

PICB

- a. Fixed - none
- b. Variable
 - (1) The two duplicated PICBs required for each DCLU service group will be assigned to the same CI and to the same control interface ports within the CI.
 - (2) The two duplicated PICBs required for service group 0 must be assigned to even numbered control ports.
 - (3) The two duplicated PICBs required for service group 1 must be assigned to odd numbered control ports.

PIDB

- a. Fixed - none
- b. Variable (minimum 2, maximum 4)

Note: the number of PIDBs per service group are job engineered, dependent upon the LCR required for the remote terminals attached. Those quantities, per service group, are:

- One duplicated PIDB (@ 1 TSS) for 6:1 through 9:1 LCR range.
- Two duplicated PIDB (@ 2 TSS) for 4.5:1 and lower LCR.

(Note: it is not permissible to mix LCR within the same DCLU.)

- (1) The duplicated PIDB DCLU will be assigned to the same DI and to the same data interface ports within the DI.
- (2) All PIDBs required for DCLU service groups 0 and 1 must be assigned to the same DI in order to insure that all SDFI receive data having the same timing. This is required

since both DCLU SG0 and SG1 can access all 30 SDFI.

- (3) PIDB required for DCLU service group 0 will be assigned to even numbered data ports.
- (4) PIDB required for DCLU service group 1 will be assigned to odd numbered data ports.

(Note: consecutive data port assignment is not required.)

MTB

Note: even though the DCLU requires no MTB connections, the remote terminals do and those assignments shall be made to the MSU or MMSU.

3.2.3 Directly Connected Test Unit (DCTU)

The DCTU consists of a single-shelf control unit and up to three precision measurement units (PMUs). The control unit requires one duplicated PICB only. The PMU units required four MTBs per unit.

Equipment Rules

1. One control unit is always required.
2. PMU requirements are identified in SD-2P077-01.

Scan Points - none

SD Points - none

PICB

- a. Fixed - none
- b. Variable
 - (1) One duplicated PICB is required for the DCTU and may be assigned to any available control ports in the CI.

PIDB - none

MTB

Note: each PMU requires four MTBs.

- a. Fixed - none
- b. Variable
 - (1) MTB for any PMU, circuits 0 and 2, will be assigned to MSU/MMSU service group 0.
 - (2) MTB for any PMU, circuits 1 and 3, will be assigned to MSU/MMSU service group 1.
 - (3) In multiple shelf MSU/MMSU applications the MTBs required for each PMU will be distributed across the MSU/MMSU shelves as necessary (e.g., PMU-0 to MSU/MMSU-0 shelf 0, PMU-1 to MSU/MMSU-1 shelf 1, PMU-2 to MSU/MMSU-2 shelf 2). This will prevent test blockage when testing more than one line on the same shelf/service group.
 - (4a) A minimum of one DCTU MTB must terminate on the same MMSU shelf as the two MTB's assigned to the PGTC for MLT2 testing of universal SLC-96 remote terminal lines
 - (4b) An optional connection: The PGTC can be connected in series with the DCTU and MMSU by connecting a "MTB" from DCTU PMU port via the DF to "MTB IN" on PGTC. Then connect "MTB OUT" from PGTC via the DF to MMSU.

3.2.4 Digital Line And Trunk Unit (DLTU)

The DLTU is a single shelf unit used to provide one to ten digital facility interface (DFI) circuits. These DFI circuits provide the interface to digital trunks (T1) and digital umbilicals at local or remote modules. Each DFI requires duplicated PICB and PIDB assignments. References: SD5D201-01, J5D003AD

Equipment Rules

1. Generally, DFI slots one through ten are equipped sequentially (left to right), to meet job engineered requirements. **See equipment rules note 10 for exceptions.**
2. DFI circuit pack (ANN1) is equipped to interface with digital lines and trunks in 5E1.1A or earlier generic offices. Each pack provides a 24 channel interface.
3. DFI circuit pack (ANN3) is equipped to interface with; digital lines and trunks on a local/host SM in 5E1(2)1 or later generic offices, digital lines on an RSM in 5E1(2)2 or later generic offices and digital trunks on an RSM in 5E1(2)3 or later generic offices. Equip ANN3 in DFI positions utilizing bit stuffing patterns A or D only. Each pack provides a 24 channel interface.
4. DFI circuit pack (ANN3B) is interchangeable with ANN3 but is required in DFI positions utilizing bit stuffing patterns B or C of DLTU's terminating digital lines and trunks in 5E1(2)1 or later generic offices. DFI positions utilizing bit stuffing patterns A or D may be equipped with ANN3 or ANN3B. Each pack provides a 24 channel interface.
5. DFI-RSM circuit pack (ANN5) is equipped to interface with RSM umbilicals in a single module RSM office at the host and remote end. Each pack provides the interface for one 24 channel umbilical.
6. DFI-RSM circuit pack (ANN5B) may be equipped in place of ANN5 but is required to interface with RSM umbilicals in multimodule RSM applications and is required in all DLTU positions on which inter module T1 links terminate. Each pack provides a 24 channel interface.
7. DFI functions, either digital trunks or RSM umbilicals, may be mixed within the DLTU.
8. RSM umbilicals, at the host end, shall be assigned to the same host switching module. (Not necessarily to the same DLTU within that switching module.)
9. Equalizer circuit packs are equipped in DLTU's to compensate for cable length of the span between the DLTU and DSX bay. Circuit pack codes are selected on the basis of cable length and are provided, one per DLTU shelf, as follows:

Equalizer Pack Code	Distance to DSX (feet)	
	600-S CABLE	1249-S CABLE
SN215	000 - 133	000 - 090
SN216	134 - 267	090 - 180
SN217	268 - 400	180 - 270
SN218	401 - 533	270 - 360
SN219	534 - 655	360 - 450

10. For RSM applications providing three umbilicals to the host, the first two DFI's providing umbilicals are equipped in DFI positions 1 and 2. The third DFI providing an umbilical to the host must not be equipped in DFI positions 3 or 4, but should be equipped in DFI position 5. **Warning: If growth of a fourth umbilical to the host is anticipated, DFI positions 3 and 4 must be left unequipped. If umbilical growth is not anticipated, DFI positions 3 and 4 may be equipped with trunking DFI's.**

Scan Points - none

SD Points - none

PICB

- a. Fixed (for RSM umbilicals at the remote module only)
 - (1) DFI 1 and 2 on DLTU 0 are always required to provide the interface to umbilicals to the host module and are fixed assigned to CI 1 as follows:
 - a. DFI 1 to PICB 19
 - b. DFI 2 to PICB 18
 - (2) If four umbilicals to the host are provided, use DFI 3 and DFI 4 and assign to CI 1 as follows:
 - a. DFI 3 to PICB 17
 - b. DFI 4 to PICB 16
 - (3) If three umbilicals to the host are provided, the first two umbilicals must be assigned to DFI positions 1 and 2. The third umbilical to the host should be assigned to DFI position 5. No reassignment of PICB, PIDB, FICB or FIDB is required.
 - (4) When fewer than four umbilicals are provided to the host, DFI positions 3 and 4 may only be equipped with trunking DFI's. If umbilical growth to four is anticipated DFI positions 3 and 4 must be left unequipped. **Note: PICB 16 and PICB 17 of CI 1 must be assigned as a pair when used for RSM umbilicals to the host module. When three umbilicals are provided, PICB 16 and PICB 17 must be unassigned.**
- b. Variable (general case)
 - (1) Duplicated PICB required for all equipped DFI circuits may be assigned to any available control port on any CI.
- c. Variable (for RSM umbilicals at the remote module only)
 - (1) Each DFI requires one duplexed PICB.
 - (2) All PICB assignments for DFI circuits will be made to CI 1.
 - (3) DFI 3 thru 10 on DLTU 0 and 1 thru 10 on DLTU 1 are equipped to meet job engineered requirements. When DFI circuits are equipped, PICB assignments are as follows:
 - a. Even numbered DFI to even numbered PICB
 - b. Odd numbered DFI to odd numbered PICB
 - c. Sequential assignment of PICBs is not required

PIDB

- a. Fixed - none
- b. Variable
 - (1) Duplicated PIDB required for all equipped DFI circuits may be assigned to any available data port on any DI.

FIDB

Note: When a DFI circuit is used to provide an RSM umbilical to the host or an ICL to another RSM in a MMRSM configuration, the DFI requires FIDB (instead of PIDB) assignments at the remote module.

- a. Fixed

- (1) DFI positions 1 and 2 on DLTU 0 are always required to provide the interface to CTS umbilicals to the host module and are fixed assigned to the FIU as follows:
 - a. DFI position 1 facility 0 to FIDB subgroup A number 0
 - b. DFI position 2 facility 0 to FIDB subgroup B number 0
 - (2) If four CTS umbilicals are provided to the host on DLTU 0, use DFI positions 3 and 4 and assign to the FIU as follows:
 - a. DFI position 3 facility 0 to FIDB subgroup A number 1
 - b. DFI position 4 facility 0 to FIDB subgroup B number 1
 - (3) For non-CTS umbilicals provided to the host or an ICL to another RSM in a MMRSM configuration The umbilicals can be assigned to any available FIDB except FIDB subgroup A number 0 and FIDB subgroup B number 0. (Note: FIDB subgroup A number 1 and FIDB subgroup B number 1 should be assigned only after all other FIDBs ports have been assigned).
 - a. DLTU 0, DFI pack positions 5 through 10
 - b. DLTU 1 or greater, DFI pack positions 1 through 10
- b. Variable - none

MTB - none

3.2.5 Digital Line And Trunk Unit, Model 2 (DLTU2)

The DLTU2 is a single shelf unit used to provide one to ten digital facility interface (DFI-2) circuits, each circuit contains two facilities (0 and 1). The DFI-2 circuits provide the interface to T1 lines carrying digital trunk or digital umbilicals at local or remote modules. Each DFI-2 circuit requires one duplicated PICB assignment. Each DFI-2 circuit requires one or two duplicated PIDB assignments, one duplicated PIDB assignment for DFI-2 facility 0 and one duplicated PIDB assignment for DFI-2 facility 1 when DFI-2 facility 1 is equipped. Reference: SD5D205-01, J5D024AA

Equipment Rules

1. Generally, DFI-2 slots one through ten are equipped sequentially (left to right), to meet job engineered requirements. **See equipment rule 10 for exceptions.**
2. DFI-2 circuit pack (TN1611) is equipped to interface with digital lines and trunks on a local/host SM, RSM, or MMRSM in 5E5 or later generic offices. Each pack provides two 24 channel interfaces.
3. DFI-2-RSM circuit pack (TN1612) is equipped to interface with RSM umbilicals in a RSM (or MMRSM) office at the host and remote end. The TN1612 is required in all DLTU2 positions on which inter module T1 links terminate. Each pack provides the interface for two 24 channel umbilicals.
4. DFI-2 functions, either digital trunks or RSM umbilicals, may be mixed within the DLTU2.
5. DFI-2 facilities equipped within the same DFI-2 circuit must be assigned the same function.
6. DFI-2 facility 0 must be equipped if the circuit pack is equipped. DFI-2 facility 1 is optional.
7. RSM umbilicals, at the host end, shall be assigned to the same host switching module but not necessarily to the same DLTU2 within that switching module. Two CTS RSM umbilicals may NOT be assigned to the same host DFI-2 circuit pack.
8. For RSM applications equipped with four CTS umbilicals to the host. The DFI-2 circuits providing CTS umbilicals are equipped in DFI-2 pack positions 1,2,3, and 4 of DLTU2 0 using facility 0 of each pack.

9. For RSM applications equipped with two CTS umbilicals to the host. The DFI-2 circuits providing CTS umbilicals are equipped in DFI-2 pack positions 1 and 2 of DLTU2 0 using facility 0 of each circuit. If CTS umbilical growth is expected, facility 0 of DFI-2 pack positions 3 and 4 must be reserved.
10. For RSM applications equipped with non-CTS umbilicals to the host. The non-CTS umbilicals can be terminated on any of the following:
 - a. DLTU2 0, facility 1 of DFI-2 pack positions 1 and 2.
 - b. DLTU2 0, facility 1 of DFI-2 pack positions 3 and 4. (Note: If only two CTS umbilicals to the host are to be used, with no anticipated growth to four CTS umbilicals, facility 0 of DLTU2 0 pack positions 3 and 4 can be used for non-CTS umbilicals. Facility 0 of DLTU2 pack positions 3 and 4 should be assigned last when used for non-CTS umbilicals.)
 - c. DLTU2 0, any available facility of DFI-2 pack positions 5 through 10.
 - d. DLTU2 1 or greater, any available facility of DFI-2 pack positions 1 through 10.
11. Cable compensation for cabling between the DLTU2 and DSX bay is done through circuitry within each DFI-2. No separate equalizer pack is needed.
12. Adaptor cables may be engineered in series with other cables in some pre-engineered offices, see ED-5D500-21. The total length of all cabling from the DLTU2 shelf to the DSX bay determines the value of cable compensation needed.

Scan Points - none

SD Points - none

PICB

- a. Fixed (for RSM umbilicals at the remote module only)
 - (1) DFI-2 positions 1 and 2 on DLTU2 0 are always required to provide the interface to CTS umbilicals to the host module and are fixed assigned to CI 1 as follows:
 - a. DFI-2 position 1 to PICB 19
 - b. DFI-2 position 2 to PICB 18
 - (2) If four CTS umbilicals are provided to the host on DLTU2 0, use DFI-2 position 3 and DFI-2 position 4 and assign to CI 1 as follows:
 - a. DFI-2 position 3 to PICB 17
 - b. DFI-2 position 4 to PICB 16
 - (3) For non-CTS umbilicals provided to the host. The umbilicals can be assigned to any available PICB except 16, 17, 18, and 19 on CI 1 and can be terminated on any of the following:
 - a. DLTU2 0, DFI-2 pack positions 5 through 10.
 - b. DLTU2 1 or greater, DFI-2 pack positions 1 through 10.
 - (4) Variable (general case)
 - (1) Duplicated PICB required for all equipped DFI-2 circuits may be assigned to any available control port on any CI.
 - (5) Variable (for RSM umbilicals at the remote module only)
 - (1) Each DFI-2 requires one duplexed PICB.
 - (2) DFI-2 pack positions 3 through 10 on DLTU 0 and DFI-2 pack positions 1 through 10 on DLTU 1 are equipped to meet job engineered requirements. When DFI-2 circuits are equipped, sequential assignment of PICBs is not

required.

PIDB

- a. Fixed - none
- b. Variable
 - (1) The PIDB(s) required for all equipped DFI-2 facilities may be assigned to any available data port on any DI/DX.

FIDB

Note: When a DFI-2 circuit is used to provide a RSM umbilical to the host or an ICL to another RSM in a MMRSM configuration, the DFI-2 requires FIDB (instead of PIDB) assignments at the remote module.

- a. Fixed
 - (1) DFI-2 positions 1 and 2 on DLTU2 0 are always required to provide the interface to CTS umbilicals to the host module and are fixed assigned to the FIU as follows:
 - a. DFI-2 position 1 facility 0 to FIDB subgroup A number 0
 - b. DFI-2 position 2 facility 0 to FIDB subgroup B number 0
 - (2) If four CTS umbilicals are provided to the host on DLTU2 0, use DFI-2 positions 3 and 4 and assign to the FIU as follows:
 - a. DFI-2 position 3 facility 0 to FIDB subgroup A number 1
 - b. DFI-2 position 4 facility 0 to FIDB subgroup B number 1
 - (3) For non-CTS umbilicals provided to the host or an ICL to another RSM in a MMRSM configuration. The umbilicals can be assigned to any available FIDB except FIDB subgroup A number 0 and FIDB subgroup B number 0. (Note: FIDB subgroup A number 1 and FIDB subgroup B number 1 should be assigned only after all other FIDBs ports have been assigned).
 - a. DLTU2 0, DFI-2 pack positions 5 through 10
 - b. DLTU2 1 or greater, DFI-2 pack positions 1 through 10
- b. Variable - none

MTB - none

3.2.6 Digital Line And Trunk Unit, Model 3 (DLTU3)

The DLTU3 is a single shelf unit used to provide one to twenty digital facility interface (DFI2) circuits, each circuit contains two facilities (0 and 1). The DFI2 circuits provide the interface to digital trunks or digital umbilicals at local or remote modules. Each DFI2 circuit requires one duplicated PICB assignment. Each DFI2 circuit requires one or two duplicated PIDB assignments, one duplicated PIDB assignment for DFI2 facility 0 and one duplicated PIDB assignment for DFI2 facility 1 when DFI2 facility 1 is equipped. Reference: SD5D501-01, J5D003FN

Equipment Rules

1. Generally, DFI2 slots one through twenty are equipped sequentially (left to right), to meet job engineered requirements unless stated otherwise.
2. A maximum of ten 24 channel DFI2 circuits or eight 30 channel DFI2 may be equipped per SM. A maximum of 60 (three fully equipped DLTU3's) 24 or 30 channel DFI2 circuits may be equipped per SM2000 (in SM2000 release 1 applications) since each SM2000 supports up to 120 PIDBs for trunking.

3. 24 and 30 channel DF12 circuits can not be mixed within the same SM or SM2000.
4. DF12-T circuit pack (TN1611) is equipped to interface with 24 channel trunks on a local/host SM, RSM, or MMRSM office. Each pack provides two 24 channel interfaces.
5. DF12-R circuit pack (TN1612) is equipped to interface with 24 channel RSM umbilicals in a RSM (or MMRSM) office at the host and remote end. The TN1612 is required in all DLTU3 positions on which inter module T1 links terminate. Each pack provides the interface for two 24 channel umbilicals.
6. DF12-XT circuit pack (TN1414) is equipped to interface with 30 channel trunks on a local/host SM, RSM, or MMRSM offices. Each pack provides two 30 channel interfaces.
7. DF12-X circuit pack (TN1415) is equipped to provide 30 channel network clock references (on facility 0 only) at the host. NOTE: This does not apply to 24 channel applications since the clock references are bridged from the facility via an office repeater to the Remote Clock Unit (RCU) in the RSM.
8. DF12-X circuit pack (TN1415) is required to interface with RSM umbilicals in a RSM (or MMRSM) office at the host and remote end. The TN1415 is required in all DLTU3 positions on which ICL T1 links terminate. Each pack provides the interface for two 30 channel umbilicals.
9. Reference the SD5D501-01 and J5D003FN for country specific DF12 circuit packs.
10. DF12 functions, either digital trunks or RSM umbilicals, may be mixed within the DLTU3.
11. DF12 facilities equipped within the same DF12 circuit must be assigned the same function.
12. DF12 facility 0 must be equipped if the circuit pack is equipped. DF12 facility 1 is optional.
13. RSM umbilicals, at the host end, shall be assigned to the same host switching module but not necessarily to the same DLTU3 within that switching module. Two CTS RSM umbilicals may NOT be assigned to the same host DF12 circuit pack.
14. For RSM applications equipped with four CTS umbilicals to the host, the DF12 circuits providing CTS umbilicals are equipped in DF12 pack positions 1,2,3, and 4 using facility 0 of each pack. Facility 1 of each pack can be used for non-CTS umbilicals to the host.
15. For RSM applications equipped with two CTS umbilicals to the host. The DF12 circuits providing CTS umbilicals are equipped in DF12 pack positions 1 and 2 using facility 0 of each circuit.
16. Facility 1 of each pack can be used for non-CTS umbilicals to the host.
17. If CTS umbilical growth is expected, facility 0 of DF12 pack positions 3 and 4 must be reserved.
18. For RSM applications equipped with non-CTS umbilicals to the host. The non-CTS umbilicals can be terminated on any of the following:
 - a. Facility 1 of DF12 pack positions 1 and 2.
 - b. Facility 1 of DF12 pack positions 3 and 4. (Note: If only two CTS umbilicals to the host are to be used, with no anticipated growth to four CTS umbilicals, facility 0 of pack positions 3 and 4 can be used for non-CTS umbilicals. Facility 0 of DLTU3 pack positions 3 and 4 should be assigned last when used for non-CTS umbilicals.)
 - c. Any available facility of DF12 pack positions 5 through 20.
19. For 24 channel DF12's cable compensation for cabling between the DLTU3 and DSX bay is done through circuitry within each DF12-T. No separate equalizer pack is needed.
20. Adaptor cables may be engineered in series with other cables in some pre-engineered offices, see ED-5D500-21. The total length of all cabling from the DLTU3 shelf to the DSX bay determines the value of cable compensation needed.

Scan Points - none

SD Points - none

PICB

- a. Fixed (for RSM umbilicals at the remote module only)
 - (1) DF12 positions 1 and 2 are always required to provide the interface to CTS umbilicals to the host module and are fixed assigned to CI 1 as follows:
 - a. DF12 position 1 to PICB 19
 - b. DF12 position 2 to PICB 18
 - (2) If four CTS umbilicals are provided to the host, use DF12 position 3 and DF1-2 position 4 and assign to CI 1 as follows:
 - a. DF12 position 3 to PICB 17
 - b. DF12 position 4 to PICB 16
 - (3) For non-CTS umbilicals provided to the host. The umbilicals can be assigned to any available PICB except 16, 17, 18, and 19 on CI 1 and can be terminated on any of the following:
 - a. DF12 pack positions 5 through 20.
 - (4) Variable (general case)
 - (1) Duplicated PICB required for all equipped DF12 circuits may be assigned to any available control port on any CI.
 - (5) Variable (for RSM umbilicals at the remote module only)
 - (1) Each DF12 requires one duplexed PICB.
 - (2) DF12 pack positions 3 through 20 are equipped to meet job engineered requirements. When DF1-2 circuits are equipped, sequential assignment of PICBs is not required.

PIDB

- a. Fixed - none
- b. Variable
 - (1) The PIDB(s) required for all equipped DF12 facilities may be assigned to any available data port on any DI/DX.

FIDB

Note: When a DF12 circuit is used to provide a RSM umbilical to the host or an ICL to another RSM in a MMRS configuration, the DF12 requires FIDB (instead of PIDB) assignments at the remote module.

- a. Fixed
 - (1) DF12 positions 1 and 2 are always required to provide the interface to CTS umbilicals to the host module and are fixed assigned to the FIU as follows:
 - a. DF12 position 1 facility 0 to FIDB subgroup A number 0
 - b. DF12 position 2 facility 0 to FIDB subgroup B number 0
 - (2) If four CTS umbilicals are provided to the host, use DF12 positions 3 and 4 and assign to the FIU as follows:
 - a. DF12 position 3 facility 0 to FIDB subgroup A number 1

- b. DFI2 position 4 facility 0 to FIDB subgroup B number 1
- (3) For non-CTS umbilicals provided to the host or an ICL to another RSM in a MMRS configuration. The umbilicals can be assigned to any available FIDB except FIDB subgroup A number 0 and FIDB subgroup B number 0. (Note: FIDB subgroup A number 1 and FIDB subgroup B number 1 should be assigned only after all other FIDBs ports have been assigned).
 - a. DFI2 pack positions 5 through 20
 - b. Variable - none

MTB - none

3.2.7 Digital Line Trunk Unit Export (DLTU-E)

The DLTU-E is a single shelf unit, providing up to 16 Digital Facility Interface (DFI) circuits. Each DFI circuit requires duplicated PICB and PIDB and provides the interface for one 30 channel digital trunk or RSM umbilical. Reference: SD5X204, J5D003BA

Equipment Rules

1. DFI slots 1 through 16 shall be equipped sequentially (left to right) to meet job engineered requirements.
2. DFI-E circuit packs (ANN6) are equipped to interface to 30+2 channel digital trunks. (one per trunk)
3. DFI-EP circuit packs (ANN 6B) interface to 30+2 channel digital trunks. The DFI-EP added feature is programmable PIDB time-slot offset.
4. DFI-ERSM circuit packs (ANN7) are equipped to interface to 30+2 channel RSM umbilicals at the remote and host locations. (one per umbilical)
5. Clock DFI circuit packs (ANN8) are equipped to provide DFI synchronization to the export network clock.
6. Clock DFI circuit packs (ANN9) are equipped to provide DFI synchronization to the export RSM clock. Two ANN9 circuit packs are required at the RSM in order to provide a primary and secondary clock reference.
7. DFI-XT circuit packs (ANN 36) interface to 30+2 channel digital trunks. The DFI-XT includes all features of the DFI-EP and DFI-E plus has access to international, national, and spare data bits in the CEPT multiframe structure for DCME.
8. DFI functions, either digital trunks or RSM umbilicals may be mixed within the same DLTU-E.
9. RSM umbilicals, at the host end, shall be assigned to the same module at the host office but not necessarily to the same DLTU-E.

Scan Points - none

SD Points - none

PICB

- a. Fixed - none
- b. Variable
 - (1) Duplicated PICB required for all equipped DFI circuits maybe assigned to available control port on any CI.

PIDB

- a. Fixed - none
- b. Variable
 - (1) The PIDB(s) required for DFI circuits may be assigned to any available data port on any DI/DX.

FIDB

Note: When a DFI circuit is used to provide an RSM umbilical to the host or an ICL to another RSM in a MMRSM configuration, the DFI requires FIDB (instead of PIDB) assignments at the remote module.

- a. Fixed
 - (1) DFI positions 1 and 2 on DLTU-E 0 are always required to provide the interface to CTS umbilicals to the host module and are fixed assigned to the FIU as follows:
 - a. DFI position 1 facility 0 to FIDB subgroup A number 0
 - b. DFI position 2 facility 0 to FIDB subgroup B number 0
 - (2) If four CTS umbilicals are provided to the host on DLTU-E 0, use DFI positions 3 and 4 and assign to the FIU as follows:
 - a. DFI position 3 facility 0 to FIDB subgroup A number 1
 - b. DFI position 4 facility 0 to FIDB subgroup B number 1
 - (3) For non-CTS umbilicals provided to the host or an ICL to another RSM in a MMRSM configuration The umbilicals can be assigned to any available FIDB except FIDB subgroup A number 0 and FIDB subgroup B number 0. (Note: FIDB subgroup A number 1 and FIDB subgroup B number 1 should be assigned only after all other FIDBs ports have been assigned).
 - a. DLTU-E 0, DFI pack positions 5 through 10
 - b. DLTU-E 1 or greater, DFI pack positions 1 through 10
- b. Variable - none

MTB - none

3.2.8 Digital Networking Unit - SONET (DNU-S)

The DNU-S is a 16" high single shelf unit which is used to terminate SONET lines. The DNU-S converts the SONET data and signaling format to the SM2000 Peripheral Control and Timing (PCT) link format. This provides a high speed (51.84 Mbs in the initial release) link directly to the 5ESS from transmission equipment. The DNU-S consists of two data groups (0 & 1) with each data group being sub-divided into two sides (0 & 1). Together, the two data groups can provide up to 12 duplexed PCT links to a SM2000. DNU-S can only be used with SM2000. DNU-S provides a direct SONET digital trunk interface into the 5ESS-2000 Switch. Each DNU-S can support up to 8,064 DSO trunks, with up to 10,000 trunks per SM2000.

The DNU-S is a single-shelf, double high unit mounted in an SM2000 LTP cabinet. The unit uses four different pack types: the KLU2 Common Control (CC) pack, the KLU3 Common Data (CD) pack, the KTU1 Transmission Multiplexer (TMUX) pack, and the KTU2 STS-1 Facility Interface (SFI) pack. Two different types of paddle boards attach to the back of the unit to terminate SONET and PCT cables: the Common Optical Termination (COT) and the STSX-1 Link Interface (SLI). The maximum unit equipage is 2 CCs, 4 CDs, 14 TMUXs, 4 SFIs, 12 SLIs, 24 COTs, 12 STS-1 links mapped to 12 duplex PCT links. Functionally, the DNU-S is split into two data groups, which are electrically isolated from each other except for the control connections to the

CCs -- either CC can control either data group.

The SONET lines initially supported are the STSX-1 electrical interfaces conforming to the STS-1 format detailed in SONET standard [BEL91A]. The STS-1 data rate is 51.84 Mb/s, supporting 672 DSO channels formatted as 28 DS1 Virtual Tributaries (VT.5s). The signaling information can contain sub-sampled out-slot, robbed-bit, or none. SONET path, line, and section overhead is also contained in the STS-1 format.

The PCT links are optical 65.536 Mb/s Time Division Multiplexed (TDM) interface over these links. Each PCT link carries 1024 byte long frames repeated at an 8 KHz rate. In each frame are 768 data bytes that may be switched through the SM2000 TSI, 192 bytes containing sub-sampled signaling information and 64 bytes containing framing and PCT link maintenance data. Reference: SD5D525-01, J5D003FR.

Equipment Notes

1. Each DNU-S has a minimum of two with a maximum of four CD packs. Two packs are in data group 0 and two in data group 1. The packs in each data group operate in an active/standby arrangement. The two CDs per data group are designated as mates. CDs per data group can terminate up to six PCT links. Primary CD functions include:
 - a. Extract PCT link data and control and pass to appropriate packs
 - b. Synchronize DNU with system timing using PCT link as source
 - c. Map TMUX SONET data into PCT format and vice versa
 - d. Support TMUX sparing
 - e. PCT links terminate through PLIs at the SMC2000 (TSIU4) and through COT paddle boards at DNU-S.
2. The left most data group (as viewed from the front of the unit) is designated as data group 0 while the right most data group is designated as data group 1.
3. It is recommended that data group 0 be equipped first.
4. Data group 0 need NOT be fully equipped with TMUX circuit packs before data group 1 is equipped.
5. A minimum of two KTU1 Transmission Multiplexer (TMUX) circuit packs, one being the spare, are required in an equipped data group.
6. One TMUX circuit pack (KTU1) is always required in each equipped data group as a spare.
7. A maximum of seven TMUX circuit packs (KTU1) can be equipped in each group. (This includes the spare TMUX circuit pack.)
8. Each equipped TMUX circuit pack (KTU1) in a data group (with the exception of the spare TMUX circuit pack) provides one duplexed PLI interface to the SM2000.
9. Two STSX-1 Facility Interface (SFI) circuit packs (KTU2) are required in each equipped data group.
10. Two Common Data circuit packs (KLU3) are required in each equipped data group.
11. DNU-S may reside in its cabinet up to 2000 feet away from SM2000.

Scan Points - none

SD Points - none

PICB - none

PIDB - none

PLI

- a. Fixed - none
- b. Variable

- (1) Duplexed PLI required for each equipped TMUX circuit pack must be assigned to the same TSI port on each side of the TSIU4.

MTB - none

3.2.9 Digital Service Unit Global (DSU)

The DSU global is one shelf with two service groups. The global DSU will serve more than one SM and functionally provides universal conference circuits and transmission test functions. The number of global DSU circuits equipped is job engineered.

5E1 Equipment Rules

- 1. The number of TTF responder circuit packs within a TTF group is job engineered and must be assigned to the same service group as its associated TTF group (max 3 responder circuit packs per service group).
- 2. The Universal Conference Circuit pack (UCC) provides two three port conference circuits. A maximum of five UCCs may be assigned in a service group. A maximum of three UCCs may be assigned to a service group containing TTF.
- 3. The Universal Conference Circuit Pack 2 (UCC2) provides five three port conference circuits. UCC2 may not be equipped in a service group containing a TTF. A maximum of two UCC2s may be assigned to a service group.
- 4. UCC and UCC2 may be equipped in the same DSU but not in the same service group.

5E2 Equipment Rules

- 1. All 5E1 assignment rules apply to 5E2 unless specifically changed in 5E2 rules.
- 2. The Six Port Conference Circuit pack (6PCC) provides two six port conference circuits. 6PCC may be mixed with UCC, UCC2 and TTF in the same service group.
- 3. UCC2 may be assigned to the same service group with TTF.
- 4. The following guidelines provide the recommended sequence to follow when assigning packs to the global DSUs in an office:

- assign TTFs
- spread required responders among TTF service groups
- assign 6PCC to remaining slots in TTF service groups
- assign remaining 6PCC two at a time to empty service groups
- assign UCC2 two at a time to empty service groups
- assign UCC2 to remaining slots as required
- assign UCC to fill remaining slots if required

This sequence provides optimum time slot and cost economy.

- 5. The maximum number of TTF's per service group is 1.

Scan Points - none

SD points - none

b. Variable - none

- (1) Duplicated near-end PIDB (between the MCTU/MCTU2/TSIU4 and the ECSU) is required for each ECSU position used to interface with the DLTU-E. The ECSU position can be equipped with either a ECS circuit pack, a ECS/ECD pair of circuit packs, or a jumper located on the ECSU backplane. The duplicated near-end PIDB can be assigned to any available data port on any DI/DX.
- (2) Duplicated far-end PIDB (between the ECSU and the DLTU-E) is required for each ECSU position used to interface with the DLTU-E. The ECSU position can be equipped with either an ECS circuit pack, a ECS/ECD pair of circuit packs, or a jumper located on the ECSU backplane. The duplicated far-end PIDB from the ECSU have a fixed assigned relationship with the DFI circuits located in the DLTU-E. This relationship, which is defined in SD5X213-01, can vary depending upon the equipage of the ECSU.

MTB

- a. Fixed - none
- b. Variable - none

3.2.11 Global Digital Service Unit - Export (GDSU-E)

The GDSU-E is one shelf with two service groups. The GDSU-E will serve more than one SM and functionally provides universal conference circuits and transmission test functions. The number of GDSU-E circuits equipped is job engineered.

Equipment Rules

1. TTF circuit packs (TN896, TN897, TN898, TN899) within the same GDSU-E must be equipped in the same service group. (Maximum 1 TTF per service group)
2. TN896 and TN899 must be equipped in adjacent service circuit slots.
3. The number of TTF responder circuit packs (TN898) within a TTF group is job engineered and must be assigned to the same service group as its associated TTF group (max 3 responder circuit packs per service group).
4. Two types of conference circuit packs are available for export, the A-Law conference circuit pack (TN851) and mu-Law conference circuit pack (TN841). The code used is determined by the signal combining methods utilized in the host country. In both cases, the conference circuit pack provides 5-three port conference circuits. (Maximum 2 conference circuit packs per service group)
5. TTF and conference circuit packs may be equipped in the same service group. (Maximum 1 conference circuit pack per TTF service group)

Scan Points - none

SD points - none

PICB

- a. Fixed - none
- b. Variable
 - (1) Each GDSU-E service group requires one duplexed PICB pair, duplicated across two control interface buses of the same CI, to consecutive control ports. Service group 0 must be assigned to even numbered control ports, service group 1 to odd numbered control ports.

PIDB

- a. Fixed - none
- b. Variable
 - (1) Each GDSU-E service group requires one duplexed PIDB pair, duplicated across two data interface buses of the same data group, to consecutive data ports.

MTB - none

3.2.12 Integrated Digital Carrier Unit (IDCU)

The Integrated Digital Carrier Unit (IDCU) is a one shelf unit that converts DS1s to Peripheral Interface Data Buses (PIDBs) when connected to a Switching Module or converts DS1s to Directly - Connected Peripheral Interface Buses (DPIDBs) when connected to a Packet Switch Unit (PSU/PSU2). Reference SD5D301-01, J5D003FL.

Equipment Rules

1. A maximum of 40 DS1s may be terminated on a IDCU.
2. A maximum of 31 Remote Terminals may be interfaced by a IDCU.
3. It is permissible to mix PIDBs and DPIDBs on the same IDCU.
4. Twenty DS1 terminations are provided on the IDCU backplane at EQL 085. A second set of twenty DS1 terminations are provided on the IDCU backplane at EQL 097. Whenever a DS1 is terminated at EQL 097 on the IDCU backplane, a pair of Loop Side Interface (TN1670) circuit packs must be equipped in EQLs 078 and 122 and an Electronic Line Interface (KBN7) circuit pack must be equipped in EQL 097 of the IDCU.
5. A IDCU which supports 21 to 40 DS1 terminations must be equipped with a pair of Loop Side Interface (TN1670) circuit packs located in EQLs 078 and 122 and an Electronic Line Interface (KBN7) circuit pack located in EQL 097.
6. When PIDB port 9 through 15 is used on the IDCU, an Electrical Line Interface (KBN7) circuit pack must be equipped in EQL 097. See SD5D301-01 note 207 for PIDB port EQL information.

Scan Points - none

SD Points - none

PICB

- a. Fixed - none
- b. Variable
 - (1) One duplexed PICB pair is required for each IDCU. Common control 0 (CC0) must be assigned to an even numbered PICB (n) and CC1 must be assigned to the next consecutive PICB (n+1) on the same CI.

PIDB/DPIDB

PIDBs assigned at the IDCU may be terminated on the MCTU/MCTU2/TSIU4 (as B channel PIDBs) or on the PSU/PSU2 (as D channel PIDBs or DPIDBs). **Note: see "Tables and Figures" section for a pictorial "IDCU to MCTU/MCTU2" PIDB example and an "IDCU to PSU" DPIDB example.**

- a. Fixed - none
- b. Variable
 - (1) The 23 "PIDB Transmission Interface" (PTI) ports provided on the IDCU backplane are broken down into 16 PIDB ports and 11 separate DPIDB ports.

- (2) PIDBs/DPIDBs are assigned at the IDCU in duplexed pairs with one duplexed PIDB/DPIDB assigned to each IDCU service group and to the same PTI ports in both service groups.
- (3) In SM applications, duplexed PIDB pairs for the IDCU are assigned in an n, n+1 fashion (0,1; 4,5; 8,9; etc.) on the same DI, at the MCTU/MCTU2. Even numbered PIDB's are assigned to IDCU service group 0 and odd numbered PIDBs are assigned to IDCU service group 1.
- (4) In SM2000 applications, duplexed PIDB pairs for the IDCU are assigned in an n, n+1 fashion on the same DX. Even numbered PIDBs are assigned to IDCU service group 0 and odd numbered PIDBs are assigned to IDCU service group 1.
- (5) PIDB terminations at the IDCU should be assigned to consecutive PTI ports starting with PIDB port 0 and growing to PIDB port 15. See SD5D301-01 note 207 for PIDB port EQL information on the IDCU.
- (6) A minimum of one duplexed PIDB (PIDB port 0 on IDCU service groups 0 and 1) is always required in order to provide the "Clock and Sync" signals to the IDCU. This configuration uses 1/2 Time Slot Set (TSS).
- (7) DPIDB terminations at the IDCU should be assigned to consecutive PTI ports starting with DPIDB port 0 and growing to DPIDB port 10. See SD5D301-01 note 207 for DPIDB port EQL information on the IDCU.
- (8) Due to hardware restrictions within the IDCU, the following PIDB and DPIDB ports must NOT be equipped at the same time:

PIDB Port	DPIDB Port
8 or 12	10
9 or 13	9
10 or 14	8
11 or 15	7

- (9) The number of PIDBs and DPIDBs required is a traffic engineered item. When mixing PIDBs and DPIDBs on the IDCU, the number of PIDBs plus the quantity of two times the number of DPIDBs must be less than or equal to 30:

$$\begin{aligned} \text{PIDBs} + (2 \times \text{DPIDBs}) &< 30 \\ \text{or} \\ \text{PIDBs} + (2 \times \text{DPIDBs}) &= 30 \end{aligned}$$

- (10) A maximum of 16 PIDBs and 7 DPIDBs or a maximum of 8 PIDBs and 11 DPIDBs may be terminated on a IDCU.

MTB

- a. Fixed
- b. Variable

3.2.13 Integrated Services Line Unit (ISLU)

The ISLU provides the 5ESS interface to customer lines in an ISDN or POTS environment. The ISLU provides a maximum of 512 line cards arranged in 16 line groups for interfacing with analog or digital customer lines. Reference: SD-5D091-01, J5D004AK-1

Equipment Rules

1. Provide one KCB6 circuit card for each analog (Z) line interface per job engineered requirements.
2. Provide one KCB7 circuit card for each 4 wire digital (T) line interface per job engineered requirements.
3. Provide one KCB10 circuit card for each 2 wire digital (U) line interface per job engineered requirements.
4. Line card types may be mixed within a line group.
5. The maximum number of line cards per line group is 32 if all cards are "T" interface cards.
6. The maximum number of "U" or "Z" interface cards per line group is 31.
7. Line groups containing a mixture of line card types have a maximum of 31 line cards.
8. For OSPS applications the number of "T" cards is limited to 4 per line group controller.
9. The number of line group controllers required is a job engineered item. (Minimum 1, maximum 16)
10. Each line group equipped with "U" or "Z" interface cards requires an auxiliary power card which must be assigned to line card position 8 (eql 007-xxx-125 and/or 015-xxx-125 where xxx is the horizontal position of any drawer side).

Note: Early ISLU applications require one KCB8 and one KCB9 in lieu of one KCB10 for each "U" interface required. The maximum number of customer lines which can be interfaced by an ISLU is 240 for these applications.

Scan Points - none

SD Points - none

PICB

- a. Fixed - none
- b. Variable
 - (1) Two duplexed PICBs are required for each ISLU. Common control 0 (CC0) must be assigned to an even numbered PICB (n) and CC1 must be assigned to the next consecutive PICB (n+1) on the same CI.

PIDB/DPIDB

PIDBs assigned at the ISLU may terminate on the MCTU/MCTU2/TSIU4 (B channel PIDB) or PSU (D channel PIDB or DPIDB). The ISLU may utilize up to 12 duplexed (D)PIDB pairs. PIDBs connect to the ISLU via common data (CD) ports which are numbered 0 thru 11 on each of two CD service groups. **Note: see "Tables and Figures" section for a pictorial ISLU to MCTU/MCTU2 PIDB example.**

- a. Fixed - none
- b. Variable
 - (1) PIDBs/DPIDBs are assigned at the ISLU in duplexed pairs with one duplexed PIDB/DPIDB assigned to each ISLU service group, to the same common data (CD) ports in both service groups.
 - (2) In SM applications, duplexed PIDB or DPIDB pairs for the ISLU are assigned in an n, n+1 fashion (0,1; 4,5; 8,9; etc.) on the same DI, at the MCTU/MCTU2. Even numbered PIDB's are assigned to ISLU service group 0 and odd numbered PIDBs are assigned to ISLU service group 1.

- (3) In SM2000 applications, duplexed PIDB or DPIDB pairs for the ISLU are assigned in an n, n+1 fashion. Even numbered PIDBs are assigned in ISLU service group 0 and odd numbered PIDBs are assigned to ISLU service group 1.
- (4) To provide segregation between PIDB and DPIDB pairs at the ISLU, it is recommended that assignment of PIDB pairs begin with the lowest numbered CD ports and continue sequentially toward the highest numbered CD ports. DPIDB assignments should begin at the highest numbered CD ports and continue sequentially towards the lowest numbered CD ports.
- (5) PIDB terminations at the ISLU should be assigned to consecutive common data ports.
- (6) Where practical in SM applications, PIDB pairs should be distributed evenly between DI 0 and DI 1, alternating between DIs for every 2 duplexed PIDB pairs as assignments are made. Assignment to the same DI ports on DI 0 and DI 1 is not required.
- (7) A minimum of one PIDB pair is required when B channel traffic is present and terminates on CD ports 0 in both ISLU service groups.
- (8) The number of PIDBs and DPIDBs required is a traffic engineered item. However, any combination of PIDBs and DPIDBs may be provided which yields an even number of each. (maximum 24 (D)PIDBs total)

MTB

Note: Remoted ISLU (RISLU) applications require no MTB connections.

- a. Fixed - none
- b. Variable
 - (1) The MTB for ISLU service group 0 MAN pack 0 and ISLU service group 1 MAN pack 1 will be assigned to MMSU service group 0.
 - (2) The MTB for ISLU service group 0 MAN pack 1 and ISLU service group 1 MAN pack 0 will be assigned to MMSU service group 1.
 - (3) The ISLU requires only two MTBs from the MMSU which are fanned out on the ISLU backplane to accommodate both ISLU service groups 0 and 1.

3.2.14 Integrated Services Line Unit 2 (ISLU2)

The ISLU2 provides the 5ESS interface to customer lines in an ISDN environment. The ISLU2 provides a maximum of 1024 circuits arranged in 16 line groups for interfacing with analog or digital customer lines. Reference: SD-5D192-01, J5D004AL

Equipment Rules

1. ISLU2 can be equipped in two cabinet configurations. When using line boards with eight line circuits, each configuration provides a maximum of 1024 lines per cabinet. When using line boards with 16 line circuits, each configuration provides a maximum of 2048 lines per cabinet. The first configuration provides one Common Shelf (CS) and up to four Line Shelves for a single "five shelf" ISLU2 per cabinet. The second configuration provides two "three shelf" ISLU2's per cabinet with each three shelf ISLU2 being comprised of one common shelf and up to two line shelves. Each "three shelf" ISLU2 configuration provides a maximum of 512 line circuits with 8 line circuit line boards, or 1024 line circuits with 16 line circuit line boards.
2. A minimum of one Common Shelf and one Line Shelf are required in all ISLU2 configurations.

3. In a five shelf ISLU2 cabinet configuration, the ISLU2 shelves are equipped as follows:

Shelf Type	Cabinet EQL	Line Groups	Line Boards In Line Group
Common Shelf	28	-	-
1st Line Shelf	11	00-07	00-03
2nd Line Shelf	19	08-15	00-03
3rd Line Shelf	45	00-07	04-07
4th Line Shelf	53	08-15	04-07

4. When two "three shelf" ISLU2's are arranged in a cabinet, the ISLU2 shelves are equipped as follows:

Shelf Type	Cabinet Line Groups EQP	Line Boards In	Line Group
1st Common Shelf	28	-	-
1st Line Shelf (1st CS)	11	00-07	00-03
2nd Line Shelf (1st CS)	19	08-15	00-03
2nd Common Shelf	62	-	-
1st Line Shelf (2nd CS)	45	00-07	00-03
2nd Line Shelf (2nd CS)	53	08-15	00-03

5. Each Line Shelf consists of eight line groups.
6. A line group consists of four line boards in the "three shelf" ISLU2 or eight line boards in the "five shelf" ISLU2.
7. In the "three shelf" ISLU2, when using line boards with eight line circuits, each line group provides a maximum of 32 line circuits. When using line boards with 16 line circuits, each line group provides a maximum of 64 line circuits. When in the "five shelf" ISLU2, the line circuits are doubled.
8. A Line Shelf does not have to have all of its line circuit board slots equipped before the next line shelf is equipped.
9. Locations of line boards are job engineered.
10. MPU coded line boards provide eight "U" circuits per line board.
11. MPA coded line boards provide eight or 16 "Z" circuits per line board.
12. MPW coded line boards provide eight "W" circuits per line board.
13. "U" and "Z8" and "T" type line boards can be mixed within the same line group and within the same line shelf as long as the Tip/Ring cables are coordinated with the pack type.
14. "Z16" type line boards must not be mixed with any other types of packs, within a line group.
15. "W" type line boards must not be mixed with any other types of packs, within a line group. If "W" boards are mixed on a shelf with other types of line board types, they should be equipped in line groups 04-07 and line groups 00-08 may be used for other line board types.
16. A maximum of four line circuits may be spared in a "five shelf" or "three shelf" ISLU2 configuration. The spare line circuits must be located in either the 1st or 2nd line shelf within the affected ISLU2. Sparing of "T" or "W" line circuits is not supported.

17. A maximum of four MAN packs can be equipped per ISLU2. If "U" and "Z" line boards are used within the same line shelf, the cumulative total of MAN packs derived from both of the following tables must be used:

MAN Pack Equipage With "Z" Circuits				
Equipped Line Group	EQL(s)			
	032	038	150	156
00-07		X	X	
08-15	X			X

MAN Pack Equipage With "U" or "W" Circuits				
Equipped Line Group	EQL(s)			
	032	038	150	156
00-07		X	NOTE A	
08-15	X			NOTE B

NOTE A:

With "U" circuits, a MAN pack is also required in this location if line group 07, line board 03, line circuit 00 is configured as a spare.

NOTE B:

With "U" circuits, a MAN pack is also required in this location if line group 15, line board 03, line circuit 00 is configured as a spare.

NOTE C:

MAN packs are not required with T-interface circuits or Remote Line Group Interface-Host circuits.

18. Line groups with line boards 00-03 may be remoted to a Remote Line Group (RLG) unit, using RLG Interface-Host (RLGI-H) circuit packs. In each ISLU2 line group to be remoted are two RLGI-H packs. A maximum of eight line groups may be remoted from one ISLU2. Line Groups located directly above/below one another may not both be remoted, e.g., if line group 0 is remoted, line group 8 may not and vice versa. Line groups 0,7, 8 or 15 may be remoted but sparing capability will be lost. Line circuit boards 04 through 07 of any remoted line group must be removed from service.

Scan Points - none

SD Points - none

PICB

- a. Fixed - none
- b. Variable

- (1) Two duplexed PICBs are required for each ISLU2. Common control 0 (CC0) must be assigned to an even numbered PICB (n) and CC1 must be assigned to the next consecutive PICB (n+1) on the same CI.

PIDB/DPIDB

PIDBs assigned at the ISLU2 may terminate on the MCTU/MCTU2/TSIU4 (B channel PIDB) or PSU/PSU2 (D channel PIDB or DPIDB). The ISLU2 may utilize up to 12 duplexed (D)PIDB

pairs. PIDBs connect to the ISLU2 via common data (CD) ports which are numbered 0 thru 11 on each of two CD service groups. **Note: see "Tables and Figures" section for a pictorial ISLU2 to MCTU/MCTU2 PIDB example.**

- a. Fixed - none
- b. Variable
 - (1) PIDBs/DPIDBs are assigned at the ISLU2 in duplexed pairs with one duplexed PIDB/DPIDB assigned to each ISLU2 service group, to the same common data (CD) ports in both service groups.
 - (2) In SM applications, duplexed PIDB or DPIDB pairs for the ISLU2 are assigned in an n, n+1 fashion (0,1; 4,5; 8,9; etc.) on the same DI, at the MCTU/MCTU2. Even numbered PIDB's are assigned to ISLU2 service group 0 and odd numbered PIDBs are assigned to ISLU2 service group 1.
 - (3) In SM2000 applications, duplexed PIDB pairs for the ISLU2 are assigned in an n, n+1 fashion on the same DX. Even numbered PIDBs are assigned to ISLU2 service group 0 and odd numbered PIDBs are assigned to ISLU2 service group 1.
 - (4) To provide segregation between PIDB and DPIDB pairs at the ISLU2, it is recommended that assignment of PIDB pairs begin with the lowest numbered CD ports and continue sequentially toward the highest numbered CD ports. DPIDB assignments should begin at the highest numbered CD ports and continue sequentially towards the lowest numbered CD ports.
 - (5) PIDB terminations at the ISLU2 should be assigned to consecutive common data ports.
 - (6) Where practical in SM applications, PIDB pairs should be distributed evenly between DI 0 and DI 1, alternating between DIs for every 2 duplexed PIDB pairs as assignments are made. Assignment to the same DI ports on DI 0 and DI 1 is not required.
 - (7) A minimum of one PIDB pair is required when B channel traffic is present and terminates on CD ports 0 in both ISLU2 service groups.
 - (8) The number of PIDBs and DPIDBs required is a traffic engineered item. However, any combination of PIDBs and DPIDBs may be provided which yields an even number of each. (maximum 24 (D)PIDBs total)

MTB

Note: Remote ISLU2 (RISLU2) applications require no MTB connections.

- a. Fixed - none
- b. Variable
 - (1) The MTB for ISLU2 service group 0 MAN pack 0 and ISLU2 service group 1 MAN pack 1 will be assigned to MMSU service group 0.
 - (2) The MTB for ISLU2 service group 0 MAN pack 1 and ISLU2 service group 1 MAN pack 0 will be assigned to MMSU service group 1.
 - (3) The ISLU2 requires only two MTBs from the MMSU which are fanned out on the ISLU2 backplane to accommodate both ISLU2 service groups 0 and 1.

3.2.15 Line Unit (LU)

The LU consists of two shelves. The bottom shelf is service group 0, the top shelf is service group 1. Each service group requires duplicated PICB, duplicated PIDB, and one MTB.

Scan Points - none

SD Points - none

PICB

- a. Fixed - none
- b. Variable

(1) Duplicated PICB for the LU will be assigned to the same CI, to consecutive control ports. LU service group 0 to even (n) numbered control ports, LU service group 1 to odd (n+1) numbered control ports.

PIDB

- a. Fixed - none
- b. Variable

(1) Duplicated PIDB required for the LU will be assigned to the same DI/DX, to consecutive data ports. LU service group 0 to even (n) numbered data ports, LU service group 1 to odd (n+1) numbered data ports.

MTB

- a. Fixed - none
- b. Variable

(1) The MTB required for LU service group 0 will be assigned to MSU service group 0.

(2) The MTB required for LU service group 1 will be assigned to MSU service group 1.

3.2.16 Line Unit, MODEL 2 (LU2)

The LU2 consists of two shelves. The bottom shelf is service group 0, the top shelf is service group 1. Each service group requires duplicated PICB, duplicated PIDB, and one MTB. Reference: SD5D052, J5D004AC

Equipment Rules

1. The basic LU2 is equipped for 256 lines at a 4:1 line concentration ratio.
2. The LU2 may be equipped for 384 lines at a 6:1 line concentration ratio by equipping four additional half-grid (TN838) circuit packs. (12 total)
3. The LU2 may be equipped for 512 lines at a 8:1 line concentration ratio by equipping four additional half grid circuit packs. (16 total)
4. The number of high level service circuit (HLSC) packs required per LU2 is traffic engineered. (minimum 4, maximum 6)

Scan Points - none

SD Points - none

PICB

- a. Fixed - none
- b. Variable

(1) Duplicated PICB required for the LU2 will be assigned to the same CI, to consecutive control ports. LU2 service group 0 to even (n) numbered control ports, LU2 service group 1 to odd (n+1) numbered control ports.

PIDB

- a. Fixed - none
- b. Variable
 - (1) Duplicated PIDB required for the LU2 will be assigned to the same DI/DX, to consecutive data ports. LU2 service group 0 to even (n) numbered data ports. LU2 service group 1 to odd (n+1) numbered data ports.

MTB

- a. Fixed - none
- b. Variable
 - (1) The MTB required for LU2 service group 0 will be assigned to MSU/MMSU service group 0.
 - (2) The MTB required for LU2 service group 1 will be assigned to MSU/MMSU service group 1.

3.2.17 Line Unit, MODEL 2 Export (LU2-E)

The LU2-E consists of two shelves. The bottom shelf is service group 0, the top shelf is service group 1. Each service group requires duplicated PICB, duplicated PIDB, and one MTB. Reference: SD5X205, J5D004AE

Equipment Rules

- 1. The basic LU2-E is equipped for 256 lines at a 4:1 line concentration ratio.
- 2. The LU2-E may be equipped for 384 lines at a 6:1 line concentration ratio by equipping four additional half-grid (TN838) circuit packs. (12 total)
- 3. The LU2-E may be equipped for 512 lines at a 8:1 line concentration ratio by equipping four additional half grid circuit packs. (16 total)
- 4. High Level Service Circuit (HLSC- TN844) packs are job engineered in the LU2-E.
- 5. Channel Circuit packs are equipped by country and are available in numerous varieties. The designation of export channel circuit packs is AJT(n) where n is the exclusive code for a particular country/application.

Scan Points - none

SD Points - none

PICB

- a. Fixed - none
- b. Variable
 - (1) Duplicated PICB for the LU2-E will be assigned to the same CI, to consecutive control ports. LU2-E service group 0 to even (n) numbered control ports, LU2-E service group 1 to odd (n+1) numbered control ports.

PIDB

- a. Fixed - none
- b. Variable
 - (1) Duplicated PIDB required for the LU2-E will be assigned to the same DI/DX, to consecutive data ports. LU2-E service group 0 to even (n) numbered data ports. LU2-E service group 1 to odd (n+1) numbered data ports.

MTB

- a. Fixed - none
- b. Variable
 - (1) The MTB required for LU2-E service group 0 will be assigned to MSU/MMSU service group 0.
 - (2) The MTB required for LU2-E service group 1 will be assigned to MSU/MMSU service group 1.

3.2.18 Line Unit, Model 3 (LU3)

The LU3 consists of two shelves. The bottom shelf is service group 0, the top shelf is service group 1. Each service group requires duplicated PICB, duplicated PIDB, and one MTB. Reference: SD5D180, J5D004AD

Equipment Rules

- 1. The basic LU3 is equipped for 256 lines at a 4:1 line concentration ratio. This minimum equipage would include eight half-grid circuit packs, of the type which do not require the carbon resistor paddle boards. (i.e. TN1048, TN1058, TN1535, or TN1561)
- 2. The LU3 may be equipped for 384 lines at a 6:1 line concentration ratio by equipping four additional half-grid circuit packs. (12 total)
- 3. The LU3 may be equipped for 512 lines at an 8:1 line concentration ratio by equipping four additional half grid circuit packs. (16 total)
- 4. The LU3 may be equipped for 640 lines at a 10:1 line concentration ratio by equipping four additional half-grid circuit packs. (20 total)
- 5. The number of High Level Service Circuit (HLSC) packs equipped in the LU3 is traffic engineered. A minimum of four HLSC are always required. A maximum of six HLSC may be equipped.

Scan Points - none

SD Points - none

PICB

- a. Fixed - none
- b. Variable
 - (1) Duplicated PICB for the LU3 will be assigned to the same CI, to consecutive control ports, LU3 service group 0 to even numbered control ports, LU3 service group 1 to odd numbered control ports.

PIDB

- a. Fixed - none
- b. Variable
 - (1) Duplicated PIDB required for the LU3 will be assigned to the same DI/DX, to consecutive data ports.

MTB

- a. Fixed - none
- b. Variable
 - (1) The MTB required for LU3 service group 0 will be assigned to MSU/MMSU service group 0.

- (2) The MTB required for LU3 service group 1 will be assigned to MSU/MMSU service group 1.

3.2.19 Metallic Service Unit (MSU)

The MSU is designed to house a variety of circuits in a number of universal slots:

- TN328*, automatic line insulation test (ALIT), in high-humidity environments. One required per 5200 lines.
- TN329*, automatic line insulation test (ALIT), in medium-humidity environments. One required per 5200 lines.
- TN330*, automatic line insulation test (ALIT), for low-humidity environments. One required per 5200 lines.

* For specific application and use of ALIT circuit pack, see SD-5D033-01 or SD-5D033-02.

- TN138, metallic access, provides 15 metallic test buses or 16 metallic test interconnection buses when required.
- TN140, GDX compensator, one required for tip, one required for ring.
- TN220, scan, provides 32 scan points. Scan point 32 is current sensing, all others are voltage sensing.
- TN221, signal distributor points, provides 32 distributor points.
- TN1040, distributing frame test access (DFTAC) circuit pack, one required per test trunk circuit per job engineered requirements in integrated MLT-2 environment.

Equipment Rules

Note: the MSU may globally serve a number of switching modules for line and trunk test functions. In some applications more than one MSU may be required to meet job engineered requirements.

Some applications may require that a MSU be dedicated to scan and distribute functions.

Both conditions mentioned above are defined by job engineered requirements. All MSUs should be equipped in accordance with the following:

1. For single MSU applications the job engineered circuits should be distributed with the following constraints.
2. For multi-MSU applications each MSU equipage is defined to meet job engineered requirements with the following constraints.
3. When required, the metallic access circuit pack (TN138) should be equipped in the same slots of the two MSU service groups within the same unit.

Note: the TN138 is required for MTIB when any of the universal slots are equipped with a TN138 for MTB connections to peripheral units.

4. When associated equipment has two metallic test buses, they will be assigned to corresponding inputs of the metallic access circuit packs as described in item 3 above.
5. In multi-MSU applications, all assignments from a particular peripheral unit (i.e., LU, TU, etc.) shall be made to the same MSU. (See DCTU section for exception.)
6. ALIT (TN328, TN329, and TN 330), metallic access (TN138), and GDX compensator (TN140) circuits associated with a particular line unit service group will be assigned to the same MSU and in a corresponding MSU service group. (i.e., LU service group 0, to MSU

service group 0).

7. Metallic access (TN138) and GDX compensators required for the DCTU, TAU, or local test desk will be assigned to the same MSU.
8. When an MSU is equipped with metallic access (TN138) circuit packs, that MSU shall also be equipped, in each MSU service group, with scan (TN220) and signal distributor (TN221) circuit packs for connection to the metallic test bus protocol circuit. Specific interconnection is covered in SD-5D033-01. Specific scan point and distributor point assignment rules follow.
9. When sufficient scan (TN220) and signal distributor (TN221) circuit packs, other than those mentioned in item 8 above are required, an MSU may be dedicated to those circuits. Care must be taken that space in multipurpose units is utilized and that the dedicated unit is projected to be fully utilized.
10. There is a maximum of two MSU units allowed per SM.
11. For all multiple MSU applications, MTB 15 on all equipped metallic access circuit packs must be terminated with a diode resistor network at the resistor panel for protocol circuit testing.
12. For distribution frame testing in an integrated MLT2 environment, one Distribution Frame Test Access Circuit (DFTAC) circuit pack (TN1040) is required for each equipped test trunk circuit (P/O SD970070-01, J9016CY), per job engineered requirements. This pack must be provided in a service group equipped with a metallic access circuit pack in any available slot in any SM in offices utilizing integrated MLT2. **Note: Each TN1040 requires; 1 - dedicated tip/ring phone line, 1 - MDF access pair, and 1- sleeve control/ground pair assigned at the distributing frame. See SD-5D014-02 for interconnection information.**

Scan Points

- a. Fixed - none
- b. Variable
 - (1) The (1) scan point required for the MSU protocol circuit will be assigned to the first scan point of the first equipped TN220 scan circuit pack. (This requirement must be met with every MSU equipped with a TN138 metallic access circuit pack.)

SD Points

- a. Fixed - none
- b. Variable
 - (1) The (5) distribute points required for the MSU protocol circuit are to be assigned to the first (5) consecutive distribute points of the first equipped TN221 signal distribute circuit pack in each MSU service group containing a TN138 metallic access circuit pack.

PICB

- a. Fixed - none
- b. Variable
 - (1) Duplicated PICB for the MSU will be assigned to the same SMPU control group, to consecutive control ports. MSU service group 0 to even numbered control ports, MSU service group 1 to odd numbered control ports.

PIDB - none

MTB

Note: MTB assigned from the two service groups of a peripheral unit will be assigned to corresponding MSU service group (in the MSU) to the same metallic access port number.

- a. Fixed - none
- b. Variable
 - (1) The dedicated MTIB required for the MSU protocol circuit will be assigned to MTIB 14 in SG0 and MTIB 15 in SG1.
 - (2) For variable assignments of the MTB for peripheral units, refer to that unit within this document.

3.2.20 Modular Metallic Service Unit (MMSU)

The MMSU is designed to house a variety of circuits in universal slots within the unit. The MMSU is a 1- to 4-shelf unit. Each shelf is divided into two service groups (0 and 1) and has eight slots for circuit assignments in each service group. The number of shelves varies, as per job engineering requirements. The service groups of each shelf are common to each other (i.e., in service group 0, there are 32 slots distributed across up to 4 shelves, at 8 slots per shelf. Service group 1 is the same).

Equipment Notes

1. One common pack (TN879) must be equipped in each MMSU shelf service group in the basic shelf at eqls 018 and 016.
2. Metallic Access (MA) circuit packs are provided in pairs, one pack per shelf service group to provide up to 15 duplicated MTBs per pair to peripheral units. MTBs terminating on MA packs equipped in eqls 026, 034 and 042 in shelf service group 0 and 114, 122, and 130 in shelf service group 1 may be cabled directly to peripheral units or test equipment to minimize cross office impedance. MTBs terminating on MA packs at all other locations must be cross connected at the distributing frame.
3. MMSU shelves providing metallic access (equipped with any packs other than scan or distribute circuit packs) requires an MA pack equipped at eqls 090 and 178 to terminate inter shelf MTIBs. If metallic access is not required, a ground shield ED7C384-30, G3) must be equipped at eql 090 and both positions must be left unequipped.
4. For MMSU shelves utilizing ALIT (TN328 through TN330), provide one ALIT pair per shelf, equipping one pack per service group. This equipage is sufficient for testing approximately 6,776 lines in an eight hour period of continuous testing. Two ALIT pairs per shelf, equipping two packs per service group, is permissible. This equipage is sufficient for testing **approximately** 13,552 lines in an eight hour period of continuous testing. Two ALIT pairs per shelf is maximum equipage. These lines can be analog (LU), Digital (Integrated SLC96) or ISDN (ISLU or ISLU2). ISDN line testing does NOT require GDX compensator packs.
5. One ALIT pair, in combination with GDX packs, is sufficient for testing up to **approximately** 26.5 line units at (4:1) concentration, 17.5 line units at (6:1) concentration, 13 line units at (8:1) concentration, and 10.5 line units at (10:1) concentration when only line units are being tested by the MMSU shelf. Two ALIT pairs, in combination with GDX packs, are sufficient for testing up to approximately 45 line units at (4:1) concentration [due to MTB port assignment restrictions on the MMSU shelf], 35 line units at (6:1) concentration, 26 line units at (8:1) concentration, and 21 line units at (10:1) concentration when only line units are being tested by the MMSU shelf. The number of line units tested per MMSU shelf would be reduced if the MMSU shelf was also used to terminate MTBs from PGTC units (for testing of SLC-96 remote terminals). The number of line units tested per MMSU shelf could be reduced if the MMSU shelf was also used to terminate DCTUs, TAUs, TBCUs, test trunks, trunk units, etc. (due to MTB port assignment restrictions).
6. The TN880, GDX compensator circuit pack, provides GDX compensation for tip and ring. The GDX is used in conjunction with ALIT packs for line testing.

7. For MMSU shelves serving LU's when ALIT is not required, or when DFTAC circuit packs are equipped, provide one GDX compensator circuit pack per shelf service group minimum.
8. For offices expecting high volume metallic testing, additional GDX compensator circuit packs may be added to MMSU shelves providing metallic access. The number of GDX compensators equipped will correspond to the maximum number of simultaneous metallic connections to line units. A maximum of four pairs of GDX compensator circuit packs per MMSU shelf is permissible.
9. Assignment of ALIT (TN328 through TN330) or GDX compensator (TN880) circuit packs will be made to the same MMSU shelf service group as the MTB assignment to the line unit being tested.
10. MTBs associated with ALIT testing should be spread evenly among the MMSU shelves containing both the ALIT and metallic access functions.
11. A maximum of 32 ALIT circuit packs maybe equipped in offices of a 5E5 software release or earlier. For offices of a 5E6 or later software release, a maximum of 128 ALIT circuit packs maybe equipped.
12. TN220B, scan circuit pack, provides 32 scan points, scan point 32 is current sensing, all others are voltage sensing.
13. TN221, provides 32 signal distribute points.
14. MTB assignments, from any peripheral unit, shall be assigned to the same MTB port on TN138 circuit packs in both MMSU shelf service groups.
15. A maximum of two MMSU may be assigned to the same switching module.
16. For all MMSU applications, MTB 15 on all equipped metallic access circuit packs must be terminated with a diode resistor network located at the resistor panel or on the rear of the MMSU for protocol circuit testing.
17. For distribution frame testing in an integrated MLT2 environment, one Distribution Frame Test Access (DFTAC), TN1040, circuit pack is required for each equipped test trunk circuit (P/O SD970070-01, J9016CY), per job engineered requirements. This pack must be provided in a service group where a PMU is assigned and equipped with a metallic access circuit pack in any available slot in any SM in offices utilizing integrated MLT2. DFTAC circuit packs should be distributed evenly across shelf service groups for applications requiring more than one. **Note: Each TN1040 requires; 1 - dedicated tip/ring phone line, 1 - MDF access pair, and 1- sleeve control/ground pair assigned at the distributing frame. See SD-5D014-02 for interconnection information.**

Scan Points

- a. Fixed - none
- b. Variable
 - (1) The number of TN220B, scan circuit packs required are job engineered and may be equipped in any available slot to meet those requirements.

SD Points

- a. Fixed - none
- b. Variable
 - (1) The number of TN221 distribute circuit packs are job engineered to meet specific requirements and may be equipped in any available slot to meet those requirements.

PICB

- a. fixed - none

- b. Variable - none

MTB

- a. Fixed - none
- b. Variable - none

3.2.22 Packet Switch Unit (PSU)

The PSU performs protocol processing in the 5ESS for international CCS applications and for ISDN applications. The PSU is required in all SM's equipped with an ISLU which terminate digital subscriber lines. Reference: SD5D074-01, J5D003BL-1

Equipment Rules

1. Each PSU may consist of 1 to 5 shelves
2. Each PSU shelf may be equipped with up to 16 protocol handler (PH) circuit packs (with "n" active and "k" spare, where "k" is commonly 1 for one PH type or 2 for two PH types).
3. The number of PH's required per PSU is traffic engineered.
4. Protocol Handler (PH) circuit packs are spared by hardware type. A PH2 circuit pack must be used to spare a PH2 circuit pack and a PH 3 circuit pack must be used to spare a PH 3 circuit pack, etc.
5. A 6-fan exhaust unit is required in addition to the 6-fan unit, which is always required in a LTP cabinet equipped with a PSU, if more than three of the PSUs in the cabinet are equipped with PH 3, circuit packs.
6. In ISDN applications, the Data Fanout (UN192) circuit pack can support up to 128 DSLs or 32 B-channel connections per PSU shelf.
7. In international CCS applications, the Data Fanout (UN192) circuit pack can be used when 31 or less SDLs are required per PSU shelf. The Data Fanout-Multiple PIDB (UN348) circuit pack is required when more than 31 SDLs are required per PSU shelf and can be used when 31 or less SDLs are required per PSU shelf.
8. It is permissible to mix Data Fanout (UN192) and Data Fanout-Multiple PIDB (UN348) circuit packs within the same PSU but not within the same PSU shelf.
9. A ten feeder MFFU configuration is required when the LTP cabinet is equipped with five PSU shelves and one or more of the PSU shelves are equipped with TN1873 Protocol Handler Model 22 (PH22) circuit packs. This MFFU configuration would also be provided for future PSU shelf growth. Note the ten feeder fuse assignments of PSU equipped in a LTP cabinet reference MFFU list 161.
10. PSU must be in the same lineup as the SM.

Scan Points - none

SD Points - none

PICB

- a. Fixed - none
- b. Variable
 - (1) One duplexed PICB pair is required for each PSU. SG 0 must be assigned to an even numbered PICB (n) and SG 1 must be assigned to the next consecutive PICB (n+1) on the same control interface.

PIDB - For Data Fanout Applications

- a. Fixed - none
- b. Variable
 - (1) DPIDBs from the IDCU or ISLU/ISLU2 to the PSU are provided in duplexed pairs. Each PSU shelf may terminate up to 6 duplexed DPIDB pairs from the IDCU or ISLU/ISLU2.
 - (2) A duplexed DPIDB pair consists of two duplexed DPIDBs that originate on like numbered CD ports of each or ISLU/ISLU2 CD service group or on like PTI numbered PTI ports of each IDCU PTI service group.
 - (3) Each duplexed DPIDB from the ISLU/ISLU2 CD service group or IDCU PTI service group is assigned to the same port number on both PSU data fanout service groups. To provide segregation between PIDB and DPIDB at the ISLU/ISLU2 it is recommended that DPIDB assignments begin at the highest numbered ISLU/ISLU2 CD ports and continue sequentially toward the lowest numbered ISLU/ISLU2 CD ports. This segregation is not required for the IDCU since the IDCU provides separate PTI ports for PIDBs and DPIDBs on its backplane. **Note: Refer to "Tables and Figures" section for pictorial DPIDB example.**
 - (4) Each PSU shelf requires one duplexed PIDB pair from the MCTU/MCTU2/TSIU4. This PIDB pair, which provides 31 SDLs or 128 DSLs, terminates on dedicated PSU ports which are not part of the sequentially numbered data fanout (DF) ports used for the DPIDBs. SG 0 must be assigned to an even numbered PIDB (n) and SG 1 must be assigned to an odd numbered PIDB (n+1) on the same data interface.

PIDB - For Data Fanout-Multiple PIDB Applications

- a. Fixed - none
- b. Variable
 - (1) Each duplexed PIDB pair equipped per PSU shelf provides 31 SDLs.
 - (2) A maximum of four duplexed PIDB pairs may be assigned per PSU shelf when equipped with UN348 (DFMP) or UN399 (DFMP-FLEX), providing 124 SDLs per shelf.
 - (3) Each PSU shelf requires a minimum of one duplexed PIDB pair from the MCTU/MCTU2/MCTU3/TSIU4.
 - (4) For each duplexed PIDB pair assigned, SG 0 must be assigned to an even numbered PIDB (n) and SG 1 must be assigned to an odd numbered PIDB (n+1) on the same DI/DX.
 - (5) For Data Fanout-Multiple PIDBs all four set must terminate on same DX board.

MTB - none

3.2.23 Packet Switch Unit Model 2 (PSU2)

The PSU2 performs protocol processing in the 5ESS for international CCS applications, wireless and for ISDN applications. The PSU2 is required for SM2000. PSU2 applications include Code Division Multiple Access (CDMA) mobile telephone and integrated Services Digital Network (ISDN). For CDMA, PSU2 processes both voice and call control information required to support calls made by and to CDMA telephone users. In the ISDN application, PSU2 provides a platform for implementing ISDN features by terminating signaling messages and serving as a packet switch for user data. PSU2 also provides Asynchronous Transfer Mode (ATM) application which allows either direct connection between PHA circuits in the case where minimal inter SM connectivity is required, or to an ATM switch in the case where connectivity between many SM's

required. Optical PCT links, replaces PIDB cables; requires a DF2 pack and optical interface board. Reference: SD5D523-01, J5D003BY-1

Equipment Rules

1. Each PSU2 may consist of 1 to 5 shelves
2. Each PSU2 shelf may be equipped with up to 16 protocol handler (PH) circuit packs (with "n" active and "k" spare, where "k" is commonly 1 for one PH type or 2 for two PH types).
3. The number of PH's required per PSU2 is traffic engineered.
4. Protocol Handler (PH) circuit packs are spared by hardware type. A PH1 and PH2 is not supported in PSU2. Each (PH) software image should be spared. For example a PH 3 circuit pack must be used to spare a PH 3 circuit pack, etc.
5. A Bi-Directional Fan Unit is required in a LTP cabinet equipped with a PSU2. The primary and two growth selves are equipped above the fan unit and two more growth unit below.
6. In ISDN applications, the Data Fanout(UN192D) circuit packs can support up to 128 DSLs or 32 B-channel connections per PSU shelf.
7. In international CCS applications, the Data Fanout (UN192D) circuit pack can be used when 31 or less SDLs are required per PSU2 shelf. The Data Fanout-Multiple PIDB (UN399) circuit pack is required when more than 31 SDLs are required per PSU2 shelf and can be used when 31 or less SDLs are required per PSU shelf.
8. It is permissible to mix Data Fanout (UN192D) and Data Fanout-Multiple PIDB (UN399) circuit packs within the same PSU2 but not within the same PSU2 shelf.
9. A BKE1 circuit pack implements the PHA Optical Interface Short Span (POISS) which provides the fiber optic to electrical and electrical to fiber optic interface for a respective PHA.
10. The BKE1 paddle-board must be plugged in on the backplane of the PSU2, at a PHA port that is supported by an equipped PSU2, in order to interface with the network.
11. UN592 Data Fanout PCT (DF2),Series 4:X provides one PCT Link, Transmit and Receive. Supports CDMA Wireless Processing.
12. TN1862 (PHV3) Protocol Handler for Voice, Model 3. Provides 16 channels downloadable encoding algorithm.
13. TN1863 (PHV4) Protocol Handler for Voice, Model 4. Provides 32 channel switch downloadable encoding algorithm. PHV4 is a higher capacity speech handler pack for the Packet Switch Unit 2 (PSU2). Supports multiple wireless processing standards.
14. A ten feeder MFFU power schematic configuration is required when the LTP cabinet is equipped with five PSU2 shelves and one or more of the PSU2 shelves are equipped with TN1873 Protocol Handler Model 22 (PH22) circuit packs. This MFFU configuration would also be provided for future PSU2 shelf growth.
15. PSU2 must be in the same lineup as the SM.

Scan Points - none

SD Points - none

PICB

- a. Fixed - none
- b. Variable
 - (1) One duplexed PICB pair is required for each PSU2. SG 0 must be assigned to an even numbered PICB (n) and SG 1 must be assigned to the next consecutive PICB (n+1) on the same control interface.

PIDB - For Data Fanout with Flexible Time Slot Assignment Applications

- a. Fixed - none
- b. Variable
 - (1) DPIDBs to the PSU2 are provided in duplexed pairs. Each PSU2 shelf may terminate up to 6 duplexed DPIDB pairs.
 - (2) A duplexed DPIDB pair consists of two duplexed DPIDBs that originate on like numbered ports of the attached SM.
 - (3) Each duplexed DPIDB from the ISLU/ISLU2 CD service group or IDCU PTI service group is assigned to the same port number on both PSU2 data fanout service groups. To provide segregation between PIDB and DPIDB at the ISLU/ISLU2 it is recommended that DPIDB assignments begin at the highest numbered ISLU/ISLU2 CD ports and continue sequentially toward the lowest numbered ISLU/ISLU2 CD ports. This segregation is not required for the IDCU since the IDCU provides separate PTI ports for PIDBs and DPIDBs on its backplane. **Note: Refer to "Tables and Figures" section for pictorial DPIDB example.**
 - (4) Each PSU2 shelf requires one duplexed PIDB pair from the MCTU/MCTU2/MCTU3/TSIU4. This PIDB pair, terminates on dedicated PSU2 ports which are not part of the sequentially numbered data fanout (DF) ports used for the DPIDBs. SG 0 must be assigned to an even numbered PIDB (n) and SG 1 must be assigned to an odd numbered PIDB (n+1) on the same data interface.

PIDB - For Data Fanout-Multiple PIDBs with Flex Time Slot Assignment Applications

- a. Fixed - none
- b. Variable
 - (1) A maximum of four duplexed PIDB pairs may be assigned per PSU2 shelf.
 - (2) Each PSU2 shelf requires a minimum of one duplexed PIDB pair.
 - (3) For each duplexed PIDB pair assigned, SG 0 must be assigned to an even numbered PIDB (n) and SG 1 must be assigned to an odd numbered PIDB (n+1) on the same DI/DX.
 - (4) For Data Fanout-Multiple PIDBs all four set must terminate on same DX board.

MTB - none

3.2.24 Trunk Unit (TU)

The trunk unit is a single shelf unit divided into two service groups. Each service group requires duplicated PICB, duplicated PIDB, and one MTB.

Equipment Rules

1. Each TU service group has eight slots which may be equipped, to meet job engineered requirements, with any of the following:
 - SN102 — Loop supervision outgoing trunk
 - SN103 — Loop supervision incoming trunk
 - SN104 — 4-wire E&M trunk
 - SN105 — 2-wire E&M trunk
 - SN107 — Test trunk
 - SN112 — Loop supervision outgoing trunk - toll
 - SN113 — Loop supervision incoming trunk - toll
 - SN114 — 4-wire E&M trunk - toll
 - SN115 — 2-wire E&M trunk - toll

2. Trunks within the same trunk group should be distributed across all available TU service groups as necessary.
3. Trunk types should be distributed across TU's as evenly as practical.
4. SN107 tests trunks be distributed for access from the local test desk.

Scan Points - none

SD Points - none

PICB

- a. Fixed - none
- b. Variable
 - (1) Duplicated PICB for the TU will be assigned to the same CI, to consecutive control ports. Trunk Unit service group 0 to even numbered control ports, TU service group 1 to odd numbered control ports.

PIDB

- a. Fixed - none
- b. Variable
 - (1) Duplicated PIDB for the TU will be assigned to the same DI/DX, to consecutive data ports.

MTB

Note: the TU always requires two MTB. When equipped with SN107 test trunks, four additional MTB are required for each SN107.

- a. Fixed - none
- b. Variable
 - (1) MTB cabled to TU service group 0 will be assigned to MSU service group 0.
 - (2) MTB cables to TU service group 1 will be assigned to MSU service group 1.
 - (3) When equipped with a SN107 test trunk four additional MTB are required, two to MSU service group 0, and two to MSU service group 1.

3.2.25 Combined Services Unit (CSU)

The CSU is designed to house four functions and various circuit packs within one unit. The functions are: MMSU (e/w SLIM2), DSU (GDSF and Announcements), and DLTU3. The CSU is a single shelf unit. The maximum number of circuit packs equipped per function is fixed. The MMSU Function has (10) pack locations; the DSU Function has (2) pack locations; and the DLTU3 Function has (6) pack locations. Reference: SD-5D530-01, J5D003FS

Equipment Notes

1. The MMSU Function is simplex in configuration and must be equipped with one power module (494LA), one common pack (TN879B), and one Metallic Access pack (TN138).
2. Metallic Access (MA) circuit packs provide up to 15 MTBs to peripheral units. MTBs terminating on MA packs may be cabled directly to peripheral units or test equipment to minimize cross office impedance, or MTBs terminating on MA packs may be cross connected at the distributing frame.
3. The TN880, GDX compensator circuit pack, provides GDX compensation for tip and ring. For MMSU function utilizing SLIM2, requires one SLIM2/GDX pair. The TN880, GDX Compensator circuit pack, is NOT required in the metallic testing of an ISLU and/or ISLU2.

4. TN220B, scan circuit pack, provides 32 scan points, scan point 32 is current sensing, all others are voltage sensing.
5. TN221, provides 32 signal distribute points.
6. For all MMSU applications, MTB 15 on all equipped metallic access circuit packs must be terminated with a diode resistor network located at the resistor panel or on the rear of the MMSU for protocol circuit testing.
7. Although the CSU is primarily intended to support VCDX SM-based applications, it may also be used with "non-VCDX" applications (e.g. Host SM's/RSM's).

Scan Points

- a. Fixed - none
- b. Variable
 - (1) The number of TN220B, scan circuit packs required are job engineered and may be equipped in any available slot to meet those requirements.

SD Points

- a. Fixed - none
- b. Variable
 - (1) The number of TN221 distribute circuit packs are job engineered to meet specific requirements and may be equipped in any available slot to meet those requirements.

PICB

- a. fixed - none
- b. variable
 - (1) The duplicated PICB required for each MMSU will be assigned to the same control group, to consecutive control ports.

PIDB - none

MTB

- a. fixed - none
- b. variable
 - (1) For variable assignment of MTB to peripheral units refer to that units section within this document.
 - (2) The MTB assignments from the two service groups of a peripheral unit shall be made to the same MMSU, to the same MTB port, on two separate TN138 circuit packs equipped in the MMSU section.

3.2.26 Digital Service Unit Function

Equipment Rules

1. The Global Digital Service Function (GDSF) is provided by one Digital Service Circuit Model 2 (DSC2) pack (UN363). This pack provides Conferencing, ISTF, TTF, TTF2 and Trunk Testing.
2. The Recorded Announcement Function (RAF) is composed of a Digital Service Circuit (DSC) pack (TN833C) and a Recorded Announcement Function (RAF) pack (TN1634).
3. In the CSU the Recorded Announcement Function provides only 250 seconds of announcements.

4. The Service Announcement System (SAS) is composed of two circuit packs. This grouping of packs is referred to as a SAS Physical Service Group (SAS-PSG).
5. The SAS-PSG requires one TN1841 SAS Digital Service Circuit (SASDSC) board.
6. Each SAS-PSG also requires one TN1842 SAS Memory (SASMEM) board which is grown adjacent and to the right of the SASDSC board as viewed from the front of the unit.
7. Each TN1842 SAS Memory Board can be equipped with one to eight flash cards.
8. Each flash card is identified via a PID code and comcode number.
9. Each 4 Mbyte flash card provides up to 400 seconds of speech recording space.
10. Each 10 Mbyte flash card provides 1200 seconds.

MTB - none

Scan Points - none

SD Points - none

PICB

- a. Fixed
 - (1) In SM/VCDX applications, the duplicated PICB will be assigned to any available CI.
- b. Variable
 - (1) The GDSF function requires one duplex PICB assignable to any available control port.
 - (2) The RAF or SAS-PSG function requires one duplex PICB assignable to any available control port.

PIDB

- a. Fixed
 - (1) The GDSF function ports 0 & 1 are required and can be assigned to any available PIDB port on any DI pack.
 - (2) In SM/VCDX applications, PIDB required for the DSU functions of RAF or SAS are assigned to any available PIDB port on any DI pack.
- b. Variable
 - (1) The GDSF function has three more additional ports per side (2,4, & 6 on one side and 3,5, & 7 on the other) that can be assigned to any available PIDB port on any DI pack. In SM/VCDX applications these additional ports use up time slots (SM resources).
 - (2) The RAF or SAS-PSG function requires one duplexed PIDB assignable to any available data port.

3.2.27 Digital Line And Trunk Unit Function

The DLTU function provides one to five digital facility interface (DFI2) circuits, each circuit contains two facilities (0 and 1). The DFI2 circuits provide the interface to digital trunks or digital umbilicals at local or remote modules. Each DFI2 circuit requires one duplicated PICB assignment. Each DFI2 circuit requires one or two duplicated PIDB assignments, one duplicated PIDB assignment for DFI2 facility 0 and one duplicated PIDB assignment for DFI2 facility 1 when DFI2 facility 1 is equipped. The DLTU function requires a Power Start-up Circuit Pack (SN346B) or an Auto Power Start-up Circuit Pack (SN730).

Equipment Rules

1. Generally, DF12 slots one through five are equipped sequentially (left to right), to meet job engineered requirements unless stated otherwise. **NOTE: The first two circuit packs must be installed.**
2. A maximum of five 24 channel DF12 circuits or five 30 channel DF12 may be equipped per CSU.
3. 24 and 30 channel DF12 circuits can not be mixed within the same CSU.
4. DF12-T circuit pack (TN1611) is equipped to interface with 24 channel trunks on a local/host SM, RSM, MMRS, or VCDX office. Each pack provides two 24 channel interfaces.
5. DF12-R circuit pack (TN1612) is equipped to interface with 24 channel RSM umbilicals in a RSM (or MMRS) office at the host and remote end. The TN1612 is required in all DLTU3 positions on which inter module T1 links terminate. Each pack provides the interface for two 24 channel umbilicals.
6. DF12-XT circuit pack (TN1414) is equipped to interface with 30 channel trunks on a local/host SM, RSM, MMRS, or VCDX offices. Each pack provides two 30 channel interfaces.
7. DF12-X circuit pack (TN1415) is equipped to provide 30 channel network clock references (on facility 0 only) at the host. NOTE: This does not apply to 24 channel applications since the clock references are bridged from the facility via an office repeater to the Remote Clock Unit (RCU) in the RSM.
8. DF12-X circuit pack (TN1415) is required to interface with RSM umbilicals in a RSM (or MMRS) office at the host and remote end. The TN1415 is required in all CSU positions on which ICL T1 links terminate. Each pack provides the interface for two 30 channel umbilicals.
9. Reference the SD5D530-01 and J5D003FS for country specific DF12 circuit packs.
10. DF12 functions, either digital trunks or RSM umbilicals, may be mixed within the CSU.
11. DF12 facilities equipped within the same DF12 circuit must be assigned the same function.
12. DF12 facility 0 must be equipped if the circuit pack is equipped. DF12 facility 1 is optional.
13. RSM umbilicals, at the host end, shall be assigned to the same host switching module but not necessarily to the same CSU within that switching module. Two CTS RSM umbilicals may NOT be assigned to the same host DF12 circuit pack.
14. For RSM applications equipped with four CTS umbilicals to the host, the DF12 circuits providing CTS umbilicals are equipped in DF12 pack positions 1,2,3, and 4 using facility 0 of each pack. Facility 1 of each pack can be used for non-CTS umbilicals to the host.
15. For RSM applications equipped with two CTS umbilicals to the host. The DF12 circuits providing CTS umbilicals are equipped in DF12 pack positions 1 and 2 using facility 0 of each circuit.
16. Facility 1 of each pack can be used for non-CTS umbilicals to the host.
17. If CTS umbilical growth is expected, facility 0 of DF12 pack positions 3 and 4 must be reserved.
18. For RSM applications equipped with non-CTS umbilicals to the host. The non-CTS umbilicals can be terminated on any of the following:
 - a. Facility 1 of DF12 pack positions 1 and 2.
 - b. Facility 1 of DF12 pack positions 3 and 4. (Note: If only two CTS umbilicals to the host are to be used, with no anticipated growth to four CTS umbilicals, facility 0 of pack positions 3 and 4 can be used for non-CTS umbilicals. Facility 0 of CSU pack

positions 3 and 4 should be assigned last when used for non-CTS umbilicals.)

- c. Any available facility of DF12 pack positions 5 through 20.
19. For 24 channel DF12's cable compensation for cabling between the CSU and DSX bay is done through circuitry within each DF12-T. No separate equalizer pack is needed.
 20. Adaptor cables may be engineered in series with other cables in some pre-engineered offices, see ED-5D500-21. The total length of all cabling from the CSU shelf to the DSX bay determines the value of cable compensation needed.

Scan Points - none

SD Points - none

PICB

- a. Fixed (for RSM umbilicals at the remote module only)
 - (1) DF12 positions 1 and 2 are always required to provide the interface to CTS umbilicals to the host module and are fixed assigned to CI 1 as follows:
 - a. DF12 position 1 to PICB 19
 - b. DF12 position 2 to PICB 18
 - (2) If four CTS umbilicals are provided to the host, use DF12 position 3 and DF1-2 position 4 and assign to CI 1 as follows:
 - a. DF12 position 3 to PICB 17
 - b. DF12 position 4 to PICB 16
 - (3) For non-CTS umbilicals provided to the host. The umbilicals can be assigned to any available PICB except 16, 17, 18, and 19 on CI 1 and can be terminated on any of the following:
 - a. DF12 pack position 5.
 - (4) Variable (general case)
 - (1) Duplicated PICB required for all equipped DF12 circuits may be assigned to any available control port on any CI.
 - (5) Variable (for RSM umbilicals at the remote module only)
 - (1) Each DF12 requires one duplexed PICB.
 - (2) DF12 pack positions 3 through 5 are equipped to meet job engineered requirements. When DF1-2 circuits are equipped, sequential assignment of PICBs is not required.

PIDB

- a. Fixed - none
- b. Variable
 - (1) The PIDB(s) required for all equipped DF12 facilities may be assigned to any available data port on any DI/DX.

FIDB

Note: When a DF12 circuit is used to provide a RSM umbilical to the host or an ICL to another RSM in a MMRS configuration, the DF12 requires FIDB (instead of PIDB) assignments at the remote module.

- a. Fixed

- (1) DF12 positions 1 and 2 are always required to provide the interface to CTS umbilicals to the host module and are fixed assigned to the FIU as follows:
 - a. DF12 position 1 facility 0 to FIDB subgroup A number 0
 - b. DF12 position 2 facility 0 to FIDB subgroup B number 0
- (2) If four CTS umbilicals are provided to the host, use DF12 positions 3 and 4 and assign to the FIU as follows:
 - a. DF12 position 3 facility 0 to FIDB subgroup A number 1
 - b. DF12 position 4 facility 0 to FIDB subgroup B number 1
- (3) For non-CTS umbilicals provided to the host or an ICL to another RSM in a MMRS configuration. The umbilicals can be assigned to any available FIDB except FIDB subgroup A number 0 and FIDB subgroup B number 0. (Note: FIDB subgroup A number 1 and FIDB subgroup B number 1 should be assigned only after all other FIDBs ports have been assigned).
 - a. DF12 pack position 5.
 - b. Variable - none

MTB - none

3.2.28 Global Digital Service Function (GDSF)

Equipment Rules

1. The GDSF is made up of our UN363 circuit pack. This circuit pack provides the functions of conferencing ISTF, TTF, and TTF2 trunk testing.

Scan Points - none

Distribute Points - none

PICB

- a. Fixed - none
- b. Variable
 - (1) Duplex PICB required for even numbered service group (service group 0) will be assigned to even numbered control ports.
 - (2) Duplex PICB required for odd numbered service group (service group 1) will be assigned to odd numbered control ports.

PIDB

- a. Fixed
 - (1) Ports 0 & 1 of the GDSF are required and can be assigned to any available PIDB port on the DI.
- b. Variable
 - (1) The GDSF has 3 more ports that can be assign to any available PIDB port on the DI. Each require one duplex assignment.
 - (2) In classical/AWS/VCDX generally only the fix assignment is use, limit of time slots.
 - (3) In SM2000 additional ports can be used as needed.

MTB - none

3.2.29 Access Interface Unit (AIU)

Is a new global 5ESS Switch line access unit which will support analog (Z), and digital (U) and (T) interfaces in engineerable line concentration ratios ranging from 1:1 to 8:1. Initially being it is positioned as an access unit which provides basic POTS service at a relatively low cost. Reference: SD8G000-01, J8G000AA

Equipment Rules

1. AIU can be ordered in four basic cabinet configurations with various circuit pack (CP) equipage. One configuration consists of two AIUs, in a vertical stack in the front of cabinet. The second configuration consists of three units in vertical stack in the front of cabinet. The third configuration consists of four AIUs, with two vertical stacks of two units each, positioned 2 front and 2 rear. The fourth consists of six AIUs, with two vertical stacks of three units each, positioned 3 front and 3 rear in the cabinet.
2. The four or six AIU cabinet configuration requires the 5ESS-2000 Global Front Access Cabling (FAC) Cabinet and Cable Rack.
3. Growth of individual AIUs is not supported.
4. In a AIU cabinet configuration, the AIU shelves are *logically ordered ,that is, positioned* as follows:

LOGICAL ORDER OF UNITS	CABINET EQL	SIDE OF CABINET
FAN UNIT	11	
1st AIU	23	FRONT
2nd AIU	40	FRONT
3rd AIU	57	FRONT
4th AIU	23	REAR
5th AIU	40	REAR
6th AIU	57	REAR

NOTE: THE ABOVE TABLE DOES NOT INDICATE ACTUAL UNIT NUMBER ASSIGNED.

5. All cabling terminated on the AIU is accessed from the front of the *unit*. This is also true for those units mounted in the rear of the cabinet.
6. The table below lists the circuit packs used in the AIU.

CIRCUIT PACK TYPE	CODE	EQPT POS
Common Data Control	DAC100	08-001,002
Ring Generator	RGP100	08-020,022
Z Line Pack POTS-Z	LPZ100	08-003,004,005,006,007,008,009,010,011,012,013,014,015,016,017,018,019,020,

Z Line Pack E/W PPM	LPP100	021,022 08- 003,004,005,006,007,008, 009,010,011,012,013,014, 015,016,017,018,019,020, 021,022
Z Line Pack E/W U.S. Coin Interface	LPC100	08- 003,004,005,006,007,008, 009,010,011,012,013,014, 015,016,017,018,019,020, 021,022

7. There are two Common Data and Control (COMDAC) CP slots. The COMDACS are ordered in pairs.
8. There are 20 Application Pack (AP) slots in each unit. The APs are ordered individually, as required, or are specified as part of a orderable item (OI).
9. An AIU does not have to have all of its AP slots equipped before the next AIU is equipped.
10. Locations and types of APs are job engineered.
11. Ring Generator (RG) CPs occupy two AP slots each. The RGs are ordered in pairs. RGs shall only be equipped in slots 020 and 022.
12. A three AIU stack contains a pair of RG CPs equipped in the lowermost unit. RG bus cabling connects the other two units.
13. Different Line Pack (LPAP's) can be mixed within the same AIU. The Tip/Ring cables are the same regardless of the pack type. However, some unused wire pairs may result due to the LP mix.
14. The Z analog pots with U.S. Coin Interface circuits line pack (LPC100) has sixteen customers lines per board.
15. Sparring of line circuits is NOT supported.
16. The table below list the number of circuits on each pack type and the number of lines total in the different cabinet configurations.

CKT PACK# TYPE/CODE	NUMBER CKTS/PACK	# LINE IN 2 AIU CABINET	# LINE IN 3 AIU CABINET (W/2 RGs EQUIP.)	# LINE IN 4 AIU CABINET	# LINE IN 6 AIU CABINET (W/4 RGs EQUIP.)
Z POTS	32	1152	1792	2304	3584
Z PPM	24	864	1344	1728	2688
Z COIN	16	576	896	1152	1792

17. The table below shows the number of AIUs per cabinet.

PIDBs ENGINEERED NUMBER OF AIUs PER CABINET				
	2	3	4	6
8 or less Duplexed	X	X	X	X

PIDB's per AIU				
10 or more Duplexed PIDB's on any AIU. (SEE NOTE 1)	X		X	

NOTE 1: If one or more of the AIU units equipped in the cabinet require 10 or more duplexed PIDBs, this row must be used for determining the number of AIU units that can be equipped in the cabinet.

Scan Points - none

SD Points - none

PICB

a. Fixed - none

b. Variable

- (1) Two duplexed PICBs are required for each AIU. COMDAC 0 must be assigned to an even numbered PICB (n) and COMDAC 1 must be assigned to the next consecutive PICB (n+1) on the same CI.

PIDB/DPIDB

PIDBs assigned at the AIU may terminate on the MCTU/MCTU2/MCTU3/TSIU4 (B channel PIDB) or PSU/PSU2 (D channel PIDB or DPIDB). The AIU may utilize up to 12 duplexed (D)PIDB pairs. PIDBs connect to the AIU via COMDAC ports which are numbered 0 through 11 on each of two COMDAC sides. **Note: see "Tables and Figures" section for a pictorial AIU to MCTU/MCTU2/MCTU3 PIDB example.**

a. Fixed - none

b. Variable

- (1) One duplex PIDB pair must be assigned to PIDB0 for each AIU.
- (2) PIDBs/DPIDBs are assigned at the AIU in duplexed pairs with one duplexed PIDB/DPIDB assigned to the same COMDAC ports on each AIU side.
- (3) In SM applications, duplexed PIDB or DPIDB pairs for the AIU are assigned in an n, n+1 fashion (0,1; 4,5; 8,9; etc.) on the same DI, at the MCTU/MCTU2. Even numbered PIDBs are assigned to AIU side 0 and odd numbered PIDBs are assigned to AIU side 1.
- (4) In SM2000 applications, duplexed PIDB pairs for the AIU are assigned in an n, n+1 fashion on the same DX. Even numbered PIDBs are assigned to AIU side 0 and odd numbered PIDBs are assigned to AIU side 1.
- (5) To provide segregation between PIDB and DPIDB pairs at the AIU, it is recommended that assignment of PIDB pairs begin with the lowest numbered COMDAC ports and continue sequentially toward the highest numbered COMDAC ports. DPIDB assignments should begin at the highest numbered COMDAC ports and continue sequentially towards the lowest numbered COMDAC ports.
- (6) PIDB terminations at the AIU should be assigned to consecutive COMDAC ports.
- (7) Where practical in SM applications, PIDB pairs should be distributed evenly between DI 0 and DI 1, alternating between DIs for every 2 duplexed PIDB pairs as assignments are made. Assignment to the same DI ports on DI 0 and DI 1 is not required.

- (8) One PIDB pair is required when B channel traffic is present and terminates on COMDAC ports 0 on both AIU sides.
- (9) The number of PIDBs and DPIDBs required is a traffic engineered item. However, any combination of PIDBs and DPIDBs may be provided which yields an even number of each. (maximum 24 (D)PIDBs total)

MTB

- a. Fixed - none
- b. Variable
 - (1) The MTB for AIU side 0 will be assigned to MMSU service group 0.
 - (2) The MTB for AIU side 1 will be assigned to MMSU service group 1.
 - (3) The AIU requires only two MTBs connections from the MMSU which are combined on the AIU backplane to accommodate both AIU sides 0 and 1 on a single cable connector.

4. MISCELLANEOUS CABINET

4.1 13A Recorded Announcement Unit (13A)

The 13A is a single shelf which houses eight announcement circuits. It requires 4-wire E&M trunk circuits one per announcement circuit), and scan point assignments. Reference: SD97753-01, J1C121A

Equipment Rules

- a. Each announcement circuit requires a 4-wire E&M trunk circuit and may be assigned to either service group of a trunk unit as required.
- b. Announcements for the 13A can be prerecorded and stored on ED coded plug-ins or recorded locally/remotely via a 13A/14A Remote Record Unit.
- c. A maximum of 32 recorded announcement channels may be equipped per miscellaneous cabinet. These channels can be comprised of a mixture of 13A, 13A+, 14A and/or 15A recorded announcement systems if so desired.

Scan Points

Note: each equipped 13A channel requires one scan point.

- a. Fixed - none
- b. Variable
 - (1) Scan points for each equipped 13A channel may be made to any available scan point within a MSU/MMSU.

SD Points - none

PICB - none

PIDB - none

MTB - none

4.2 13A+ Recorded Announcement Unit (13A+)

The 13A+ is a single shelf which houses eight announcement circuits. It requires 4-wire E&M trunk circuits one per announcement circuit), and scan point assignments. Reference: SD97813-01, J1C121A-2.

Equipment Rules

- a. Each announcement circuit requires a 4-wire E&M trunk circuit and may be assigned to either service group of a trunk unit as required.
- b. Announcements for the 13A+ can be prerecorded and stored on ED coded plug-ins or recorded locally/remotely via a 13A/14A Remote Record Unit.
- c. It is permissible to mix 13A, 13A+, 14A, and 15A announcement systems within the same miscellaneous cabinet.
- d. A maximum of 32 recorded announcement channels may be equipped per miscellaneous cabinet when using the 13A, 13A+, and/or 14A Recorded Announcement Units. This number can be increased when the 15A is used in conjunction with either the 13A, 13A+, and/or 14A.

Scan Points

Note: each equipped 13A+ channel requires one scan point.

- a. Fixed - none
- b. Variable
 - (1) Scan points for each equipped 13A+ channel may be made to any available scan point within a MSU/MMSU.

SD Points - none

PICB - none

PIDB - none

MTB - none

4.3 14A Recorded Announcement Unit (14A)

The 14A is a two inch high unit that provides up to two recorded announcement circuits. Each circuit provides a prerecorded message. Reference: SD97798-01, J1C194A

Equipment Rules

1. Announcements for the 14A can be prerecorded and stored on ED coded plug-ins or recorded locally/remotely via a 13A/14A Remote Record Unit. Refer to J1C194A-() for current message options.
2. The 14A is capable of providing recorded messages on dedicated trunks or lines. An optional line interface circuit must be provided in each 14A shelf providing messages on dedicated lines.
3. For trunk operation, each announcement circuit requires a 4-wire E&M trunk circuit which may be assigned to either service group of a trunk unit as required.
4. For line operation, each announcement circuit requires a dedicated "terminate only" phone line assigned at any LU.
5. For remote applications, the dedicated phone lines required for each announcement circuit must terminate on LUs within the remote SM.
6. A maximum of 32 recorded announcement channels may be equipped per miscellaneous cabinet. These channels can be comprised of a mixture of 13A, 13A+, 14A and/or 15A recorded announcement systems if so desired.

Scan Points

- a. Fixed - none
- b. Variable

- (1) Each equipped 14A announcement circuit (two per shelf) requires one scan point assigned at any available MSU/MMSU scan port.

SD Points - none

PICB - none

PIDB - none

MTB - none

4.4 13A/14A Remote Record Unit (RRU)

The RRU is a two inch high unit that provides up to two remote record circuits. Each circuit allows local or remote recording of messages on either the 13A, 13A+, or 14A Recorded Announcement Units. Reference: J1C194A, SD97811-01

Equipage Rules

- 1. Each circuit can access up to eight channels of recorded announcements in the 13A, 13A+, or 14A Recorded Announcement Units.
- 2. A maximum of two RRU's may be equipped per miscellaneous cabinet. This equipage is sufficient for accessing up to 32 channels of recorded announcements.
- 3. Each remote record circuit requires a two wire T/R phone line.

Scan Points

- a. Fixed - none
- b. Variable

- (1) Each equipped remote record circuit (two per shelf) requires two scan points assigned at any available MSU/MMSU scan port.

SD Points -none

PICB - none

PIDB - none

MTB - none

4.5 15A Announcement System (15A)

The 15A is a two inch high unit that provides up to 16 recorded announcement circuits and by way of a 400A Remote Record Circuit provides remote access to those announcements. Each announcement circuit provides a prerecorded message. Reference: SD97815-01, J1C267A.

Equipment Rules

- 1. The 15A is capable of providing recorded messages on dedicated analog trunks.
- 2. Announcements for the 15A can be prerecorded and stored on BLD coded plug-ins. The message can also be recorded locally/remotely on the BLD circuit pack via a 400A Remote Record Circuit. Refer to J1C267A for current message options.
- 3. Each BLD plug-in provides eight announcement circuits.
- 4. A maximum of two BLD plug-ins can be equipped per unit.
- 5. For analog trunk operation, each announcement circuit requires a 4-wire E&M trunk circuit which may be assigned to either service group of an analog trunk unit as required.

6. Each BLD plug-in requiring remote record capability requires one two-wire T/R phone line and one 400A Remote Record Circuit.
7. Each 400A provides access to eight remote record circuits.
8. A maximum of 256 recorded announcement channels may be equipped per miscellaneous cabinet when using 15A Announcement Systems. This number would be reduced when using the 15A in conjunction with the 13A, 13A+, and/or 14A Recorded Announcement Units.

Scan Points

- a. Fixed - none
- b. Variable
 - (1) Each BLD Announcement Circuit pack requires one scan point assigned at any available MSU/MMSU scan port.

SD Points - none

PICB - none

PIDB - none

MTB - none

4.6 16A Announcement System (16A)

The 16A is a 3.4 inch high unit that provides up to 24 recorded announcement circuits and remote access to those announcements. Each announcement circuit provides a prerecorded message. Reference: SD97816-01, J1C273A.

Equipment Rules

1. The 16A is capable of providing recorded messages on dedicated digital trunks.
2. Announcements for the 16A can be prerecorded and stored on BLD coded plug-ins. The message can also be recorded locally/remotely on the BLD circuit pack via a 400B Remote Record Circuit. Refer to J1C267A for current message options.
3. One BLD10 plug-in equipped in the top left unit position is required to provide the digital interface.
4. A maximum of three BLD3 plug-ins may be provided per 16A Announcement System.
5. Each BLD3 plug-in provides eight announcement circuits.
6. For digital trunk operation, each announcement circuit requires a 4-wire E&M trunk circuit which may be assigned to either service group of an digital trunk unit as required.
7. Each BLD3 plug-in requiring remote record capability requires one two-wire T/R phone line and one 400B Remote Record Circuit which mounts on the BLD3 plug-in.
8. Each 400B provides access to eight remote record circuits.
9. A maximum of 384 recorded announcement channels may be equipped per miscellaneous cabinet when using 16A Announcement Systems. (This number would be reduced when using the 16A in conjunction with the 13A, 14A and/or 15A Recorded Announcement Units.)

Scan Points

1. Fixed - none
2. Variable
 - (1) Each BLD3 circuit pack (which provides eight announcement circuits) requires one scan point assigned at any available MSU/MMSU scan port.

SD Points - none

PICB - none

PIDB - none

MTB - none

4.7 3-Fan Unit

The 3-fan unit is a single shelf unit which houses three fans in a single shelf enclosure. Each fan is individually powered and alarmed. Reference J5D003BE, SD5D019-02

Equipment Rules

1. Required in all miscellaneous cabinets equipped with either a TRCU or more than three 13A Recorded Announcement Units. Miscellaneous cabinets equipped with more than three 13A+ Recorded Announcement Units do NOT require a fan unit.

Scan Points

a. Fixed

- (1) All fan failure alarm leads for the miscellaneous cabinets are combined and report on a duplicated basis to PC10 of IOP 0 and 1 for 3B20 with CM1 and CM2 (CM1 and CM2 prior to 5E6 are customer assignable); to PC02 of IOP 0 and 1 for 3B21D with CM2 and CM2C. See "Tables and Figures" section for specific scan assignments.
- (2) In RSM applications, scan assignments are assigned via the MSU/MMSU and not the 3B20D Processor IOP. See the "Tables and Figures" section for specific scan assignments.

b. Variable - none

SD Points

a. Fixed

- (1) All fan alarm remote reset leads for the miscellaneous cabinets are combined and terminate on a duplicated basis to PC10 of IOP 0 and 1 for 3B20 with CM1 and CM2 (CM1 and CM2 prior to 5E6 are customer assignable); to PC02 of IOP 0 and 1 for 3B21D with CM2 and CM2C. See "Tables and Figures" section for specific SD assignments.
- (2) In RSM applications, remote reset leads are assigned via the MSU/MMSU and not the 3B20D Processor IOP. See the "Tables and Figures" section for specific SD assignments.

b. Variable - none

PICB - none

PIDB - none

MTB - none

4.8 Office Alarm Unit (OAU)

The OAU provides Scan and SD interfaces for central office alarm indicators and sensing devices for critical, major, and minor alarms and alarm retire functions.

Equipment Rules

1. The Audible Alarm circuit pack (TN137) provides isolation between the IOP SD points and audio/visual alarm indicators found in a switching office. Major, minor, and critical alarms and alarm retire functions are provided. (one required)

2. The Scan Applique circuit pack (TN867) provides isolation between IOP Scan points and switching office alarm sensors. Each pack provides 24 interface circuits, each circuit providing duplexed outputs from a single input. (minimum 2 required, maximum 4)

Scan Points

- a. Fixed
 - (1) See "Tables and Figures" section for scan point assignments.
- b. Variable
 - (1) Scan points may be assigned by the customer to provide customized alarm functions. Office assignable scan points are located on PC01 of IOP 0 and IOP 1 for 3B20D applications. Additional office assignable scan points may be provided by equipping an optional UN33 in PC11 of IOP 0 and IOP 1.

SD Points

- a. Fixed
 - (1) See "Tables and Figures" section for OAU SD point assignments.
- b. Variable
 - (1) SD points may be assigned by the customer to provide customized alarm functions. Office assignable SD points are located on PC01 of IOP 0 and IOP 1 for 3B20D applications.

4.9 Resistor Panel

The resistor panel provides 128 tip and ring access to SD and MTB points via the main distributing frame (MDF). Through the use of connectorized networks, the resistor panel provides current limiting and bus conditioning as required.

Equipment Rules

1. Three types of resistor panel networks are available; 982HK, 982HJ, and 982HL for various applications outlined below. Each type of network is available in a variety of resistance values by group number. See SD5D044-01 for specific information.
2. Generally resistor panel assignments are job engineered to limit current through an SD point closure to 50ma for a given load. Resistor panel plug-ins are available in various resistance values and may be connected in combination as required.
3. The resistor network shall provide -48V and -48RTN when required for operation of an activated device.
4. Where practical, resistor panel circuits shall be equipped such that -48V is provided by the same bus as the originating MSU/MMSU point.
5. SD points originating on the MSU/MMSU may require resistor panel terminations to provide current limiting for SD point closure protection.
6. Taking into account a 50 ohm resistor which is in series with the contact points on the SD circuit pack, resistance values are equipped on the resistor panel and cross connected at the MDF which will provide sufficient current limiting to maintain a value of current through the contact points that is less than or equal to 50 ma.
7. For all multiple MSU and MMSU applications, MTB 15 on all equipped metallic access circuit packs must be terminated with a diode resistor network for protocol circuit testing.
8. The board to board test circuit requires terminating resistor networks on the associated SD points.

9. For RSM applications, see RAU section for fixed assignment information.

Note: See "Tables and Figures" section for typical resistor panel arrangements.

Scan points - none

SD points -none

PICB - none

PIDB - none

MTB - none

5. ADMINISTRATIVE MODULE

5.1 3B20D-2

The 3B20D-2 processor is a 7 bay complex consisting of 2 PCCA cabinets, 1 TUCA cabinet, 1 DPC cabinet and three MHD's.

Equipment Rules

1. OSS interconnection information may be found in SD5D071-01.
2. Peripheral Controller requirements may be found in SD5D014-01 for 7 ft cabinet or frame offices and SD5D014-02 for 6 ft cabinet offices.
3. 5ESS processor equipment requirements may be found in SD5D014-01 for 7 ft cabinet or frame offices and SD5D014-02 for 6 ft cabinet offices.

Scan Points

- a. Fixed
 - (1) Scan point assignments for the 3B20D-2 processor are found in "Tables and Figures" section of this document.
- b. Variable - none

SD Points

- a. Fixed
 - (1) SD point assignments for the 3B20D-2 processor are found in "Tables and Figures" section of this document.
- b. Variable - none

PICB - none

PIDB - none

MTB - none

5.2 3B20D, Model 3 Processor for 5ESS

The 3B20D, Model 3 Processor for 5ESS can be configured as a 3 to 5 bay complex consisting of 2 PCCA cabinets and 1 to 3 Tape/Disk Cabinets (T/DC). T/DC 0 provides a tape unit and up to four disk drives (minimum 2). T/DC 1 may be configured to provide an additional tape unit and up to 4 additional disk drives or up to 8 additional disk drives. T/DC 2 can be configured to provide up to an additional 4 disk drives or up to an additional 8 disk drives. The maximum number of disk drives is 16. Reference: SD4C122-01, J1C176B

The 3B20D, Model 3 Processor for 5ESS can also be configured as a 3 to 5 bay complex consisting of 2 PCCA cabinets, 2 SCSI Disk Cabinets (SDC) cabinets, and 1 Tape Unit Cabinet

(TUC). SDC 0 provides a tape unit and up to 16 SCSI MHDs. SDC 1 provides growth for up to an additional 16 SCSI MHDs. TUC 0 provides growth for a second tape unit. The maximum number of SCSI MHDs is 32. Reference SD4C122-02, J1C176C

Equipment Rules

1. OSS interconnection information may be found in SD5D071-01.
2. Peripheral Controller requirements may be found in SD5D014-01 for 7 ft cabinet or frame offices and SD5D014-02 for 6 ft cabinet offices.
3. 5ESS processor equipment requirements may be found in SD5D014-01 for 7 ft cabinet or frame offices and SD5D014-02 for 6 ft cabinet offices.

Scan Points

- a. Fixed
 - (1) Scan point assignments for the 3B20D, Model 3 Processor for 5ESS are found in "Tables and Figures" section of this document.
- b. Variable - none

SD Points

- a. Fixed
 - (1) SD point assignments for the 3B20D, Model 3 Processor for 5ESS are found in "Tables and Figures" section of this document.
- b. Variable - none

PICB - none

PIDB - none

MTB - none

5.3 Peripheral Interface Cabinet (PIC)

The PIC is a single cabinet containing 1 to 4 IOP units (2 basic, 2 growth), providing the capability for growth up to 8 additional IOP communities for peripheral controller assignments in 3B20D applications. Reference SD4C122-01, J1C215A-1

Equipment Rules

1. Peripheral controller assignments may be found in SD5D014-02.

Scan Points

- a. Fixed
 - (1) Scan point assignments for the PIC are found in "Tables and Figures" section of this document.
- b. Variable - none

SD Points

- a. Fixed
 - (1) SD point assignments for the PIC are found in "Tables and Figures" section of this document.
- b. Variable - none

PICB - none

PIDB - none

MTB - none

5.4 3B21D Computer System for 5ESS

The 3B21D Computer System for 5ESS can be configured as a 1 to 3 bay complex consisting of a Processor Control Cabinet (CSPC) and 1 to 2 Processor Growth Cabinets (CSPGC). The CSPC consists of one cabinet. The number of SCSI Disk Units that can be equipped in the CSPC is office engineered. This is based upon the number of SCSI Peripheral Units (SPUs) in which a SCSI Disk Unit could be equipped. Each CSPGC (0 and/or 1) can provide one or two Nine Track SCSI Tape Units. (NOTE: The CSPGC is optional and is not always provided.) Reference: SD3T015-01, J1T061A

Equipment Rules

1. OSS interconnection information may be found in SD5D071-01.
2. Peripheral Controller requirements may be found in SD5D014-02.
3. 5ESS processor equipment requirements may be found in SD5D014-02.

Scan Points

- a. Fixed
 - (1) Scan point assignments for the 3B21D Computer System for 5ESS are found in "Tables and Figures" section of this document.
- b. Variable - none

SD Points

- a. Fixed
 - (1) SD point assignments for the 3B21D Computer System for 5ESS are found in "Tables and Figures" section of this document.
- b. Variable - none

PICB - none

PIDB - none

MTB - none

6. ASSOCIATED EQUIPMENT

6.1 Common Network Interface (CNI)

The CNI is a two cabinet complex equipped in CCIS/Toll applications. Reference: SD3F019-01

Equipment Rules

1. The CNI is equipped with one Ring Node Cabinet (RNC), SD3F020-01, J3F011C
2. The CNI is equipped with one Digital Facility Access Cabinet (DFA), SD3F021-01, J3F010B

Scan Points

- a. Fixed
 - (1) Three duplicated scan points are required for the CNI. See "Tables and Figures" section of this document for specific CNI scan assignments.

- b. Variable - none

SD Points

- a. Fixed

- (1) One duplicated SD point is required for the CNI. See "Tables and Figures" section of this document for specific CNI SD assignments.

- b. Variable - none

PICB - none

PIDB - none

MTB - none

6.2 Pair Gain Test Controller (PGTC)

The PGTC is provided in the 5ESS switching office environment to provide test access control to the 5ESS switch for testing universal SLC-96 remote terminals. Reference: SD97760-01

Equipment Rules

- 1. Only one PGTC test port will terminate on an MMSU shelf service group.

Scan Points - none

SD Points

- a. Fixed - none

- b. Variable

- (1) Two SD points are required for each PGTC. These points must be assigned sequentially to the same MMSU and the same SD circuit pack

PICB - none

PIDB - none

MTB

- a. Fixed - none

- b. Variable

- (1) Two MTB's are required per PGTC port. These must be assigned sequentially to the same MMSU and the same metallic access circuit pack.
- (2) A minimum of one MTB assigned to the DCTU must terminate on the same MMSU shelf service group as the two MTB's assigned to the PGTC port.
- (3a) A PGTC test port must terminate on each MMSU shelf service group where the MTB for a DCTU port, used in testing universal SLC-96 remote terminals, terminates.
- (3b) An optional connection: The PGTC can be connected in series with the DCTU and MMSU by connecting a "MTB" from DCTU PMU port via the DF to "MTB IN" on PGTC. Then connect "MTB OUT" from PGTC via the DF to MMSU.
- (3c) An optional connection: When Universal SLC is present in the 5ESS switch a minimum of one PGTC is needed on each MMSU for testing Universal SLC lines. This configuration maybe excepted in a office with a minimum number of Universal SLC lines. If Universal SLC testability is down with this configuration, the office may need to add additional PGTC access to their MMSU. Note the PGTC needs to be on the same shelf service group as the DCTU PMU port.

6.3 Test Access Unit (TAU)

The TAU station is resident on the MCC and requires distribute points and 4-wire E&M trunk assignments, and MTB assignments.

Equipment Rules

1. The E&M jack A will be assigned to a 4-wire E&M trunk circuit in service group 0 of a trunk unit.
2. The E&M jack B will be assigned to a 4-wire E&M trunk circuit in service group 1 of a trunk unit.

Scan Points - none

SD Points

Note: each DC jack requires two distribute points.

- a. Fixed - none
- b. Variable
 - (1) Distribute points associated with DC jack 1 will be assigned to MSU/MMSU service group 0.
 - (2) Distribute points associated with DC jack 2 will be assigned to MSU/MMSU service group 1.

PICB - none

PIDB - none

MTB

- a. Fixed - none
- b. Variable
 - (1) MTB required for DC jack 1 will be assigned to MSU service group 0.
 - (2) MTB required for DC jack 2 will be assigned to MSU service group 1.
 - (3) MTB for a TAU will be assigned to the same MSU.

6.4 Test Bus Control Unit (TBCU)

The Test Bus Control Unit is utilized in conjunction with Integrated SLC-96 systems, allowing the lines to remote terminals to be metallically tested from the 5ESS. Reference: SD97791-01, J1C189A1

Equipment rules

1. Each bus unit circuit pack (SM500) provides two test circuits (A and B).
2. Provide one SM500 circuit pack for every two Metallic Test Pairs (MTP) serving remote terminal locations.
3. Each Metallic Test Pair (MTP) can accommodate 20 co-located Integrated SLC-96 remote terminals if Mechanized Loop Testing (MLT) is used. The maximum number of remote terminals is 10 if a manual test desk is used.
4. Each MTP may be shared between Integrated and Universal SLC-96 systems.
5. All SLC-96 remote terminals that share an MTP must be co-located.
6. If all remote terminals on an MTP are Universal SLC-96 terminals, no TBCU test circuits are required. TBCU test circuits are required only when some or all terminals on an MTP are Integrated SLC-96 terminals.

7. One or both test circuits may be utilized on a bus unit circuit pack.
8. Up to fifteen bus unit circuit packs may be equipped in a TBCU.
9. Each TBCU can provide up to 30 DC test pairs to remote terminal locations.

Scan points

- a. Fixed - none
- b. Variable
 - (1) Each bus unit circuit (two per bus unit circuit pack) requires one scan point. Assign A circuit scan terminations to MMSU service group 0 scan points. Assign B circuit scan terminations to MMSU service group 1 scan points.
 - (2) Each TBCU requires one MMSU scan point to monitor power.
 - (3) All scan points associated with a TBCU must be assigned to the same scan pack on the same MMSU shelf service group.

SD Points

- a. fixed - none
- b. Variable
 - (1) Each bus unit circuit (two per bus unit circuit pack) requires five SD points. Assign A circuit SD terminations to MMSU service group 0 SD points. Assign B circuit SD terminations to MMSU service group 1 SD points.
 - (2) All SD points associated with a TBCU must be assigned to the same scan pack on the same MMSU shelf service group.

PICB - none

PIDB - none

MTB

- a. fixed - none
- b. Variable
 - (1) Each bus unit circuit (two per bus unit circuit pack) requires one MTB. Assign A circuit MTB terminations to any available MMSU service group 0 MTB point. Assign B circuit MTB terminations to any available MMSU service group 1 MTB point. **Note: diode terminations required for MTB's in the idle state are provided by the TBCU for those MTB's associated with it.**

6.5 Test Trunk Circuit (TTC)

The TTC is a 2" high shelf which may be equipped with test circuits. This unit is equipped in a 5ESS switching office to provide distributing frame access to integrated MLT2 for MDF testing. Test circuits are provided per job engineered requirements. Reference: SD90070-01, J93016CY

Equipment Rules

1. Each 2" mounting plate may be equipped with one or two test circuits.
2. A test shoe replaces the protector coil associated with the line under test, providing MDF access to the 5ESS switch for testing.
3. For each equipped test circuit, a DFTAC circuit pack must be provided in the MMSU within the 5ESS switch.
4. Each test circuit requires a dedicated T/R phone line assigned to a Line Unit.

Scan Points - none

SD Points - none

MTB - none

7. REMOTE SWITCHING APPLICATIONS

This section contains assignment rule information for equipment found only in EXM2000, RSM, ORM, or TRM applications. Equipment common to local/host SMs/SM2000s is covered in the "Switching Module" sections of this document.

7.1 Remote Switching Module (RSM)

The RSM consists of 1 to 4 SMs provided at a location away from the 5ESS environment and connected to the 5ESS via umbilicals connected between a host SM at the 5ESS site and the remoted modules. SMs in the multi module RSM application are also connected to each other by umbilicals. Each RSM site is provided with a power distribution cabinet, 1 or more miscellaneous cabinets and RSM alarm provisions. Reference: SD-5D132-01 or SD-5D133-01

7.1.1 Alarm and Status Unit (ASU)

The ASU provides alarming and status display functions in the RSM. This unit is mounted in the bezel of the SMC cabinet in all remote modules shipped with the 5E2(2) generic and replaces the RAU and status panel found in RSMs with earlier generics. RSM offices retrofitting to the 5E2(2) generic may continue to use the RAU if the RSM remains single module. Reference: ED5D586-10, SD5D133-01

Equipment Rules

1. Group 1 hardware is equipped in the module designated as the resource module in multi-module RSM applications and provides the global alarm functions for the RSM site.
2. Group 2 hardware is equipped in the resource module and all other modules in a multi-module RSM application.

Scan Points

- a. Fixed - none
- b. Variable
 - (1) Table 9.2.4 provides scan points to be assigned in RSM applications equipped with the ASU.

SD Points

- a. Fixed - none
- b. Variable
 - (1) Table 9.2.5 provides distribute points to be assigned in RSM applications equipped with the ASU.

PICB - none

PIDB - none

MTB - none

7.1.2 Facilities Interface Unit (FIU)

The FIU is a 1-shelf unit divided into two service groups (0 and 1). Each service group requires duplicated PICB assignments, and provides Facility Interface Data Buses (FIDB) to a DLTU, DLTU-E, DLTU2, and/or DLTU3 which provides T1 umbilicals from a RSM. Each FIU service

group contains two subgroups (A and B) which provides FIDB's to the DLTU, DLTU-E, DLTU2, and/or DLTU3. Both FIU service groups are always fully equipped and provide up to 20 duplicated FIDB assignments.

Equipment Rules

1. The FIU is always fully equipped. Equipment options, which are job engineered, are covered in the DLTU, DLTU-E, DLTU2, and DLTU3 sections of this document.

Scan Points - none

SD Points - none

PICB

- a. Fixed
 - (1) FIU service group 0 to PICB 20 of control group 1
 - (2) FIU service group 1 to PICB 21 of control group 1
- b. Variable - none

FIDB

Note: FIDB assignments are required to DFI/DFI2 circuits in the DLTU/DLTU-E/DLTU2/DLTU3 which provide T1 umbilicals from the RSM to the host office and, in effect, replace the PIDB assignments normally made to the DFI/DFI2 circuits.

- a. Fixed - none
- b. Variable
 - (1) FIDB assignments are duplicated to each DFI circuit (within the DLTU or DLTU-E) or DFI2 facility (within the DLTU2 or DLTU3) providing T1 umbilicals to the host. Each DFI circuit and/or DFI2 facility will be duplicated across both FIU service groups to the appropriate FIU subgroup.
 - (2) See the DLTU and DLTU-E sections for FIDB assignments to the DFI circuits.
 - (3) See the DLTU2 and DLTU3 sections for FIDB assignments to the DFI2 facilities.

MTB - none

7.1.3 Remote Network Clock Unit (RCU)

The RCU is a single shelf unit providing a duplicated stratum 3 clock for RSM applications. This unit is part of a clock hardware upgrade option which may be implemented to provide a higher degree of stability to synchronization signals, desirable when digital trunks terminate on an RSM. The RCU maintains synchronization for digital trunks when an RSM is operating in the stand alone mode. Without the RCU, some synchronization slips may occur on digital trunks during stand alone operation. Reference: SD5D075, J5D003FC

Equipment Rules

1. One RCU shelf provides a duplicated stratum 3 clock.
2. For multimodule RSM applications, provide one RCU in an associated remote module per job engineered requirements.

Scan Points

- a. Fixed - none
- b. Variable
 - (1) The RCU requires twelve duplicated scan points assignable to any available location on the MMSU.

SD Points

- a. Fixed - none
- b. Variable
 - (1) The RCU requires six duplicated distribute points assignable to any available location on the MMSU.

PICB

- a. Fixed - none
- b. Variable
 - (1) Duplicated PICB for the RCU will be assigned to the same SMPU control group, to consecutive control ports. RCU 0 to even numbered control ports, RCU 1 to odd numbered control ports.

PIDB - none

MTB - none

7.1.4 Remote Alarm Unit (RAU)

The RAU provides Scan and SD interfaces for RSM office alarm indicators and sensing devices for major, minor, critical, and stand alone mode functions in offices which did not ship from the manufacturer as 5E2(2) or later generic offices.

Equipment Rules

- 1. The Remote Alarm Unit circuit pack (TN934) provides the interface between the MMSU and office alarm indicators and sensors in an RSM site. (one required per unit)
- 2. The Alarm Status Panel, located above the equipment side of the SMC cabinet, contains the visual indicators driven by the RAU circuit pack as well as the craft intervention key for processor start-up.

Scan Points

- a. Fixed
 - (1) RAU scan points are fixed assigned at the MMSU for 5E2(1) or earlier generics. See "Tables and Figures" section of this document for specific RAU scan point assignments.
- b. Variable
 - (1) In 5E2(2) or later generic single module RSM applications, RAU scan points are required per fixed assignment tables, however pack locations and scan point numbers are engineerable. All points must be duplicated across two service groups.

SD Points

- a. Fixed
 - (1) RAU SD points are fixed assigned at the MMSU for 5E2(1) or earlier generics. See "Tables and Figures" section of this document for specific RAU SD point assignments.
 - (2) SD points assigned to system sanity, off-normal, building power-miscellaneous, and alarm test in progress lamps on the Alarm Status Panel require resistor panel terminations which are fixed assigned as follows:

Resistor Panel ckt 000A.....SYS SAN lamp 0
Resistor Panel ckt 064A.....SYS SAN lamp 1
Resistor Panel ckt 001A.....OFF-NOR lamp 0

Resistor Panel ckt 065A.....OFF-NOR lamp 1
Resistor Panel ckt 002A....BLDG PWR-MISC lamp 0
Resistor Panel ckt 066A....BLDG PWR-MISC lamp 1
Resistor Panel ckt 003A.....TEST IN PROG lamp 0
Resistor Panel ckt 067A.....TEST IN PROG lamp 1

b. Variable

- (1) In 5E2(2) or later generic single module RSM applications, RAU SD points are required per fixed assignment tables, however pack locations and SD point numbers are engineerable.

PICB - none

PIDB - none

MTB - none

7.2 Optically Remoted Switching Module (ORM)

The ORM provides an SM connected to the host switch via transmission facilities. The ORM may be located up to one hundred miles from the host office. Local ALIT testing capabilities may be provided by equipping the appropriate hardware. See MMSU sections for assignment rules for ALIT related hardware. For co-located ORMs (or co-located applications equipped with ORM(s) and EXM2000(s)), metallic testing hardware may be shared. Reference: SD-5D133-01 for ORM information.

7.3 Extended Switching Module 2000 (EXM2000)

The EXM2000 provides a SM2000 connected to the host switch via transmission facilities. The EXM2000 may be located up to one hundred miles from the host office. Local ALIT testing capabilities may be provided by equipping the appropriate hardware. See the MMSU sections for assignment rules for ALIT related hardware. For co-located EXM2000s (or co-located applications equipped with EXM2000(s) and ORM(s)), metallic testing hardware may be shared. Reference: SD-5D535-01 for EXM2000 information.

7.3.1 Transmission Rate Converter Unit Model 2 (TRCU2)

The TRCU2 is a single shelf unit providing the interface between the optical fiber NCT links and transmission facilities at both the remote and host locations. The remote end is either an Optically Remoted Module (ORM) or an Extended Switching Module 2000 (EXM2000). At the host location, the TRCU2 is located in the Miscellaneous Cabinet, at the remote location the TRCU2 is located in the SMC cabinet of an ORM and in the LTP cabinets right and left of the SMC of an EXM. Reference: SD5D086, J5D003ED

Equipment Rules

1. Each TRCU2 at the host location can provide the interface for up to 2 ORM's.
2. An EXM2000 maybe equipped with 1 - 6 TRCU2 shelves (which allows from 1 - 12 TRCU2s).
3. One active and one stand-by interface circuit is required for each EXM2000 or ORM at each end of the host-remote link.
4. Each interface circuit consists of 1494RA Pwr Conv, 2 TN1345 and 1 AKM3 circuit packs.

Scan Points - none

SD Points - none

PICB - none

PIDB - none

MTB - none

7.3.1.1 Transmission Rate Converter Unit, Model 3 (TRCU3)

The TRCU3 is a single shelf unit that connects either an ORM or EXM-2000 to a host. The TRCU3 provides the capability to remote the classic switch module as a Optical Remote Module (ORM) and the SM2000 as an Extended Switching Module-2000 (EXM-2000). A TRCU3 resides at both the remote end (ORM or EXM-2000) and the host end. At the host location, the TRCU3 is located in the Miscellaneous Cabinet, at the remote location the TRCU3 is located in a LTP cabinet (SMC cabinet for ORM) and can be mounted in any of the six available positions. It is recommended that the TRCU3 Units be mounted at cabinet positions furthest away from the cabinet fan unit. The TRCU3 is a single shelf that provides duplexed functionality. Reference: 5ESS Documents, SD-5D555-01, J5D003EF-1, Reference: DDM-2000 Documents, SDM-7C511-01 and SD-7C510-01 for OC3 data.

Equipment Rules

1. It provides connectivity for either NCT1 (BNP1) or NCT2 (BNP2) links. The NCT1 link connection is used with the ORM and the NCT2 link connection is used with the EXM-2000.
2. A TRCU3 provides up to three link pairs for this connectivity. It should be noted that the three link pairs in a TRCU3 unit can be either all NCT1 or all NCT2. They cannot be mixed in a TRCU3 unit.
3. Each TRCU3 at the host location interfaces with one TRCU3 at the ORM.
4. An EXM-2000 maybe equipped with 1 - 8 TRCU3 shelves at the remote and host.
5. All fiber optic connections at the TRCU3 are made at the front of the unit.
6. The TRCU3 interfaces to all OC3 or OC12 standard transmission equipment.

Scan Points - none

SD Points - none

PICB - none

PIDB - none

MTB - none

7.4 Two Mile Optically Remoted Switching Module (TRM)

Two mile ORM (TRM) provides an SM remoted up to two miles via extended optical fiber NCT links. Local ALIT testing capabilities may be provided by equipping the appropriate hardware. See MMSU sections for assignment rules for ALIT related hardware. For co-located TRMs, metallic testing hardware may be shared. Reference: SD-5D133-01

7.5 Very Compact Digital Exchange (VCDX)

This section contains assignment rule information for equipment found only in a VCDX or a VCDX2000. VCDX is a small stand alone switch which does not require an AM (3B Adm Proc) or a CM (CM2 or CM2C). Reference: SD5D519-01 and SD5D534-01

- 1) VCDX requires either a single SM or SM2000 equipped with VCDX optioned SMC and required peripherals.

- 2) VCDX requires an Administrative Work Station ED-5D764-30.
- 3) VCDX requires Office Support System (SD-5D071-01) equipment.
- 4) VCDX requires at least one Miscellaneous Cabinet to support Power Distribution and miscellaneous functions.

Another application utilizing VCDX configuration is a wireless application called Air-Extension.

7.6 Extended Control and Data Unit (XCDU)

The XCDU unit is a duplicated, single shelf unit which provides additional electrical PICBs and PIDBs. The XCDU is equipped in the LTP cabinet. XCDU functions as a duplexed unit on the same backplane. Each XCDU service group 0 and 1 is in the same failure group as the MCTS1 service group 0 and 1. The XCDU is fused as a peripheral unit and is part of the SM-2000 Peripheral Fuse Alarm circuit/mult. The XCDU does not change the foot print of SM or SM2000 cabinets (9-15-5). Reference: J5D003NF, SD5D528-01, ED5D734-10, ED5D734-15,

Equipment Rules

1. One XCDU shelf can support up to five XDXs, three CI2s, one Power Module and one XCDCOM per side.

Circuit Pack	Meaning	
Side 0		
414AA	Power Converter	
TN1996	Ext Cntl/Data Com	
UN553	Data Expansion	(XDX)
UN553	Data Expansion	
UN71C	Cntl Interface 2(CI2)	
UN71C	Cntl Interface 2	
UN71C	Cntl Interface 2	
Side 1		
414AA	Power Converter	
TN1996	Ext Cntl/Data Com	
UN553	Data Expansion	(XDX)
UN553	Data Expansion	
UN71C	Cntl Interface 2(CI2)	
UN71C	Cntl Interface 2	
UN71C	Cntl Interface 2	

2. The XCDU can be placed in any LTP cabinet within 30 feet of the SMC cabinet (including LTPs not in the SMC lineup).
3. The XCDU does not monitor any fuse or fan alarms.
4. CORE60 based circuit pack is required when an XCDU is engineered in an SM-2000. (CORE60MM can also be used with the XCDU).

5. XCDCOMs are duplicated and required for each XCDU. It provides control and display functionality for the XCDU.
6. Only CI2s (UN71C) are allowed in an XCDU.
7. A maximum of three XCDU's per SM-2000.
8. A maximum of two XCDU's may be equipped in an LTP cabinet due to the cable congestion. A third XCDU can be added to a SM2K, although it would have to be added in a different LTP cabinet.
9. The XCDU cannot be located on the bottom shelf in the LTP cabinet.
10. Mixing XCDU's with other 5ESS-2000 units in an LTP cabinet is permitted.
11. The XCDU shelf cannot be located in an SMC cabinet.
12. It is recommended that the XCDU be equipped right above the mid bi-directional fan unit.
13. If a second XCDU is to be equipped, it is recommended that it is equipped right below the mid fan unit.
14. The XCDU requires separate power feeds and four fuses at the Modular Fuse Filter Unit (MFFU), two per Bus "A" and two per Bus "B".
15. XCDU fuse and fan alarm monitoring will be done by the SMC2000.
16. All PIDBs and PICBs associated with a given unit must terminate to the same XCDU or to the same TSIU/SMPU.
17. PIDBs and PICBs from the XCDU can not run cross aisle, they must stay within the line-up with its Peripheral Unit.
18. Supports PICBs/PIDBs cables up to 28 feet in length. This includes horizontal and vertical distance.

7.7 Inter-Working Function (IWF)

The IWF provides wireless fax and data on a 5ESS Global System Mobile for Communication (GSM), Mobile Switching Center (MSC) and is considered part of the Mobile Switching Center (MSC). The IWF feature involves the transmission of facsimile and data signals over the air interface. Use of an Inter-Working Function (IWF) device is required. The amount of IWF equipment is subscriber data dependant. Reference: ED-5D811-31

Equipment Rules

1. IWF cabinet is a 5ESS-2000 Cabinet dedicated only to the IWF system components and cannot be equipped with any other type of equipment (e.g. other modems, etc.) used with the MSC.
2. IWF is not restricted to being connected to the same SM/SM2000 as the Base Station System (BSS).
3. Dedicated E1 Facilities Equipped with major and minor trunk channels.
4. GSM IWF can support fax and data calls on the same major/minor trunk pair.
5. It is recommended that the MSC-IWF trunk interface be distributed across multiple SM-2000 (and not concentrated on one SM-2000 and/or DF12/DLTU3) to distribute reliability.
6. The minimum configuration for IWF is two shelves; each shelf containing one SMC, one E1 Line Interface Unit (LIU), and four IWF-2/ DHM pairs (DHME).
7. The maximum IWF system configuration is 140 IWF shelves and 35 IWF cabinets.

Scan Point - none

SD Point - none

PICB - none

PIDB - none

MTB - none

7.8 Real Time Call Detail (RTCD)

RTCD recording adds the capability to the 5ESS Long Distance platform (LDP) switch to generate a record of call information populated with data that is stored during the life of a call. The RTCD record is generated in the originating SM and transferred to the Global Billing SM (GBSM). The GBSM provides the termination of the ethernet links at the switch side. Reference: ED5D734-30, ED5D838-30

1. RTCD application will equip one SM-2000, known as the Global Billing Switching Module (GBSM). The GBSM must be an SM-2000, EXM-2000 and VCDX is not recommended.
2. The originating SMs may be SM-2000s (SMP40/SMP60) or a classic SMs.
3. Due to the volume of messages produced by this application, the Quad Link Packet Switch (QLPS) and the Quad Gateway Processor (QGP) in the Communication Module model 2 (CM2) are required.
4. For RTCD applications, the coaxial connector on each 982YPA connector in the SM must be terminated. Refer to ED5D734-30, which provides two BNC terminator plugs.
5. The maximum possible Message Handler (MH) hardware equipage is three per SM-2000 side. Each MH may carry 32 timeslots.
6. RTCD equipped with a duplicated pair of Message Handler Ethernet Interface Boards (982YPA, UN584) one per SMP each of which terminate a single 10 Mbps ethernet link. Both of these 982YPA Ethernet links terminate on a single-co-located Ethernet Hub, which is managed by the Data Server.
7. A Data Server is also connected to the Hub. The Hub and the Data Server are co-located with the 5ESS Switch. The Data Server is also connected to a centralized Data Manager via a separate pair of Ethernet Links.
8. The GBSM must be equipped with CORE60.
9. RTCD must have a derated of 25%.
10. The maximum cable length is 100 from the HUB to the GBSM.

Scan Point - none

SD Point - none

PICD - none

PIDB - none

MTB - none

7.9 Remote Integrated Services Line Unit (RISLU)

The RISLU consists of an ISLU remoted from a host SM or an RSM via digital facilities for OSPS applications and export applications. A RISLU cabinet also provides support equipment for the remoted ISLU. Up to 8 RISLUs can be supported from the same SM. Reference: SD5D123-01, J5D003G

7.9.1 Digital Line And Trunk Unit-R (DLTU-R)

The DLTU-R is a single shelf unit which provides Digital Facility Interfaces (DFIs) for remoting PICBs and PIDBs between the host SM processor and the remote ISLU (RISLU) via digital transmission facilities. Reference: SD5D204-01, J5D003FF-1

Equipment Rules

1. Eight types of DFI circuit packs may be equipped in DLTU-Rs as follows:
 - a. DFI-H1, 24 channel (TN1306) This type of DFI is equipped in the host DLTU-R to remote a common control PICB and a TSI PIDB to the RISLU. Equip DFI-H1 in pairs, one pair per RISLU hosted, at eqls 022 and 032 or 042 and 052, populated sequentially from left to right as viewed from the equipment side of the unit. (Maximum 2 pairs)
 - b. DFI-H2, 24 channel (TN1311) This type of DFI is equipped in the host DLTU-R to remote a TSI PIDB to the RISLU. Equip DFI-H2 sequentially from left to right as viewed from the equipment side of the unit at eqls 084 thru 172. (Maximum 12)
 - c. DFI-R1, 24 channel (TN1304) This type of DFI is equipped in the remote DLTU-R to provide the interface between the ISLU and the remoted PICB and PIDB from the DFI-H1. Two DFI-R1s are always provided per remote DLTU-R at eqls 022 and 032. (Maximum 1 pair)
 - d. DFI-R2, 24 channel (TN1309) This type of DFI is equipped in the remote DLTU-R to provide the interface between the ISLU and the remoted PIDB from the DFI-H2. Equip DFI-R2s sequentially from left to right as viewed from the equipment side of the unit at eqls 084 thru 156. (Maximum 10)
 - e. DFI-H1, 30 channel (TN1307) This type of DFI is equipped on the same basis as DFI-H1 above for applications requiring CCITT 30+2 channel transmission facilities.
 - f. DFI-H2, 30 channel (TN1312) This type of DFI is equipped on the same basis as DFI-H2 above for applications requiring CCITT 30+2 channel transmission facilities.
 - g. DFI-R1, 30 channel (TN1305) This type of DFI is equipped on the same basis as DFI-R1 above for applications requiring CCITT 30+2 channel transmission facilities.
 - h. DFI-R2, 30 channel (TN1310) This type of DFI is equipped on the same basis as DFI-R2 above for applications requiring CCITT 30+2 channel transmission facilities.
2. Local, host, 24 channel or 30 channel functions may not be mixed within the same DLTU-R.
3. A stratum 4 network clock is always provided in the remote DLTU-R to supply clock and synchronization to remote DFIs. Equip two clock circuit packs (TN1319) at eqls 064 and 076 to provide this function.
4. Equalizer circuit packs are equipped in 24 channel DLTU-Rs to compensate for cable length of the span between the DLTU-R and DSX-1 bay. Circuit pack codes are selected on the basis of cable length and are provided, one per DLTU-R shelf, as follows:

Equalizer Pack Code	Distance to DSX (feet)	
	600-S CABLE	1249-S CABLE
SN549	000 - 133	000 - 090
SN550	134 - 267	090 - 180
SN551	268 - 400	100 - 270
SN552	401 - 533	270 - 360
SN553	534 - 655	360 - 450

5. Host DLTU-Rs may be equipped in SMs or RSMs.
6. Each RISLU must be hosted from the same DLTU-R.
7. Up to 2 RISLUs may be hosted from the same DLTU-R.

Scan Points - none

SD Points - none

PICB

- a. Fixed (Host) - none
- b. Fixed (Remote)
 - (1) One simplex PICB is required from DFI-R1 in position 0 (eql 022) and must terminate on ISLU CC0 bus 0.
 - (2) One simplex PICB is required from DFI-R1 in position 1 (eql 032) and must terminate on ISLU CC1 bus 0.
- c. Variable (Host)
 - (1) Each DFI-H1 requires two duplex PICBs assigned at the MCTU, one remotod to the common controller in the remote ISLU and one for DFI control. Assign PICB linked to remote ISLU CC0 to an even numbered PICB port (n) and PICB linked to CC1 to the next consecutive PICB port (n+1) on the same MCTU CI.
 - (2) One duplexed PICB is required for all odd and even numbered DFI circuits and should be assigned to any available PICB ports on the MCTU CI.
- d. Variable (Remote) - none

PIDB

- a. Fixed (Host) - none
- b. Fixed (Remote)
 - (1) PIDBs for DFI-Rs are assigned as simplex PIDB pairs to the same CD port numbers on both CD service groups, bus 0 only. PIDBs are assigned to each DFI's corresponding CD port, i.e. DFI-R in position 0 to CD ports 0, DFI-R in position 1 to CD posts 1 etc.
 - (2) An additional simplex PIDB pair is provided between the DFI-R1 in position 1 to CD ports 0, bus 1 of both CD service groups to provide timing signals.
- c. Variable (Host)
 - (1) One duplexed PIDB is required for each equipped DFI circuit and may be assigned to any available data ports on the same DI if possible. If PIDBs must be split across both DIs, they should be split evenly. **Note: OSPS applications have the option of maintaining one DFI link as a spare which normally carries no traffic. If this option is used, all host DFIs must have their PIDBs terminated on the same DI.**
- d. Variable (Remote) - none

MTB - none

7.9.2 Link Adapter Unit (LAU)

The LAU provides terminal adapters for administrative terminals, operator administrative processors, and directory assistance service computers in RISLU applications. Reference: SD5D064-01, J5D003FG-1

Equipment Rules

1. Up to two scan applique circuit packs (TN867) can be equipped in an LAU for providing alarm interfaces in the RISLU application. Equip the first pack at eq1 024 and the second pack at eq1 032.
2. Terminal adapter circuit packs (TN1087) are populated from left to right, alternating service groups with each equipped circuit pack. The first equipped terminal adapter pack is equipped in SG 0 at eq1 072. (maximum 14)
3. Provide two terminal adapter circuit packs, one per service group, for each directory assistance services computer (DAS/C) in OSPS applications.
4. Provide one terminal adapter circuit pack for each administrative terminal or administrative printer in OSPS applications. (Terminals with printer ports require one terminal adapter circuit pack)

Scan Points

Note: The LAU requires no scan points, however scan circuits may be equipped in an LAU for alarm functions at the RISLU site.

SD Points - none

PICB - none

PIDB - none

MTB - none

8. MISCELLANEOUS RULES

This section will be used to document restrictions, rules, requirements of a general or temporary nature which are not applicable to any other category contained in this document.

8.1 Switching Module Unit Loading Rules

Note:

- a. In SM applications, 32 time slots (on the network side) must be accessible if off-line pumping is to be used.
- b. When assigning peripheral units in a specific switching module, two major criteria must be observed. Those are:
 - Care must be taken to distribute line equivalent units evenly among the available switching modules (i.e., LU, DCLU).
 - In SM applications, the 512 time slots available within a switching module (256 per TSIU data group) must not be violated. Three of the 512 time slots are required for idle code, audible ringing, and diagnostics of the DLI. Therefore; 509 time slots are available for engineering of the office. See section 8.2 .
- c. Job engineered requirements for an application will provide the total equipment required for that application. Included is:
 - Total number of SMs required.
 - Number of peripheral units required (i.e., LU, TU, DLTU, MSU, DSU, DCTU, DCLU, FIU, etc.).
 - Equipage of circuits within peripheral units.
- d. Except as otherwise noted, peripheral units may only be assigned to one TSIU data group and not shared between the two TSIU data groups. Each DLTU DFI should be treated as a peripheral unit.

- e. In SM applications, it is permissible in 5E5 or later software releases to equip two SMs in a single cabinet with each SM being comprised of one MCTU2 unit and one DLTU2 unit. No additional peripheral units maybe connected to either SM. The entire two SM complex is contained in a single cabinet with the cabinet being identified by either of the two consecutively numbered SMs contained within (such as SM06 or SM07).
- f. In SM applications, switching modules assigned for queuing (referred to as queuing SMs), a maximum of 4 TSS (1 TSS + 3 place marker TSSs) may be assigned to a TU within a Queuing SM when the Multi-Line Hunt Group (MLHG) feature is being used. Because the announcement circuits occupy only one time slot on the peripheral side and up to 20 time slots (which are occupied by queued calls) on the network side, at least one TSS is assigned for each announcement pack providing queuing in order to avoid congestion on the network side. This enables the TU to be assigned up to 4 TSSs. Since the TU can only use one TSS for initialization, the remaining TSSs (referred to as "place marker" TSSs) can be reserved as though they were assigned to a real unit. For example, if four LUs (each requiring one TSS) were assigned to a queuing SM, then four TSSs could be allocated to a TU with MLHG queuing announcement packs. No other units could be assigned to the SM. Announcement packs for queuing should be assigned in proportion to the number of TSSs allocated. All TU packs should be spread as evenly as possible among the various TUs. Refer to the "Trunk Unit" section of the 5ESS Switch Engineering Procedures (235-060-110) for the calculations needed to provide the correct number of TSSs required per queuing SM. This number is based upon the number of circuits equipped per TU and the number of queue slots assigned per SM.
- g. All peripheral units generally require multiples of 64 time slots, thus 64 time slots is one time slot set (one TSS). The time-slot equivalent of each peripheral unit is:
 - DCLU — Time slot sets required per DCLU, are determined to meet job engineered requirements and are related to the line concentration ratios (LCR). They are:
 - LCR 8:1 through 9:1 - one TSS
 - LCR of 4.5:1 and lower - two TSS
 - DCTU — zero time slots
 - DLTU — equipage of DLTU varies, accumulate 24 times slots per DFI circuit (maximum of 10 DFI circuits per unit).
 - DLTU2 — equipage of DLTU2 varies, accumulate 24 time slots per DFI circuit (maximum of 20 DFI circuits per unit).
 - DLTU-E — 1/2 time slot set per DFI circuit (maximum of 16 DFI circuits per unit)
 - DLTU-R — equipage of DLTU-R varies, accumulate 24 times slots per DFI circuit (maximum of 16 DFI circuits per unit).
 - DSU-global — one TSS
 - DSU2-ISTF — 1/2 TSS
 - DSU2-RAF — 1/2 TSS or 20 TS per RAF (see NOTE "h")
 - DSU2-SAS — 1/2 TSS
 - DSU2-TTF2 — one TSS
 - ECSU — 1/2 time slot set per echo cancellation circuit (maximum of 16 echo cancellation circuits per unit).
 - IDCU — accumulate 1/2 TSS for each two duplexed PIDBs.
 - ISLU — accumulate 1/2 TSS for each two duplexed PIDBs.
 - ISLU2 — accumulate 1/2 TSS for each two duplexed PIDBs.
 - line — one TSS
 - MSU — zero time slots
 - MMSU — zero time slots
 - PPMU — zero time slots
 - PSU — time slot usage is traffic engineered
 - trunk — one TSS (NOTE: See note "f" for an exception to this rule for when the Multi-Line Hunt Group feature is being used)

h. The channel (time slot) usage for the DSU2 RAF are as follows:

ANN-Services — Can access all 32 channels.

CTR-Services — Can access 20 channels. (NOTE: An exception to this rule exists for AOC Services).

DTA-Services — Can access 20 channels. (NOTE: An exception to this rule exists for AOC Services).

AOC — (Used for MECH) can access 32 channels total: up to 20 channels for DTA/CTR services and the remainder for ANN services.

(NOTE: The 5ESS Switch automatically assigns a stuffing pattern for DTA services, CTR services, and MECH applications.)

i. A listing of the DSU2-RAF Applications and their associated service types are as follows:

DSU2 - RAF		
Application	Service Type	Channels
ASP	DTA	20
BRCS-2LV	DTA	20
BRCS-RAS	DTA	20
BRCS-SLE	DTA	20
ISDN-ACS	DTA	20
OSPS-CTR	CTR	20 + 12 for AOC
OSPS-DA	ANN	32
OSPS-TA	DTA	20 + 12 for AOC
800-DA	ANN	32

j. Peripheral unit loading in LTP

Note: given a through c above, the LTP may be assigned with peripheral units in the following specific order:

1. Assign IDCU/PSU, ISLU/PSU, and ISLU2/PSU combinations.
2. Assign DLTU/DLTU2 units to the switching module TSIU data groups which have the lowest time-slot usage. DLTU/DLTU2 may be partially equipped, accumulate 24 times slots for each equipped, or projected growth, DFI circuit. The remaining time slots, if any, may be used for other units.
3. Assign DCLU groups, one at a time, to the least line-loaded interface module TSIU data group. (The number of DCLUs along with the time slots they use, are job engineered the remaining time slots, if any, may be used for other units in the step below.)
4. load the prescribed LU, one at a time into the switching module which has the lowest line load. Repeat until all LUs are loaded.
5. Load all other peripheral units (i.e., TU, DSU-global), one at a time into switching module TSIU data group with the lowest time-slot load. Repeat unit all peripheral units are loaded. **(Note: prior to the 5E2 generic, SM's are limited to one DSU-global)**
6. The MSU and DCTU require no TSS, they may be placed in any SM, with sufficiently available PICB, which has adequate space. **(Note: maximum of two MSU or MMSU per SM.)**

8.2 Supplemental Loading Rules For SM Applications

- a. The following is a list of peripheral unit configurations which must be avoided on Data Group 1 due to time slot contention with SM idle code in offices prior to the 5E2(1) generic:
 - DLTU e/w 8 DFI + 1 LU
 - DLTU e/w 8 DFI + 1 TU
 - DLTU e/w 8 DFI + 1 DCLU
 - 4 TU
 - 3 TU + 1 LU
 - 3 TU + 1 DCLU
- b. For SM's in 5E2(1) or later generic offices, restricted peripheral unit configurations are changed to include data group 0 and 1. Please note that the following list is not inclusive of all the possible restrictive configurations. See section 8.1 note "b" for further details.
 - 8 Analog Trunk Units with all trunk circuits equipped and no test trunks provided.
 - 5 Analog Trunk Units with all trunk circuits equipped and no test trunks provided and 8 DFI/4 DFI2's equipped in DLTU/DLTU2's.
 - 2 Analog Trunk Units with all trunk circuits equipped and no test trunks provided and 16 DFI/8 DFI2's equipped in DLTU/DLTU2's.
 - 16 DFI/8 DFI2's equipped in DLTU/DLTU2's and 4 RAF's (in cases in which the RAF's use 32 channels) equipped in the DSU2.
- c. Where practical, the following unit types should be equipped on the same Data Group to minimize time slot contention within the SM:
 - Line Unit
 - DCLU
 - DSU - global
- d. **The Supplemental Loading Rules shall be used in conjunction with all other assignment rules contained in this document but in areas of conflict shall prevail.**
- e. To facilitate factory systems testing, it is suggested that an LU and DSU global be equipped in SM 001 and an LU be equipped in SM 002 where practical. To prevent SM 001 and 002 from exceeding three cabinets it is suggested that MMSU, MSU and DCTU (not required for MMST) be assigned to SMs other than 001 and 002 where practical.
- f. It is recommended that 8 LU's per SM be avoided to enhance real time characteristics of the SM.

8.3 Supplemental Loading Rules For SM2000 Applications

- a. The number of NCT2 pairs required is based upon the number of peripherals supported by the SM2000.

8.4 SM Memory

- a. For information detailing the SM Memory requirements of the various software releases based upon the different software configurations, refer to the 5ESS Switch Engineering Procedures (Lucent Technologies 235-060-110) document.
- b. For a listing of the various software configurations and the SM memory features associated with those configurations, refer to subsection 9.7 of the "Tables And Features" section of this document.

9.1.2.1.1 3B20D IOP 0 SCAN AND SD POINTS - PC01

SCAN POINT	UNIT OR FRAME	LEAD	SD POINT	UNIT OR FRAME	LEAD
SC00	BLDG. FIRE	CR	SD00	0	
SC01	FIRE ALM TBL	MJ	SD01	0	
SC02	0	#	SD02	+	
SC03	0	#	SD03	+	
SC04	0	#	SD04	0	
SC05	0	#	SD05	0	
SC06	0	#	SD06	+	
SC07	0	#	SD07	+	
SC08	0	#	SD08	0	
SC09	0	#	SD09	0	
SC10	0	#	SD10	+	
SC11	0	#	SD11	+	
SC12	0	#	SD12	0	
SC13	0	#	SD13	0	
SC14	0	#	SD14	+	
SC15	0	#	SD15	+	
SC16	0	#	SD16	0	
SC17	0	#	SD17	0	
SC18	0	#	SD18	+	
SC19	0	#	SD19	+	
SC20	0	#	SD20	0	
SC21	0	#	SD21	0	
SC22	0	#	SD22	+	
SC23	0	#	SD23	+	
SC24	0	#	SD24	0	
SC25	0	#	SD25	0	
SC26	0	#	SD26	+	
SC27	0	#	SD27	+	
SC28	DSCHG FUSE FAIL	MJ	SD28	0	
SC29	INV FAIL	MJ	SD29	0	
SC30	BAT LOW VLTG	MJ	SD30	+	
SC31	INV XFER	MJ	SD31	+	
SC32	MISC PWR	MJ,MN			
SC33	RECT FAIL	MJ			
SC34	/ PDF-0	MJ			
SC35	F F PDF-1	MJ			
SC36	U A PDF-2	MJ			
SC37	S I PDF-3	MJ			
SC38	E L PDF-4	MJ			
SC39	\ PDF-5	MJ			
SC40	ALM BAT	MJ			
SC41	CO BAT DSCHG	MJ			
SC42	S P / LOW FUEL	MJ			
SC43	T L OPER	MJ			
SC44	B N RECT FAIL	MJ			
SC45	Y T \ FAIL	MJ			
SC46	HIGH VLTG	MJ			
SC47	COM PWR FAIL	MJ			

0 TELCO ASSIGNED, + INACCESSIBLE, # MJ, MN, CR

NOTE: The scan and SD points listed on this page are accessed via the Office Alarm Unit.

9.1.2.1.2 3B20D IOP O SCAN AND SD POINTS - PC02

SCAN POINT	UNIT OR FRAME	LEAD	SD POINT	UNIT OR FRAME	LEAD
SC00	MSG0 FAN FAIL	ALRM	SD00	MSG0 FAN ALM RESET	RST
SC01	+		SD01	+	
SC02	CUO	SCY	SD02	CUO	OS
SC03	CUO	SCX	SD03	CUO	RQIP
SC04	MSG1 FAN FAIL	ALRM	SD04	MSG1 FAN ALM RESET	RST
SC05	+		SD05	+	
SC06	IOP2	SCY	SD06	IOP2	OS
SC07	IOP2	SCX	SD07	IOP2	RQIP
SC08	IOP1	SCY	SD08	IOP1	OS
SC09	IOP1	SCX	SD09	IOP1	RQIP
SC10	DISK 4	SCY	SD10	DISK 4	OS
SC11	PORT SWITCH		SD11	+	
SC12	+		SD12	ALM CKT	CRIT
SC13	+		SD13	ALM CKT	MJ
SC14	DISK 4	SCX	SD14	DISK 4	RQIP
SC15	PORT SWITCH		SD15	+	
SC16	DFC0	SCY	SD16	DFC0	OS
SC17	DFC0	SCX	SD17	DFC0	RQIP
SC18	DISK 0	SCY	SD18	DISK 0	OS
SC19	DISK 0	SCX	SD19	DISK 0	RQIP
SC20	+		SD20	ALM CKT	MN
SC21	+		SD21	+	
SC22	DISK 2	SCY	SD22	DISK 2	OS
SC23	DISK 2	SCX	SD23	DISK 2	RQIP
SC24	MICU(2) - 1	SCY	SD24	MICU(2) - 1	OS
SC25	MICU(2) - 1	SCX	SD25	MICU(2) - 1	RQIP
SC26	MICU(2) - 0	SCY	SD26	MICU(2) - 0	OS
SC27	MICU(2) - 0	SCX	SD27	MICU(2) - 0	RQIP
SC28	+		SD28	ALM CKT	ARET
SC29	+		SD29	+	
SC30	3B FAN ALM 0		SD30	*	
SC31	3B FAN ALM 0		SD31	*	
SC32	CUO	BPP			
SC33	CUO	OT			
SC34	+				
SC35	MSG1 FAN FUSE	SCZ			
SC36	PORT SWITCH				
SC37	PORT SWITCH				
SC38	PORT SWITCH				
SC39	PORT SWITCH				
SC40	MISC FA-0				
SC41	MISC FA-1				
SC42	+				
SC43	MSG0 FAN FUSE	SCZ			
SC44	PD 0				
SC45	PD 0				
SC46					
SC47					

* RESERVED FOR 3B PROCESSOR, + INACCESSIBLE

9.1.2.1.3 3B20D IOP 0 SCAN AND SD POINTS - PC11

PC11 (EQUIPPED WHEN REQUIRED)

SCAN POINT	UNIT OR FRAME	LEAD	SD POINT	UNIT OR FRAME	LEAD
SC00	0		SD00		
SC01	0		SD01		
SC02	0		SD02		
SC03	0		SD03		
SC04	0		SD04		
SC05	0		SD05		
SC06	0		SD06		
SC07	0		SD07		
SC08	0		SD08		
SC09	0		SD09		
SC10	0		SD10		
SC11	0		SD11		
SC12	0		SD12		
SC13	0		SD13		
SC14	0		SD14		
SC15	0		SD15		
SC16	0		SD16		
SC17	0		SD17		
SC18	0		SD18		
SC19	0		SD19		
SC20	0		SD20		
SC21	0		SD21		
SC22	0		SD22		
SC23	0		SD23		
SC24	0		SD24		
SC25	0		SD25		
SC26	0		SD26		
SC27	0		SD27		
SC28	0		SD28		
SC29	0		SD29	DEAD SYS ALM	
SC30	0		SD30		
SC31	0		SD31		
SC32	0				
SC33	0				
SC34	0				
SC35	0				
SC36	0				
SC37	0				
SC38	0				
SC39	0				
SC40	0				
SC41	0				
SC42	0				
SC43	0				
SC44	0				
SC45	0				
SC46	0				
SC47	0				

0 - TELCO ASSIGNED

NOTE: The scan and SD points listed on this page are accessed via the Office Alarm Unit.

9.1.2.1.4 3B20D IOP 0 SCAN AND SD POINTS - PC30

SCAN POINT	UNIT OR FRAME	LEAD	SD POINT	UNIT OR FRAME	LEAD
SC00	DISK 06	SCY	SD00	DISK 06	OS
SC01	DISK 06	SCX	SD01	DISK 06	RQIP
SC02	DISK 07	SCY	SD02	DISK 07	OS
SC03	DISK 07	SCX	SD03	DISK 07	RQIP
SC04	DISK 08	SCY	SD04	DISK 08	OS
SC05	DISK 08	SCX	SD05	DISK 08	RQIP
SC06	DISK 09	SCY	SD06	DISK 09	OS
SC07	DISK 09	SCX	SD07	DISK 09	RQIP
SC08	DISK 10	SCY	SD08	DISK 10	OS
SC09	DISK 10	SCX	SD09	DISK 10	RQIP
SC10	DISK 11	SCY	SD10	DISK 11	OS
SC11	DISK 11	SCX	SD11	DISK 11	RQIP
SC12	DISK 12	SCY	SD12	DISK 12	OS
SC13	DISK 12	SCX	SD13	DISK 12	RQIP
SC14	DISK 13	SCY	SD14	DISK 13	OS
SC15	DISK 13	SCX	SD15	DISK 13	RQIP
SC16	DISK 14	SCY	SD16	DISK 14	OS
SC17	DISK 14	SCX	SD17	DISK 14	RQIP
SC18	DISK 15	SCY	SD18	DISK 15	OS
SC19	DISK 15	SCX	SD19	DISK 15	RQIP
SC20	SCSI (FAN 0)		SD20	SCSI (FAN 0)	
SC21	SCSI (FAN 0)		SD21	SCSI (FAN 0)	
SC22	SCSI (FAN 1)		SD22	SCSI (FAN 1)	
SC23	SCSI (FAN 1)		SD23	SCSI (FAN 1)	
SC24			SD24		
SC25			SD25		
SC26			SD26		
SC27			SD27		
SC28			SD28		
SC29			SD29		
SC30			SD30		
SC31			SD31		
SC32					
SC33					
SC34					
SC35					
SC36					
SC37					
SC38					
SC39					
SC40					
SC41					
SC42					
SC43					
SC44					
SC45					
SC46					
SC47					

0 TELCO ASSIGNED, + INACCESSIBLE

NOTE: Either IOP 0 PC-30 should be used to provide the above mentioned alarms or IOP 2 PC-13, but NOT both.

9.1.2.1.5 3B20D IOP 1 SCAN AND SD POINTS - PC01

SCAN POINT	UNIT OR FRAME	LEAD	SD POINT	UNIT OR FRAME	LEAD
SC00	BLDG. FIRE	CR	SD00	0	
SC01	FIRE ALM TBL	MJ	SD01	0	
SC02	0	#	SD02	+	
SC03	0	#	SD03	+	
SC04	0	#	SD04	0	
SC05	0	#	SD05	0	
SC06	0	#	SD06	+	
SC07	0	#	SD07	+	
SC08	0	#	SD08	0	
SC09	0	#	SD09	0	
SC10	0	#	SD10	+	
SC11	0	#	SD11	+	
SC12	0	#	SD12	0	
SC13	0	#	SD13	0	
SC14	0	#	SD14	+	
SC15	0	#	SD15	+	
SC16	0	#	SD16	0	
SC17	0	#	SD17	0	
SC18	0	#	SD18	+	
SC19	0	#	SD19	+	
SC20	0	#	SD20	0	
SC21	0	#	SD21	0	
SC22	0	#	SD22	+	
SC23	0	#	SD23	+	
SC24	0	#	SD24	0	
SC25	0	#	SD25	0	
SC26	0	#	SD26	+	
SC27	0	#	SD27	+	
SC28	DSCHG FUSE FAIL	MJ	SD28	0	
SC29	INV FAIL	MJ	SD29	0	
SC30	BAT LOW VLTG	MJ	SD30	+	
SC31	INV XFER	MJ	SD31	+	
SC32	MISC PWR	MJ,MN			
SC33	RECT FAIL	MJ			
SC34	/ PDF-0	MJ			
SC35	F F PDF-1	MJ			
SC36	U A PDF-2	MJ			
SC37	S I PDF-3	MJ			
SC38	E L PDF-4	MJ			
SC39	\ PDF-5	MJ			
SC40	ALM BAT	MJ			
SC41	CO BAT DSCHG	MJ			
SC42	S P / LOW FUEL	MJ			
SC43	T L OPER	MJ			
SC44	B N RECT FAIL	MJ			
SC45	Y T \ FAIL	MJ			
SC46	HIGH VLTG	MJ			
SC47	COM PWR FAIL	MJ			

0 TELCO ASSIGNED, + INACCESSIBLE, # MJ, MN, CR

NOTE: The scan and SD points listed on this page are accessed via the Office Alarm Unit.

9.1.2.1.6 3B20D IOP 1 SCAN AND SD POINTS - PC02

SCAN POINT	UNIT OR FRAME	LEAD	SD POINT	UNIT OR FRAME	LEAD
SC00	IOP0	SCY	SD00	IOP0	OS
SC01	IOP0	SCX	SD01	IOP0	RQIP
SC02	PIC FAN ALM		SD02	PIC FAN	
SC03	PIC FAN ALM		SD03	PIC FAN	
SC04	MSG1 FAN FAIL	ALRM	SD04	MSG1 FAN ALM RESET	RST
SC05	+		SD05	+	
SC06	DISK 3	SCY	SD06	DISK 3	OS
SC07	DISK 3	SCX	SD07	DISK 3	RQIP
SC08	DISK 5	SCY	SD08	DISK 5	OS
SC09	DISK 5	SCX	SD09	DISK 5	RQIP
SC10	CU1	SCY	SD10	CU1	OS
SC11	CU1	SCX	SD11	CU1	RQIP
SC12	+		SD12	ALM CKT	CRIT
SC13	+		SD13	ALM CKT	MJ
SC14	IOP 3	SCY	SD14	IOP 3	OS
SC15	IOP 3	SCX	SD15	IOP 3	RQIP
SC16	MICU(2) - 0	SCY	SD16	MICU(2) - 0	OS
SC17	MICU(2) - 0	SCX	SD17	MICU(2) - 0	RQIP
SC18	MICU(2) - 1	SCY	SD18	MICU(2) - 1	OS
SC19	MICU(2) - 1	SCX	SD19	MICU(2) - 1	RQIP
SC20	+		SD20	ALM CKT	MN
SC21	+		SD21	+	
SC22	MSG0 FAN FAIL	ALRM	SD22	MSG0 FAN ALM RESET	RST
SC23	+		SD23	+	
SC24	DFC1	SCY	SD24	DFC1	OS
SC25	DFC1	SCX	SD25	DFC1	RQIP
SC26	DISK 1	SCY	SD26	DISK 1	OS
SC27	DISK 1	SCX	SD27	DISK 1	RQIP
SC28	+		SD28	ALM CKT	ARET
SC29	+		SD29	+	
SC30	3B FAN ALM 1		SD30	+	
SC31	3B FAN ALM 1		SD31	+	
SC32					
SC33					
SC34	+				
SC35	MSG1 FAN FUSE	SCz			
SC36	CU1	BPP			
SC37	CU1	OT			
SC38					
SC39					
SC40	MISC FA-0				
SC41	MISC FA-1				
SC42	+				
SC43	MSG0 FAN FUSE	SCZ			
SC44					
SC45					
SC46					
SC47					

* RESERVED FOR 3B COMPUTER, + INACCESSIBLE

9.1.2.1.7 3B20D IOP 1 SCAN AND SD POINTS - PC11

PC11 (EQUIPPED WHEN REQUIRED)

SCAN POINT	UNIT OR FRAME	LEAD	SD POINT	UNIT OR FRAME	LEAD
SC00	0		SD00		
SC01	0		SD01		
SC02	0		SD02		
SC03	0		SD03		
SC04	0		SD04		
SC05	0		SD05		
SC06	0		SD06		
SC07	0		SD07		
SC08	0		SD08		
SC09	0		SD09		
SC10	0		SD10		
SC11	0		SD11		
SC12	0		SD12		
SC13	0		SD13		
SC14	0		SD14		
SC15	0		SD15		
SC16	0		SD16		
SC17	0		SD17		
SC18	0		SD18		
SC19	0		SD19		
SC20	0		SD20		
SC21	0		SD21		
SC22	0		SD22		
SC23	0		SD23		
SC24	0		SD24		
SC25	0		SD25		
SC26	0		SD26		
SC27	0		SD27		
SC28	0		SD28		
SC29	0		SD29	DEAD SYS ALM	
SC30	0		SD30		
SC31	0		SD31		
SC32	0				
SC33	0				
SC34	0				
SC35	0				
SC36	0				
SC37	0				
SC38	0				
SC39	0				
SC40	0				
SC41	0				
SC42	0				
SC43	0				
SC44	0				
SC45	0				
SC46	0				
SC47	0				

0 - TELCO ASSIGNED

NOTE: The scan and SD points listed on this page are accessed via the Office Alarm Unit.

9.1.2.1.8 3B20D IOP 2 SCAN AND SD POINTS - PC12

SCAN POINT	UNIT OR FRAME	LEAD	SD POINT	UNIT OR FRAME	LEAD
SC00	DISK 16	SCY	SD00	DISK 16	OS
SC01	DISK 16	SCX	SD01	DISK 16	RQIP
SC02	DISK 17	SCY	SD02	DISK 17	OS
SC03	DISK 17	SCX	SD03	DISK 17	RQIP
SC04	DISK 18	SCY	SD04	DISK 18	OS
SC05	DISK 18	SCX	SD05	DISK 18	RQIP
SC06	DISK 19	SCY	SD06	DISK 19	OS
SC07	DISK 19	SCX	SD07	DISK 19	RQIP
SC08	DISK 20	SCY	SD08	DISK 20	OS
SC09	DISK 20	SCX	SD09	DISK 20	RQIP
SC10	DISK 21	SCY	SD10	DISK 21	OS
SC11	DISK 21	SCX	SD11	DISK 21	RQIP
SC12	DISK 22	SCY	SD12	DISK 22	OS
SC13	DISK 22	SCX	SD13	DISK 22	RQIP
SC14	DISK 23	SCY	SD14	DISK 23	OS
SC15	DISK 23	SCX	SD15	DISK 23	RQIP
SC16	DISK 24	SCY	SD16	DISK 24	OS
SC17	DISK 24	SCX	SD17	DISK 24	RQIP
SC18	DISK 25	SCY	SD18	DISK 25	OS
SC19	DISK 25	SCX	SD19	DISK 25	RQIP
SC20	DISK 26	SCY	SD20	DISK 26	OS
SC21	DISK 26	SCX	SD21	DISK 26	RQIP
SC22	DISK 27	SCY	SD22	DISK 27	OS
SC23	DISK 27	SCX	SD23	DISK 27	RQIP
SC24	DISK 28	SCY	SD24	DISK 28	OS
SC25	DISK 28	SCX	SD25	DISK 28	RQIP
SC26	DISK 29	SCY	SD26	DISK 29	OS
SC27	DISK 29	SCX	SD27	DISK 29	RQIP
SC28	DISK 30	SCY	SD28	DISK 30	OS
SC29	DISK 30	SCX	SD29	DISK 30	RQIP
SC30	DISK 31	SCY	SD30	DISK 31	OS
SC31	DISK 31	SCX	SD31	DISK 31	RQIP
SC32					
SC33					
SC34					
SC35					
SC36					
SC37					
SC38					
SC39					
SC40					
SC41					
SC42					
SC43					
SC44					
SC45					
SC46					
SC47					

0 TELCO ASSIGNED, + INACCESSIBLE

9.1.2.1.9 3B20D IOP 2 SCAN AND SD POINTS - PC13

SCAN POINT	UNIT OR FRAME	LEAD	SD POINT	UNIT OR FRAME	LEAD
SC00	DISK 06	SCY	SD00	DISK 06	OS
SC01	DISK 06	SCX	SD01	DISK 06	RQIP
SC02	DISK 07	SCY	SD02	DISK 07	OS
SC03	DISK 07	SCX	SD03	DISK 07	RQIP
SC04	DISK 08	SCY	SD04	DISK 08	OS
SC05	DISK 08	SCX	SD05	DISK 08	RQIP
SC06	DISK 09	SCY	SD06	DISK 09	OS
SC07	DISK 09	SCX	SD07	DISK 09	RQIP
SC08	DISK 10	SCY	SD08	DISK 10	OS
SC09	DISK 10	SCX	SD09	DISK 10	RQIP
SC10	DISK 11	SCY	SD10	DISK 11	OS
SC11	DISK 11	SCX	SD11	DISK 11	RQIP
SC12	DISK 12	SCY	SD12	DISK 12	OS
SC13	DISK 12	SCX	SD13	DISK 12	RQIP
SC14	DISK 13	SCY	SD14	DISK 13	OS
SC15	DISK 13	SCX	SD15	DISK 13	RQIP
SC16	DISK 14	SCY	SD16	DISK 14	OS
SC17	DISK 14	SCX	SD17	DISK 14	RQIP
SC18	DISK 15	SCY	SD18	DISK 15	OS
SC19	DISK 15	SCX	SD19	DISK 15	RQIP
SC20	SCSI (FAN 0)		SD20	SCSI (FAN 0)	
SC21	SCSI (FAN 0)		SD21	SCSI (FAN 0)	
SC22	SCSI (FAN 1)		SD22	SCSI (FAN 1)	
SC23	SCSI (FAN 1)		SD23	SCSI (FAN 1)	
SC24			SD24		
SC25			SD25		
SC26			SD26		
SC27			SD27		
SC28			SD28		
SC29			SD29		
SC30			SD30		
SC31			SD31		
SC32					
SC33					
SC34					
SC35					
SC36					
SC37					
SC38					
SC39					
SC40					
SC41					
SC42					
SC43					
SC44					
SC45					
SC46					
SC47					

0 TELCO ASSIGNED, + INACCESSIBLE

NOTE: Either IOP 0 PC-30 should be used to provide the above mentioned alarms or IOP 2 PC-13, but NOT both.

9.1.2.1.10 3B20D WITH CM1 IOP 0 SCAN AND SD POINTS - PC10

SCAN POINT	UNIT OR FRAME	LEAD	SD POINT	UNIT OR FRAME	LEAD
SC00	MSPU-COMM 1 MSG 1	SCY	SD00	MSPU-COMM 1 MSG 1	OS
SC01	MSPU-COMM 1 MSG 1	SCX	SD01	MSPU-COMM 1 MSG 1	RQIP
SC02	MSPU-COMM 2 MSG 1	SCY	SD02	MSPU-COMM 2 MSG 1	OS
SC03	MSPU-COMM 2 MSG 1	SCX	SD03	MSPU-COMM 2 MSG 1	RQIP
SC04	MSPU-COMM 3 MSG 1	SCY	SD04	MSPU-COMM 3 MSG 1	OS
SC05	MSPU-COMM 3 MSG 1	SCX	SD05	MSPU-COMM 3 MSG 1	RQIP
SC06	MSCU 1	SCY	SD06	MSCU 1	OS
SC07	MSCU 1	SCX	SD07	MSCU 1	RQIP
SC08	MSPU-COMM 1 MSG 0	SCY	SD08	MSPU-COMM 1 MSG 0	OS
SC09	MSPU-COMM 1 MSG 0	SCX	SD09	MSPU-COMM 1 MSG 0	RQIP
SC10	MSPU-COMM 2 MSG 0	SCY	SD10	MSPU-COMM 2 MSG 0	OS
SC11	MSPU-COMM 2 MSG 0	SCX	SD11	MSPU-COMM 2 MSG 0	RQIP
SC12	MSPU-COMM 3 MSG 0	SCY	SD12	MSPU-COMM 3 MSG 0	OS
SC13	MSPU-COMM 3 MSG 0	SCX	SD13	MSPU-COMM 3 MSG 0	RQIP
SC14	MSCU 0	SCY	SD14	MSCU 0	OS
SC15	MSCU 0	SCX	SD15	MSCU 0	RQIP
SC16	MSPU2-COMM4 MSG 1	SCY	SD16	MSPU2-COMM4 MSG 1	OS
SC17	MSPU2-COMM4 MSG 1	SCX	SD17	MSPU2-COMM4 MSG 1	RQIP
SC18	MSPU2-COMM5 MSG 1	SCY	SD18	MSPU2-COMM5 MSG 1	OS
SC19	MSPU2-COMM5 MSG 1	SCX	SD19	MSPU2-COMM5 MSG 1	RQIP
SC20	MSPU2-COMM4 MSG 0	SCY	SD20	MSPU2-COMM4 MSG 0	OS
SC21	MSPU2-COMM4 MSG 0	SCX	SD21	MSPU2-COMM4 MSG 0	RQIP
SC22	MSPU2-COMM5 MSG 0	SCY	SD22	MSPU2-COMM5 MSG 0	OS
SC23	MSPU2-COMM5 MSG 0	SCX	SD23	MSPU2-COMM5 MSG 0	RQIP
SC24	TMS 1	SCY	SD24	TMS 1	OS
SC25	TMS 1	SCX	SD25	TMS 1	RQIP
SC26	TMS 0	SCY	SD26	TMS 0	OS
SC27	TMS 0	SCX	SD27	TMS 0	RQIP
SC28	TMS 1 FAN FAIL	ALM	SD28	TMS 1 FAN ALM RESET	RST
SC29	+		SD29	+	
SC30	TMS 0 FAN FAIL	ALM	SD30	TMS 0 FAN ALM RESET	RST
SC31	+		SD31	+	
SC32	+				
SC33	TMS 1 FAN FUSE	SCZ			
SC34	+				
SC35	TMS 0 FAN FUSE	SCZ			
SC36					
SC37					
SC38					
SC39					
SC40					
SC41					
SC42					
SC43					
SC44					
SC45					
SC46	ESM ALM	CRIT			
SC47	ESM PWR	MJR			

+ INACCESSIBLE

NOTE: In CM1 applications, scan & SD points associated with the miscellaneous cabinet's fan unit are customer assignable.

9.1.2.1.11 3B20D WITH CM1 IOP 0 SCAN AND SD POINTS - PC12

SCAN POINT	UNIT OR FRAME	LEAD	SD POINT	UNIT OR FRAME	LEAD
SC00	NCLK2 1	SCY	SD00	NCLK2 1	OS
SC01	NCLK2 1	SCX	SD01	+	
SC02	DFC2	SCY	SD02	DFC2	OS
SC03	DFC2	SCX	SD03	DFC2	RQIP
SC04	NCLK2 0	SCY	SD04	NCLK2 0	OS
SC05	NCLK2 0	SCX	SD05	+	
SC06	+		SD06	+	
SC07	CNI FAN FAIL	FAN	SD07	CNI FAN RST	RST
SC08			SD08		
SC09			SD09		
SC10			SD10		
SC11			SD11		
SC12			SD12		
SC13			SD13		
SC14			SD14		
SC15			SD15		
SC16			SD16		
SC17			SD17		
SC18			SD18		
SC19			SD19		
SC20			SD20		
SC21			SD21		
SC22			SD22		
SC23			SD23		
SC24			SD24		
SC25			SD25		
SC26			SD26		
SC27			SD27		
SC28			SD28		
SC29			SD29		
SC30			SD30		
SC31			SD31		
SC32					
SC33					
SC34	CNI B	MN			
SC35	CNI A	MJ			
SC36					
SC37					
SC38					
SC39					
SC40					
SC41					
SC42					
SC43					
SC44					
SC45					
SC46					
SC47					

0 TELCO ASSIGNED, + INACCESSIBLE

9.1.2.1.12 3B20D WITH CM1 IOP 1 SCAN AND SD POINTS - PC10

SCAN POINT	UNIT OR FRAME	LEAD	SD POINT	UNIT OR FRAME	LEAD
SC00	MSPU-COMM 1 MSG 0	SCY	SD00	MSPU-COMM 1 MSG 0	OS
SC01	MSPU-COMM 1 MSG 0	SCX	SD01	MSPU-COMM 1 MSG 0	RQIP
SC02	MSPU-COMM 2 MSG 0	SCY	SD02	MSPU-COMM 2 MSG 0	OS
SC03	MSPU-COMM 2 MSG 0	SCX	SD03	MSPU-COMM 2 MSG 0	RQIP
SC04	MSPU-COMM 3 MSG 0	SCY	SD04	MSPU-COMM 3 MSG 0	OS
SC05	MSPU-COMM 3 MSG 0	SCX	SD05	MSPU-COMM 3 MSG 0	RQIP
SC06	MSCU 0	SCY	SD06	MSCU 0	OS
SC07	MSCU 0	SCX	SD07	MSCU 0	RQIP
SC08	MSPU-COMM 1 MSG 1	SCY	SD08	MSPU-COMM 1 MSG 1	OS
SC09	MSPU-COMM 1 MSG 1	SCX	SD09	MSPU-COMM 1 MSG 1	RQIP
SC10	MSPU-COMM 2 MSG 1	SCY	SD10	MSPU-COMM 2 MSG 1	OS
SC11	MSPU-COMM 2 MSG 1	SCX	SD11	MSPU-COMM 2 MSG 1	RQIP
SC12	MSPU-COMM 3 MSG 1	SCY	SD12	MSPU-COMM 3 MSG 1	OS
SC13	MSPU-COMM 3 MSG 1	SCX	SD13	MSPU-COMM 3 MSG 1	RQIP
SC14	MSCU 1	SCY	SD14	MSCU 1	OS
SC15	MSCU 1	SCX	SD15	MSCU 1	RQIP
SC16	MSPU2-COMM 4 MSG 1	SCY	SD16	MSPU2-COMM 4 MSG 1	OS
SC17	MSPU2-COMM 4 MSG 1	SCX	SD17	MSPU2-COMM 4 MSG 1	RQIP
SC18	MSPU2-COMM 5 MSG 1	SCY	SD18	MSPU2-COMM 5 MSG 1	OS
SC19	MSPU2-COMM 5 MSG 1	SCX	SD19	MSPU2-COMM 5 MSG 1	RQIP
SC20	MSPU2-COMM 4 MSG 0	SCY	SD20	MSPU2-COMM 4 MSG 0	OS
SC21	MSPU2-COMM 4 MSG 0	SCX	SD21	MSPU2-COMM 4 MSG 0	RQIP
SC22	MSPU2-COMM 5 MSG 0	SCY	SD22	MSPU2-COMM 5 MSG 0	OS
SC23	MSPU2-COMM 5 MSG 0	SCX	SD23	MSPU2-COMM 5 MSG 0	RQIP
SC24	TMS 1	SCY	SD24	TMS 1	OS
SC25	TMS 1	SCX	SD25	TMS 1	RQIP
SC26	TMS 0	SCY	SD26	TMS 0	OS
SC27	TMS 0	SCX	SD27	TMS 0	RQIP
SC28	TMS 1 FAN FAIL	ALM	SD28	TMS 1 FAN ALM RESET	RST
SC29	+		SD29	+	
SC30	TMS 0 FAN FAIL	ALM	SD30	TMS 0 FAN ALM RESET	RST
SC31	+		SD31	+	
SC32	+				
SC33	TMS 1 FAN FUSE	SCZ			
SC34	+				
SC35	TMS 0 FAN FUSE	SCZ			
SC36					
SC37					
SC38					
SC39					
SC40					
SC41					
SC42					
SC43					
SC44					
SC45					
SC46	ESM ALM	CRIT			
SC47	ESM PWR	MJR			

+ INACCESSIBLE

NOTE: In CM1 applications, scan and SD points associated with the miscellaneous cabinet's fan unit are customer assignable.

9.1.2.1.13 3B20D WITH CM1 IOP 1 SCAN AND SD POINTS - PC12

SCAN POINT	UNIT OR FRAME	LEAD	SD POINT	UNIT OR FRAME	LEAD
SC00	NCLK2 1	SCY	SD00	NCLK2 1	OS
SC01	NCLK2 1	SCX	SD01	+	
SC02	DFC3	SCY	SD02	DFC3	OS
SC03	DFC3	SCX	SD03	DFC3	RQIP
SC04	NCLK2 0	SCY	SD04	NCLK2 0	OS
SC05	NCLK2 0	SCX	SD05	+	
SC06	+		SD06	+	
SC07	CNI FAN FAIL	FAN	SD07	CNI FAN RST	RST
SC08			SD08		
SC09			SD09		
SC10			SD10		
SC11			SD11		
SC12			SD12		
SC13			SD13		
SC14			SD14		
SC15			SD15		
SC16			SD16		
SC17			SD17		
SC18			SD18		
SC19			SD19		
SC20			SD20		
SC21			SD21		
SC22			SD22		
SC23			SD23		
SC24			SD24		
SC25			SD25		
SC26			SD26		
SC27			SD27		
SC28			SD28		
SC29			SD29		
SC30			SD30		
SC31			SD31		
SC32					
SC33					
SC34	CNI B	MN			
SC35	CNI A	MJ			
SC36					
SC37					
SC38					
SC39					
SC40					
SC41					
SC42					
SC43					
SC44					
SC45					
SC46					
SC47					

0 TELCO ASSIGNED, + INACCESSIBLE

9.1.2.1.14 3B20D WITH CM2 IOP 0 SCAN AND SD POINTS - PC10

SCAN POINT	UNIT OR FRAME	LEAD	SD POINT	UNIT OR FRAME	LEAD
SC00	CMP COM 100	SCY	SD00	CMP COM 100	OS
SC01	CMP COM 100	SCX	SD01	CMP COM 100	RQIP
SC02	CMP COM 100	SCW	SD02	QGL COM 108	OS
SC03	QGL COM 108	SCY	SD03	QGL COM 108	RQIP
SC04	MISC FAN FAIL	FAN	SD04	MISC FAN FAIL	RST
SC05			SD05	+	
SC06			SD06		
SC07			SD07		
SC08	CMP COM 000	SCY	SD08	CMP COM 000	OS
SC09	CMP COM 000	SCX	SD09	CMP COM 000	RQIP
SC10	CMP COM 000	SCW	SD10	QGL COM 008	OS
SC11	QGL COM 008	SCY	SD11	QGL COM 008	RQIP
SC12			SD12		
SC13			SD13		
SC14			SD14		
SC15			SD15		
SC16	MSPU3 COM 114	SCY	SD16	MSPU3 COM 114	OS
SC17	MSPU3 COM 114	SCX	SD17	MSPU3 COM 114	RQIP
SC18	MSPU3 COM 114	SCW	SD18	MSPU3 COM 115	OS
SC19	MSPU3 COM 115	SCY	SD19	MSPU3 COM 115	RQIP
SC20	MSPU3 COM 112	SCY	SD20	MSPU3 COM 112	OS
SC21	MSPU3 COM 112	SCX	SD21	MSPU3 COM 112	RQIP
SC22	MSPU3 COM 112	SCW	SD22	MSPU3 COM 113	OS
SC23	MSPU3 COM 113	SCY	SD23	MSPU3 COM 113	RQIP
SC24	MSPU3 COM 015	SCY	SD24	MSPU3 COM 015	OS
SC25	MSPU3 COM 015	SCX	SD25	MSPU3 COM 015	RQIP
SC26	MSPU3 COM 015	SCW	SD26	MSPU3 COM 014	OS
SC27	MSPU3 COM 014	SCY	SD27	MSPU3 COM 014	RQIP
SC28	MSPU3 COM 013	SCY	SD28	MSPU3 COM 013	OS
SC29	MSPU3 COM 013	SCX	SD29	MSPU3 COM 013	RQIP
SC30	MSPU3 COM 013	SCW	SD30	MSPU3 COM 012	OS
SC31	MSPU3 COM 012	SCY	SD31	MSPU3 COM 012	RQIP
SC32	QGL COM 108	SCX			
SC33	QGL COM 108	SCW			
SC34					
SC35					
SC36	QGL COM 008	SCX			
SC37	QGL COM 008	SCW			
SC38					
SC39					
SC40	MSPU3 COM 115	SCX			
SC41	MSPU3 COM 115	SCW			
SC42	MSPU3 COM 113	SCX			
SC43	MSPU3 COM 113	SCW			
SC44	MSPU3 COM 014	SCX			
SC45	MSPU3 COM 014	SCW			
SC46	MSPU3 COM 012	SCX			
SC47	MSPU3 COM 012	SCW			

0 TELCO ASSIGNED, + INACCESSIBLE

NOTE: In software releases prior to 5E6, scan and SD points associated with the "MISC FAN FAIL" are customer assigned.

9.1.2.1.15 3B20D WITH CM2 IOP 0 SCAN AND SD POINTS - PC12

SCAN POINT	UNIT OR FRAME	LEAD	SD POINT	UNIT OR FRAME	LEAD
SC00	NCLK2 1	SCY	SD00	NCLK2 1	OS
SC01	NCLK2 1	SCX	SD01	+	
SC02	DFC2	SCY	SD02	DFC2	OS
SC03	DFC2	SCX	SD03	DFC2	RQIP
SC04	NCLK2 0	SCY	SD04	NCLK2 0	OS
SC05	NCLK2 0	SCX	SD05	+	
SC06	+		SD06		
SC07	CNI FAN FAIL	FAN	SD07	CNI FAN RST	RST
SC08	MSPU3 COM 011	SCY	SD08	MSPU3 COM 011	OS
SC09	MSPU3 COM 011	SCX	SD09	MSPU3 COM 011	RQIP
SC10	MSPU3 COM 011	SCW	SD10	MSPU3 COM 010	OS
SC11	MSPU3 COM 010	SCY	SD11	MSPU3 COM 010	RQIP
SC12	MSPU3 COM 007	SCY	SD12	MSPU3 COM 007	OS
SC13	MSPU3 COM 007	SCX	SD13	MSPU3 COM 007	RQIP
SC14	MSPU3 COM 007	SCW	SD14	MSPU3 COM 006	OS
SC15	MSPU3 COM 006	SCY	SD15	MSPU3 COM 006	RQIP
SC16	MSPU3 COM 005	SCY	SD16	MSPU3 COM 005	OS
SC17	MSPU3 COM 005	SCX	SD17	MSPU3 COM 005	RQIP
SC18	MSPU3 COM 005	SCW	SD18	MSPU3 COM 004	OS
SC19	MSPU3 COM 004	SCY	SD19	MSPU3 COM 004	RQIP
SC20	MSPU3 COM 003	SCY	SD20	MSPU3 COM 003	OS
SC21	MSPU3 COM 003	SCX	SD21	MSPU3 COM 003	RQIP
SC22	MSPU3 COM 003	SCW	SD22	MSPU3 COM 002	OS
SC23	MSPU3 COM 002	SCY	SD23	MSPU3 COM 002	RQIP
SC24	FPC/PPC 0	SCY	SD24	FPC/PPC 0	OS
SC25	FPC/PPC 0	SCX	SD25	FPC/PPC 0	RQIP
SC26	FPC/PPC 0	SCW	SD26	MSCU2 0	OS
SC27	MSCU2 0	SCY	SD27	MSCU2 0	RQIP
SC28	+		SD28	+	
SC29	CMCU 0	SCV	SD29	CMCU 0	DIAG
SC30	CM2 0 FAN FUSE*	SCZ	SD30	CMCU 0	OS
SC31	CMCU 0	SCY	SD31	CMCU 0	RQIP
SC32	PDF-6 FUSE FAIL	MJ			
SC33	PDF-7 FUSE FAIL	MJ			
SC34	CNI B	MN			
SC35	CNI A	MJ			
SC36	MSPU3 COM 010	SCX			
SC37	MSPU3 COM 010	SCW			
SC38	MSPU3 COM 006	SCX			
SC39	MSPU3 COM 006	SCW			
SC40	MSPU3 COM 004	SCX			
SC41	MSPU3 COM 004	SCW			
SC42	MSPU3 COM 002	SCX			
SC43	MSPU3 COM 002	SCW			
SC44	MSCU2 0	SCX			
SC45	MSCU2 0	SCW			
SC46	CMCU 0	SCX			
SC47	CMCU 0	SCW			

USED IN US APPLICATIONS ONLY, + INACCESSIBLE, * REPORTS VIA CMCU 0 SCAN Z

NOTE: Scan points for PDF-6 & PDF-7 are accessed via the Office Alarm Unit & are used in US applications only.

9.1.2.1.16 3B20D WITH CM2 IOP 0 SCAN AND SD POINTS - PC13

SCAN POINT	UNIT OR FRAME	LEAD	SD POINT	UNIT OR FRAME	LEAD
SC00	CM2 1 FAN FAIL	FAN	SD00	CM2 1 FAN RST	RST
SC01	MSG 1 MAN OVRD	SCV	SD01	+	
SC02			SD02	MSG 1 DIAG SD	DIA
SC03			SD03	+	
SC04	CM2 0 FAN FAIL	FAN	SD04	CM2 0 FAN RST	RST
SC05	MSG 0 MAN OVRD	SCV	SD05	+	
SC06			SD06	MSG 0 DIAG SD	DIA
SC07			SD07	+	
SC08	MSPU3 COM 110	SCY	SD08	MSPU3 COM 110	OS
SC09	MSPU3 COM 110	SCX	SD09	MSPU3 COM 110	RQIP
SC10	MSPU3 COM 110	SCW	SD10	MSPU3 COM 111	OS
SC11	MSPU3 COM 111	SCY	SD11	MSPU3 COM 111	RQIP
SC12	MSPU3 COM 106	SCY	SD12	MSPU3 COM 106	OS
SC13	MSPU3 COM 106	SCX	SD13	MSPU3 COM 106	RQIP
SC14	MSPU3 COM 106	SCW	SD14	MSPU3 COM 107	OS
SC15	MSPU3 COM 107	SCY	SD15	MSPU3 COM 107	RQIP
SC16	MSPU3 COM 104	SCY	SD16	MSPU3 COM 104	OS
SC17	MSPU3 COM 104	SCX	SD17	MSPU3 COM 104	RQIP
SC18	MSPU3 COM 104	SCW	SD18	MSPU3 COM 105	OS
SC19	MSPU3 COM 105	SCY	SD19	MSPU3 COM 105	RQIP
SC20	MSPU3 COM 102	SCY	SD20	MSPU3 COM 102	OS
SC21	MSPU3 COM 102	SCX	SD21	MSPU3 COM 102	RQIP
SC22	MSPU3 COM 102	SCW	SD22	MSPU3 COM 103	OS
SC23	MSPU3 COM 103	SCY	SD23	MSPU3 COM 103	RQIP
SC24	FPC/PPC 1	SCY	SD24	FPC/PPC 1	OS
SC25	FPC/PPC 1	SCX	SD25	FPC/PPC 1	RQIP
SC26	FPC/PPC 1	SCW	SD26	MSCU2 1	OS
SC27	MSCU2 1	SCY	SD27	MSCU2 1	RQIP
SC28	+		SD28	+	
SC29	CMCU 1	SCV	SD29	CMCU 1	DIAG
SC30	CM2 1 FAN FUSE*	SCZ	SD30	CMCU 1	OS
SC31	CMCU 1	SCY	SD31	CMCU 1	RQIP
SC32					
SC33					
SC34	ESM ALM	CRIT			
SC35	ESM PWR	MJ			
SC36	MSPU3 COM 111	SCX			
SC37	MSPU3 COM 111	SCW			
SC38	MSPU3 COM 107	SCX			
SC39	MSPU3 COM 107	SCW			
SC40	MSPU3 COM 105	SCX			
SC41	MSPU3 COM 105	SCW			
SC42	MSPU3 COM 103	SCX			
SC43	MSPU3 COM 103	SCW			
SC44	MSCU2 1	SCX			
SC45	MSCU2 1	SCW			
SC46	CMCU 1	SCX			
SC47	CMCU 1	SCW			

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9.1.2.1.17 3B20D WITH CM2 IOP 1 SCAN AND SD POINTS - PC10

SCAN POINT	UNIT OR FRAME	LEAD	SD POINT	UNIT OR FRAME	LEAD
SC00	CMP COM 000	SCY	SD00	CMP COM 000	OS
SC01	CMP COM 000	SCX	SD00	CMP COM 000	RQIP
SC02	CMP COM 000	SCW	SD00	QGL COM 008	OS
SC03	QGL COM 008	SCY	SD00	QGL COM 008	RQIP
SC04	MISC FAN FAIL	FAN	SD04	MISC FAN FAIL	RST
SC05			SD05	+	
SC06			SD06		
SC07			SD07		
SC08	CMP COM 100	SCY	SD08	CMP COM 100	OS
SC09	CMP COM 100	SCX	SD09	CMP COM 100	RQIP
SC10	CMP COM 100	SCW	SD10	QGL COM 108	OS
SC11	QGL COM 108	SCY	SD11	QGL COM 108	RQIP
SC12			SD12		
SC13			SD13		
SC14			SD14		
SC15			SD15		
SC16	MSPU3 COM 114	SCY	SD16	MSPU3 COM 114	OS
SC17	MSPU3 COM 114	SCX	SD17	MSPU3 COM 114	RQIP
SC18	MSPU3 COM 114	SCW	SD18	MSPU3 COM 115	OS
SC19	MSPU3 COM 115	SCY	SD19	MSPU3 COM 115	RQIP
SC20	MSPU3 COM 112	SCY	SD20	MSPU3 COM 112	OS
SC21	MSPU3 COM 112	SCX	SD21	MSPU3 COM 112	RQIP
SC22	MSPU3 COM 112	SCW	SD22	MSPU3 COM 113	OS
SC23	MSPU3 COM 113	SCY	SD23	MSPU3 COM 113	RQIP
SC24	MSPU3 COM 015	SCY	SD24	MSPU3 COM 015	OS
SC25	MSPU3 COM 015	SCX	SD25	MSPU3 COM 015	RQIP
SC26	MSPU3 COM 015	SCW	SD26	MSPU3 COM 014	OS
SC27	MSPU3 COM 014	SCY	SD27	MSPU3 COM 014	RQIP
SC28	MSPU3 COM 013	SCY	SD28	MSPU3 COM 013	OS
SC29	MSPU3 COM 013	SCX	SD29	MSPU3 COM 013	RQIP
SC30	MSPU3 COM 013	SCW	SD30	MSPU3 COM 012	OS
SC31	MSPU3 COM 012	SCY	SD31	MSPU3 COM 012	RQIP
SC32	QGL COM 008	SCX			
SC33	QGL COM 008	SCW			
SC34					
SC35					
SC36	QGL COM 108	SCX			
SC37	QGL COM 108	SCW			
SC38					
SC39					
SC40	MSPU3 COM 115	SCX			
SC41	MSPU3 COM 115	SCW			
SC42	MSPU3 COM 113	SCX			
SC43	MSPU3 COM 113	SCW			
SC44	MSPU3 COM 014	SCX			
SC45	MSPU3 COM 014	SCW			
SC46	MSPU3 COM 012	SCX			
SC47	MSPU3 COM 012	SCW			

0 TELCO ASSIGNED, + INACCESSIBLE

NOTE: In software releases prior to 5E6, scan and SD points associated with the "MISC FAN FAIL" are customer assigned.

9.1.2.1.18 3B20D WITH CM2 IOP 1 SCAN AND SD POINTS - PC12

SCAN POINT	UNIT OR FRAME	LEAD	SD POINT	UNIT OR FRAME	LEAD
SC00	NCLK2 1	SCY	SD00	NCLK2 1	OS
SC01	NCLK2 1	SCX	SD01	+	
SC02	DFC3	SCY	SD02	DFC3	OS
SC03	DFC3	SCX	SD03	DFC3	RQIP
SC04	NCLK2 0	SCY	SD04	NCLK2 0	OS
SC05	NCLK2 0	SCX	SD05	+	
SC06	+		SD06		
SC07	CNI FAN FAIL	FAN	SD07	CNI FAN RST	RST
SC08	MSPU3 COM 011	SCY	SD08	MSPU3 COM 011	OS
SC09	MSPU3 COM 011	SCX	SD09	MSPU3 COM 011	RQIP
SC10	MSPU3 COM 011	SCW	SD10	MSPU3 COM 010	OS
SC11	MSPU3 COM 010	SCY	SD11	MSPU3 COM 010	RQIP
SC12	MSPU3 COM 007	SCY	SD12	MSPU3 COM 007	OS
SC13	MSPU3 COM 007	SCX	SD13	MSPU3 COM 007	RQIP
SC14	MSPU3 COM 007	SCW	SD14	MSPU3 COM 006	OS
SC15	MSPU3 COM 006	SCY	SD15	MSPU3 COM 006	RQIP
SC16	MSPU3 COM 005	SCY	SD16	MSPU3 COM 005	OS
SC17	MSPU3 COM 005	SCX	SD17	MSPU3 COM 005	RQIP
SC18	MSPU3 COM 005	SCW	SD18	MSPU3 COM 004	OS
SC19	MSPU3 COM 004	SCY	SD19	MSPU3 COM 004	RQIP
SC20	MSPU3 COM 003	SCY	SD20	MSPU3 COM 003	OS
SC21	MSPU3 COM 003	SCX	SD21	MSPU3 COM 003	RQIP
SC22	MSPU3 COM 003	SCW	SD22	MSPU3 COM 002	OS
SC23	MSPU3 COM 002	SCY	SD23	MSPU3 COM 002	RQIP
SC24	FPC/PPC 0	SCY	SD24	FPC/PPC 0	OS
SC25	FPC/PPC 0	SCX	SD25	FPC/PPC 0	RQIP
SC26	FPC/PPC 0	SCW	SD26	MSCU2 0	OS
SC27	MSCU2 0	SCY	SD27	MSCU2 0	RQIP
SC28	+		SD28	+	
SC29	CMCU 0	SCV	SD29	CMCU 0	DIAG
SC30	CM2 0 FAN FUSE*	SCZ	SD30	CMCU 0	OS
SC31	CMCU 0	SCY	SD31	CMCU 0	RQIP
SC32	PDF-6 FUSE FAIL	MJ			
SC33	PDF-7 FUSE FAIL	MJ			
SC34	CNI B	MN			
SC35	CNI A	MJ			
SC36	MSPU3 COM 010	SCX			
SC37	MSPU3 COM 010	SCW			
SC38	MSPU3 COM 006	SCX			
SC39	MSPU3 COM 006	SCW			
SC40	MSPU3 COM 004	SCX			
SC41	MSPU3 COM 004	SCW			
SC42	MSPU3 COM 002	SCX			
SC43	MSPU3 COM 002	SCW			
SC44	MSCU2 0	SCX			
SC45	MSCU2 0	SCW			
SC46	CMCU 0	SCX			
SC47	CMCU 0	SCW			

0 TELCO ASSIGNED, + INACCESSIBLE, * REPORTS VIA CMCU 0 SCAN Z

NOTE: Scan points for PDF-6 and PDF-7 are accessed via the Office Alarm Unit and are used in US applications only.

9.1.2.1.19 3B20D WITH CM2 IOP 1 SCAN AND SD POINTS - PC13

SCAN POINT	UNIT OR FRAME	LEAD	SD POINT	UNIT OR FRAME	LEAD
SC00	CM2 1 FAN FAIL	FAN	SD00	CM2 1 FAN RST	RST
SC01	MSG 1 MAN OVRD	SCV	SD01	+	
SC02			SD02	MSG 1 DIAG SD	DIA
SC03			SD03	+	
SC04	CM2 0 FAN FAIL	FAN	SD04	CM2 0 FAN RST	RST
SC05	MSG 0 MAN OVRD	SCV	SD05	+	
SC06			SD06	MSG 0 DIAG SD	DIA
SC07			SD07	+	
SC08	MSPU3 COM 110	SCY	SD08	MSPU3 COM 110	OS
SC09	MSPU3 COM 110	SCX	SD09	MSPU3 COM 110	RQIP
SC10	MSPU3 COM 110	SCW	SD10	MSPU3 COM 111	OS
SC11	MSPU3 COM 111	SCY	SD11	MSPU3 COM 111	RQIP
SC12	MSPU3 COM 106	SCY	SD12	MSPU3 COM 106	OS
SC13	MSPU3 COM 106	SCX	SD13	MSPU3 COM 106	RQIP
SC14	MSPU3 COM 106	SCW	SD14	MSPU3 COM 107	OS
SC15	MSPU3 COM 107	SCY	SD15	MSPU3 COM 107	RQIP
SC16	MSPU3 COM 104	SCY	SD16	MSPU3 COM 104	OS
SC17	MSPU3 COM 104	SCX	SD17	MSPU3 COM 104	RQIP
SC18	MSPU3 COM 104	SCW	SD18	MSPU3 COM 105	OS
SC19	MSPU3 COM 105	SCY	SD19	MSPU3 COM 105	RQIP
SC20	MSPU3 COM 102	SCY	SD20	MSPU3 COM 102	OS
SC21	MSPU3 COM 102	SCX	SD21	MSPU3 COM 102	RQIP
SC22	MSPU3 COM 102	SCW	SD22	MSPU3 COM 103	OS
SC23	MSPU3 COM 103	SCY	SD23	MSPU3 COM 103	RQIP
SC24	FPC/PPC 1	SCY	SD24	FPC/PPC 1	OS
SC25	FPC/PPC 1	SCX	SD25	FPC/PPC 1	RQIP
SC26	FPC/PPC 1	SCW	SD26	MSCU2 1	OS
SC27	MSCU2 1	SCY	SD27	MSCU2 1	RQIP
SC28	+		SD28	+	
SC29	CMCU 1	SCV	SD29	CMCU 1	DIAG
SC30	CM2 1 FAN FUSE*	SCZ	SD30	CMCU 1	OS
SC31	CMCU 1	SCY	SD31	CMCU 1	RQIP
SC32					
SC33					
SC34	ESM ALM	CRIT			
SC35	ESM PWR	MJ			
SC36	MSPU3 COM 111	SCX			
SC37	MSPU3 COM 111	SCW			
SC38	MSPU3 COM 107	SCX			
SC39	MSPU3 COM 107	SCW			
SC40	MSPU3 COM 105	SCX			
SC41	MSPU3 COM 105	SCW			
SC42	MSPU3 COM 103	SCX			
SC43	MSPU3 COM 103	SCW			
SC44	MSCU2 1	SCX			
SC45	MSCU2 1	SCW			
SC46	CMCU 1	SCX			
SC47	CMCU 1	SCW			

0 TELCO ASSIGNED, + INACCESSIBLE, * REPORTS VIA CMCU 1 SCAN Z

9.1.2.1.20 3B21D IOP 0 SCAN AND SD POINTS - PC01

SCAN POINT	UNIT OR FRAME	LEAD	SD POINT	UNIT OR FRAME	LEAD
SC00	BLDG. FIRE	CR	SD00	0	
SC01	FIRE ALM TBL	MJ	SD01	0	
SC02	0	#	SD02	+	
SC03	0	#	SD03	+	
SC04	0	#	SD04	0	
SC05	0	#	SD05	0	
SC06	0	#	SD06	+	
SC07	0	#	SD07	+	
SC08	0	#	SD08	0	
SC09	0	#	SD09	0	
SC10	0	#	SD10	+	
SC11	0	#	SD11	+	
SC12	0	#	SD12	0	
SC13	0	#	SD13	0	
SC14	0	#	SD14	+	
SC15	0	#	SD15	+	
SC16	0	#	SD16	0	
SC17	0	#	SD17	0	
SC18	0	#	SD18	+	
SC19	0	#	SD19	+	
SC20	0	#	SD20	0	
SC21	0	#	SD21	0	
SC22	0	#	SD22	+	
SC23	0	#	SD23	+	
SC24	0	#	SD24	0	
SC25	0	#	SD25	0	
SC26	0	#	SD26	+	
SC27	0	#	SD27	+	
SC28	DSCHG FUSE FAIL	MJ	SD28	0	
SC29	INV FAIL	MJ	SD29	0	
SC30	BAT LOW VLTG	MJ	SD30	+	
SC31	INV XFER	MJ	SD31	+	
SC32	MISC PWR	MJ,MN			
SC33	RECT FAIL	MJ			
SC34	/ PDF-0	MJ			
SC35	F F PDF-1	MJ			
SC36	U A PDF-2	MJ			
SC37	S I PDF-3	MJ			
SC38	E L PDF-4	MJ			
SC39	\ PDF-5	MJ			
SC40	ALM BAT	MJ			
SC41	CO BAT DSCHG	MJ			
SC42	S P / LOW FUEL	MJ			
SC43	T L OPER	MJ			
SC44	B N RECT FAIL	MJ			
SC45	Y T \ FAIL	MJ			
SC46	HIGH VLTG	MJ			
SC47	COM PWR FAIL	MJ			

0 TELCO ASSIGNED, + INACCESSIBLE, # MJ, MN, CR

NOTE: The scan and SD points listed on this page are accessed via the Office Alarm Unit.

9.1.2.1.21 3B21D IOP 0 SCAN AND SD POINTS - PC11

PC11 (EQUIPPED WHEN REQUIRED)

SCAN POINT	UNIT OR FRAME	LEAD	SD POINT	UNIT OR FRAME	LEAD
SC00	0		SD00		
SC01	0		SD01		
SC02	0		SD02		
SC03	0		SD03		
SC04	0		SD04		
SC05	0		SD05		
SC06	0		SD06		
SC07	0		SD07		
SC08	0		SD08		
SC09	0		SD09		
SC10	0		SD10		
SC11	0		SD11		
SC12	0		SD12		
SC13	0		SD13		
SC14	0		SD14		
SC15	0		SD15		
SC16	0		SD16		
SC17	0		SD17		
SC18	0		SD18		
SC19	0		SD19		
SC20	0		SD20		
SC21	0		SD21		
SC22	0		SD22		
SC23	0		SD23		
SC24	0		SD24		
SC25	0		SD25		
SC26	0		SD26		
SC27	0		SD27		
SC28	0		SD28		
SC29	0		SD29	DEAD SYS ALM	
SC30	0		SD30		
SC31	0		SD31		
SC32	0				
SC33	0				
SC34	0				
SC35	0				
SC36	0				
SC37	0				
SC38	0				
SC39	0				
SC40	0				
SC41	0				
SC42	0				
SC43	0				
SC44	0				
SC45	0				
SC46	0				
SC47	0				

0 - TELCO ASSIGNED

NOTE: The scan & SD points listed on this page are accessed via the Office Alarm Unit.

9.1.2.1.22 3B21D IOP 0 SCAN AND SD POINTS - PC30

SCAN POINT	UNIT OR FRAME	LEAD	SD POINT	UNIT OR FRAME	LEAD
SC00	SPU 19	SCX	SD00	SPU 19	OS
SC01	SPU 19	SCY	SD01	SPU 19	RQIP
SC02	SPU 21	SCX	SD02	SPU 21	OS
SC03	SPU 21	SCY	SD03	SPU 21	RQIP
SC04	SPU 23	SCX	SD04	SPU 23	OS
SC05	SPU 23	SCY	SD05	SPU 23	RQIP
SC06	SPU 25	SCX	SD06	SPU 25	OS
SC07	SPU 25	SCY	SD07	SPU 25	RQIP
SC08	SPU 27	SCX	SD08	SPU 27	OS
SC09	SPU 27	SCY	SD09	SPU 27	RQIP
SC10	SPU 18	SCX	SD10	SPU 18	OS
SC11	SPU 18	SCY	SD11	SPU 18	RQIP
SC12	SPU 20	SCX	SD12	SPU 20	OS
SC13	SPU 20	SCY	SD13	SPU 20	RQIP
SC14	SPU 22	SCX	SD14	SPU 22	OS
SC15	SPU 22	SCY	SD15	SPU 22	RQIP
SC16	SPU 24	SCX	SD16	SPU 24	OS
SC17	SPU 24	SCY	SD17	SPU 24	RQIP
SC18	SPU 26	SCX	SD18	SPU 26	OS
SC19	SPU 26	SCY	SD19	SPU 26	RQIP
SC20			SD20		
SC21			SD21		
SC22			SD22		
SC23			SD23		
SC24			SD24		
SC25			SD25		
SC26			SD26		
SC27			SD27		
SC28			SD28		
SC29			SD29		
SC30			SD30		
SC31			SD31		
SC32					
SC33					
SC34					
SC35					
SC36					
SC37					
SC38					
SC39					
SC40					
SC41					
SC42					
SC43					
SC44					
SC45					
SC46					
SC47					

9.1.2.1.23 3B21D IOP 1 SCAN AND SD POINTS - PC01

SCAN POINT	UNIT OR FRAME	LEAD	SD POINT	UNIT OR FRAME	LEAD
SC00	BLDG. FIRE	CR	SD00	0	
SC01	FIRE ALM TBL	MJ	SD01	0	
SC02	0	#	SD02	+	
SC03	0	#	SD03	+	
SC04	0	#	SD04	0	
SC05	0	#	SD05	0	
SC06	0	#	SD06	+	
SC07	0	#	SD07	+	
SC08	0	#	SD08	0	
SC09	0	#	SD09	0	
SC10	0	#	SD10	+	
SC11	0	#	SD11	+	
SC12	0	#	SD12	0	
SC13	0	#	SD13	0	
SC14	0	#	SD14	+	
SC15	0	#	SD15	+	
SC16	0	#	SD16	0	
SC17	0	#	SD17	0	
SC18	0	#	SD18	+	
SC19	0	#	SD19	+	
SC20	0	#	SD20	0	
SC21	0	#	SD21	0	
SC22	0	#	SD22	+	
SC23	0	#	SD23	+	
SC24	0	#	SD24	0	
SC25	0	#	SD25	0	
SC26	0	#	SD26	+	
SC27	0	#	SD27	+	
SC28	DSCHG FUSE FAIL	MJ	SD28	0	
SC29	INV FAIL	MJ	SD29	0	
SC30	BAT LOW VLTG	MJ	SD30	+	
SC31	INV XFER	MJ	SD31	+	
SC32	MISC PWR	MJ,MN			
SC33	RECT FAIL	MJ			
SC34	/ PDF-0	MJ			
SC35	F F PDF-1	MJ			
SC36	U A PDF-2	MJ			
SC37	S I PDF-3	MJ			
SC38	E L PDF-4	MJ			
SC39	\ PDF-5	MJ			
SC40	ALM BAT	MJ			
SC41	CO BAT DSCHG	MJ			
SC42	S P / LOW FUEL	MJ			
SC43	T L OPER	MJ			
SC44	B N RECT FAIL	MJ			
SC45	Y T \ FAIL	MJ			
SC46	HIGH VLTG	MJ			
SC47	COM PWR FAIL	MJ			

0 TELCO ASSIGNED, + INACCESSIBLE, # MJ, MN, CR

NOTE: The scan and SD points listed on this page are accessed via the Office Alarm Unit.

9.1.2.1.24 3B21D IOP 1 SCAN AND SD POINTS - PC11

PC11 (EQUIPPED WHEN REQUIRED)

SCAN POINT	UNIT OR FRAME	LEAD	SD POINT	UNIT OR FRAME	LEAD
SC00	0		SD00		
SC01	0		SD01		
SC02	0		SD02		
SC03	0		SD03		
SC04	0		SD04		
SC05	0		SD05		
SC06	0		SD06		
SC07	0		SD07		
SC08	0		SD08		
SC09	0		SD09		
SC10	0		SD10		
SC11	0		SD11		
SC12	0		SD12		
SC13	0		SD13		
SC14	0		SD14		
SC15	0		SD15		
SC16	0		SD16		
SC17	0		SD17		
SC18	0		SD18		
SC19	0		SD19		
SC20	0		SD20		
SC21	0		SD21		
SC22	0		SD22		
SC23	0		SD23		
SC24	0		SD24		
SC25	0		SD25		
SC26	0		SD26		
SC27	0		SD27		
SC28	0		SD28		
SC29	0		SD29	DEAD SYS ALM	
SC30	0		SD30		
SC31	0		SD31		
SC32	0				
SC33	0				
SC34	0				
SC35	0				
SC36	0				
SC37	0				
SC38	0				
SC39	0				
SC40	0				
SC41	0				
SC42	0				
SC43	0				
SC44	0				
SC45	0				
SC46	0				
SC47	0				

0 - TELCO ASSIGNED

NOTE: The scan and SD points listed on this page are accessed via the Office Alarm Unit.

9.1.2.1.25 3B21D WITH CM2C IOP 0 SCAN AND SD POINTS - PC02

SCAN POINT	UNIT OR FRAME	LEAD	SD POINT	UNIT OR FRAME	LEAD
SC00	CMU 0	SCY	SD00	CMU 0	OS
SC01	CMU 0	SCX	SD01	CMU 0	RQIP
SC02	CMU 0	SCW	SD02	CMU 0	DIAG
SC03	CMU 0	SCV	SD03	NCLK2 0	OS
SC04	CMU 1	SCY	SD04	CMU 1	OS
SC05	CMU 1	SCX	SD05	CMU 1	RQIP
SC06	CMU 1	SCW	SD06	CMU 1	DIAG
SC07	CMU 1	SCV	SD07	NCLK2 1	OS
SC08	3B FAN	FAN	SD08	3B FAN	RST
SC09	+		SD09	+	
SC10	MISC FAN	FAN	SD10	MISC FAN	RST
SC11	+		SD11	+	
SC12	+		SD12	ALM CKT	CRIT
SC13	+		SD13	ALM CKT	MJ
SC14	+		SD14	ALM CKT	MN
SC15	+		SD15	ALM CKT	ARET
SC16	SPU 54	SCX	SD16	SPU 54	OS
SC17	SPU 54	SCY	SD17	SPU 54	RQIP
SC18	SPU 04	SCX	SD18	SPU 04	OS
SC19	SPU 04	SCY	SD19	SPU 04	RQIP
SC20	IOP 2	SCY	SD20	IOP 2	OS
SC21	IOP 2	SCX	SD21	IOP 2	RQIP
SC22	IOP 1	SCY	SD22	IOP 1	OS
SC23	IOP 1	SCX	SD23	IOP 1	RQIP
SC24	SPU 02 (Disk 02)	SCX	SD24	SPU 02 (Disk 02)	OS
SC25	SPU 02 (Disk 02)	SCY	SD25	SPU 02 (Disk 02)	RQIP
SC26	SPU 00 (Disk 00)	SCX	SD26	SPU 00 (Disk 00)	OS
SC27	SPU 00 (Disk 00)	SCY	SD27	SPU 00 (Disk 00)	RQIP
SC28	DFC 0	SCX	SD28	DFC 0	OS
SC29	DFC 0	SCY	SD29	DFC 0	RQIP
SC30	CU 0	SCY	SD30	CU 0	OS
SC31	CU 0	SCX	SD31	CU 0	RQIP
SC32	NCLK2 0	SCY			
SC33	NCLK2 0	SCX			
SC34	NCLK2 1	SCY			
SC35	NCLK2 1	SCX			
SC36	ESM ALM	CRIT			
SC37	ESM PWR	MJ			
SC38	MISC FA 1				
SC39	MISC FA 0				
SC40					
SC41					
SC42	IOP 1	SCZ			
SC43	+				
SC44					
SC45					
SC46	CU 0	SCZ			
SC47	+				

9.1.2.1.26 3B21D WITH CM2C IOP 0 SCAN AND SD POINTS - PC10

SCAN POINT	UNIT OR FRAME	LEAD	SD POINT	UNIT OR FRAME	LEAD
SC00			SD00		
SC01			SD01		
SC02			SD02		
SC03			SD03		
SC04			SD04		
SC05			SD05		
SC06			SD06		
SC07			SD07		
SC08			SD08		
SC09			SD09		
SC10			SD10		
SC11			SD11		
SC12			SD12		
SC13			SD13		
SC14			SD14		
SC15			SD15		
SC16			SD16		
SC17			SD17		
SC18	+		SD18		
SC19	CNI FAN FAIL	FAN	SD19	CNI FAN RST	RST
SC20			SD20		
SC21			SD21		
SC22			SD22		
SC23			SD23		
SC24	CMPU 0	SCY	SD24	CMPU 0	OS
SC25	CMPU 0	SCX	SD25	CMPU 0	RQIP
SC26	CMPU 0	SCW	SD26	CMPU 0	DIAG
SC27	CMPU 0	SCV	SD27	+	
SC28	CMPU 1	SCY	SD28	CMPU 1	OS
SC29	CMPU 1	SCX	SD29	CMPU 1	RQIP
SC30	CMPU 1	SCW	SD30	CMPU 1	DIAG
SC31	CMPU 1	SCV	SD31	+	
SC32					
SC33					
SC34					
SC35					
SC36					
SC37					
SC38					
SC39					
SC40	CNI B	MN			
SC41	CNI A	MJ			
SC42					
SC43					
SC44					
SC45					
SC46					
SC47					

+ INACCESSIBLE

9.1.2.1.27 3B21D WITH CM2C IOP 1 SCAN AND SD POINTS - PC02

SCAN POINT	UNIT OR FRAME	LEAD	SD POINT	UNIT OR FRAME	LEAD
SC00	CMU 0	SCY	SD00	CMU 0	OS
SC01	CMU 0	SCX	SD01	CMU 0	RQIP
SC02	CMU 0	SCW	SD02	CMU 0	DIAG
SC03	CMU 0	SCV	SD03	NCLK2 0	OS
SC04	CMU 1	SCY	SD04	CMU 1	OS
SC05	CMU 1	SCX	SD05	CMU 1	RQIP
SC06	CMU 1	SCW	SD06	CMU 1	DIAG
SC07	CMU 1	SCV	SD07	NCLK2 1	OS
SC08	3B FAN	FAN	SD08	3B FAN	RST
SC09	+		SD09	+	
SC10	MISC FAN	FAN	SD10	MISC FAN	RST
SC11	+		SD11	+	
SC12	+		SD12	ALM CKT	CRIT
SC13	+		SD13	ALM CKT	MJ
SC14	+		SD14	ALM CKT	MN
SC15	+		SD15	ALM CKT	ARET
SC16			SD16		
SC17			SD17		
SC18	SPU 05	SCX	SD18	SPU 05	OS
SC19	SPU 05	SCY	SD19	SPU 05	RQIP
SC20	IOP 3	SCY	SD20	IOP 3	OS
SC21	IOP 3	SCX	SD21	IOP 3	RQIP
SC22	IOP 0	SCY	SD22	IOP 0	OS
SC23	IOP 0	SCX	SD23	IOP 0	RQIP
SC24	SPU 03 (Disk 03)	SCX	SD24	SPU 03 (Disk 03)	OS
SC25	SPU 03 (Disk 03)	SCY	SD25	SPU 03 (Disk 03)	RQIP
SC26	SPU 01 (Disk 01)	SCX	SD26	SPU 01 (Disk 01)	OS
SC27	SPU 01 (Disk 01)	SCY	SD27	SPU 01 (Disk 01)	RQIP
SC28	DFC 1	SCX	SD28	DFC 1	OS
SC29	DFC 1	SCY	SD29	DFC 1	RQIP
SC30	CU 1	SCY	SD30	CU 1	OS
SC31	CU 1	SCX	SD31	CU 1	RQIP
SC32	NCLK2 0	SCY			
SC33	NCLK2 0	SCX			
SC34	NCLK2 1	SCY			
SC35	NCLK2 1	SCX			
SC36	ESM ALM	CRIT			
SC37	ESM PWR	MJ			
SC38	MISC FA 1				
SC39	MISC FA 0				
SC40	PORT SW (ROP)	SCC			
SC41	PORT SW (ROP)	SCB			
SC42	IOP 0	SCZ			
SC43	PORT SW (ROP)	SCA			
SC44	PORT SW (MCRT)	SCC			
SC45	PORT SW (MCRT)	SCB			
SC46	CU 1	SCZ			
SC47	PORT SW (MCRT)	SCA			

9.1.2.1.28 3B21D WITH CM2C IOP 1 SCAN AND SD POINTS - PC10

SCAN POINT	UNIT OR FRAME	LEAD	SD POINT	UNIT OR FRAME	LEAD
SC00			SD00		
SC01			SD01		
SC02			SD02		
SC03			SD03		
SC04			SD04		
SC05			SD05		
SC06			SD06		
SC07			SD07		
SC08			SD08		
SC09			SD09		
SC10			SD10		
SC11			SD11		
SC12			SD12		
SC13			SD13		
SC14			SD14		
SC15			SD15		
SC16			SD16		
SC17			SD17		
SC18	+ CNI FAN FAIL		SD18		
SC19		FAN	SD19	CNI FAN RST	RST
SC20			SD20		
SC21			SD21		
SC22			SD22		
SC23			SD23		
SC24	CMPU 0	SCY	SD24	CMPU 0	OS
SC25	CMPU 0	SCX	SD25	CMPU 0	RQIP
SC26	CMPU 0	SCW	SD26	CMPU 0	DIAG
SC27	CMPU 0	SCV	SD27	+	
SC28	CMPU 1	SCY	SD28	CMPU 1	OS
SC29	CMPU 1	SCX	SD29	CMPU 1	RQIP
SC30	CMPU 1	SCW	SD30	CMPU 1	DIAG
SC31	CMPU 1	SCV	SD31	+	
SC32					
SC33					
SC34					
SC35					
SC36					
SC37					
SC38					
SC39					
SC40	CNI B	MN			
SC41	CNI A	MJ			
SC42					
SC43					
SC44					
SC45					
SC46					
SC47					

+ INACCESSIBLE

9.1.2.1.29 3B21D WITH CM2 IOP 0 SCAN AND SD POINTS - PC02

SCAN POINT	UNIT OR FRAME	LEAD	SD POINT	UNIT OR FRAME	LEAD
SC00			SD00		
SC01			SD01		
SC02			SD02		
SC03			SD03		
SC04			SD04		
SC05			SD05		
SC06			SD06		
SC07			SD07		
SC08	3B FAN	FAN	SD08	3B FAN	RST
SC09	+		SD09	+	
SC10	MISC FAN	FAN	SD10	MISC FAN	RST
SC11			SD11	+	
SC12	+		SD12	ALM CKT	CRIT
SC13	+		SD13	ALM CKT	MJ
SC14	+		SD14	ALM CKT	MN
SC15	+		SD15	ALM CKT	ARET
SC16	SPU 54	SCX	SD16	SPU 54	OS
SC17	SPU 54	SCY	SD17	SPU 54	RQIP
SC18	SPU 04	SCX	SD18	SPU 04	OS
SC19	SPU 04	SCY	SD19	SPU 04	RQIP
SC20	IOP 2	SCY	SD20	IOP 2	OS
SC21	IOP 2	SCX	SD21	IOP 2	RQIP
SC22	IOP 1	SCY	SD22	IOP 1	OS
SC23	IOP 1	SCX	SD23	IOP 1	RQIP
SC24	SPU 02 (Disk 02)	SCX	SD24	SPU 02 (Disk 02)	OS
SC25	SPU 02 (Disk 02)	SCY	SD25	SPU 02 (Disk 02)	RQIP
SC26	SPU 00 (Disk 00)	SCX	SD26	SPU 00 (Disk 00)	OS
SC27	SPU 00 (Disk 00)	SCY	SD27	SPU 00 (Disk 00)	RQIP
SC28	DFC 0	SCX	SD28	DFC 0	OS
SC29	DFC 0	SCY	SD29	DFC 0	RQIP
SC30	CU 0	SCY	SD30	CU 0	OS
SC31	CU 0	SCX	SD31	CU 0	RQIP
SC32	+				
SC33					
SC34					
SC35					
SC36					
SC37					
SC38	MISC FA 1				
SC39	MISC FA 0				
SC40					
SC41					
SC42	IOP 1	SCZ			
SC43	+				
SC44					
SC45					
SC46	CU 0	SCZ			
SC47	+				

9.1.2.1.30 3B21D WITH CM2 IOP 0 SCAN AND SD POINTS - PC10

SCAN POINT	UNIT OR FRAME	LEAD	SD POINT	UNIT OR FRAME	LEAD
SC00	CMP COM 100	SCY	SD00	CMP COM 100	OS
SC01	CMP COM 100	SCX	SD01	CMP COM 100	RQIP
SC02	CMP COM 100	SCW	SD02	QGL COM 108	OS
SC03	QGL COM 108	SCY	SD03	QGL COM 108	RQIP
SC04			SD04		
SC05			SD05		
SC06			SD06		
SC07			SD07		
SC08	CMP COM 000	SCY	SD08	CMP COM 000	OS
SC09	CMP COM 000	SCX	SD09	CMP COM 000	RQIP
SC10	CMP COM 000	SCW	SD10	QGL COM 008	OS
SC11	QGL COM 008	SCY	SD11	QGL COM 008	RQIP
SC12			SD12		
SC13			SD13		
SC14			SD14		
SC15			SD15		
SC16	MSPU3 COM 114	SCY	SD16	MSPU3 COM 114	OS
SC17	MSPU3 COM 114	SCX	SD17	MSPU3 COM 114	RQIP
SC18	MSPU3 COM 114	SCW	SD18	MSPU3 COM 115	OS
SC19	MSPU3 COM 115	SCY	SD19	MSPU3 COM 115	RQIP
SC20	MSPU3 COM 112	SCY	SD20	MSPU3 COM 112	OS
SC21	MSPU3 COM 112	SCX	SD21	MSPU3 COM 112	RQIP
SC22	MSPU3 COM 112	SCW	SD22	MSPU3 COM 113	OS
SC23	MSPU3 COM 113	SCY	SD23	MSPU3 COM 113	RQIP
SC24	MSPU3 COM 015	SCY	SD24	MSPU3 COM 015	OS
SC25	MSPU3 COM 015	SCX	SD25	MSPU3 COM 015	RQIP
SC26	MSPU3 COM 015	SCW	SD26	MSPU3 COM 014	OS
SC27	MSPU3 COM 014	SCY	SD27	MSPU3 COM 014	RQIP
SC28	MSPU3 COM 013	SCY	SD28	MSPU3 COM 013	OS
SC29	MSPU3 COM 013	SCX	SD29	MSPU3 COM 013	RQIP
SC30	MSPU3 COM 013	SCW	SD30	MSPU3 COM 012	OS
SC31	MSPU3 COM 012	SCY	SD31	MSPU3 COM 012	RQIP
SC32	QGL COM 108	SCX			
SC33	QGL COM 108	SCW			
SC34					
SC35					
SC36	QGL COM 008	SCX			
SC37	QGL COM 008	SCW			
SC38					
SC39					
SC40	MSPU3 COM 115	SCX			
SC41	MSPU3 COM 115	SCW			
SC42	MSPU3 COM 113	SCX			
SC43	MSPU3 COM 113	SCW			
SC44	MSPU3 COM 014	SCX			
SC45	MSPU3 COM 014	SCW			
SC46	MSPU3 COM 012	SCX			
SC47	MSPU3 COM 012	SCW			

0 TELCO ASSIGNED, + INACCESSIBLE

9.1.2.1.31 3B21D WITH CM2 IOP 0 SCAN AND SD POINTS - PC12

SCAN POINT	UNIT OR FRAME	LEAD	SD POINT	UNIT OR FRAME	LEAD
SC00	NCLK2 1	SCY	SD00	NCLK2 1	OS
SC01	NCLK2 1	SCX	SD01	+	
SC02	DFC2	SCY	SD02	DFC2	OS
SC03	DFC2	SCX	SD03	DFC2	RQIP
SC04	NCLK2 0	SCY	SD04	NCLK2 0	OS
SC05	NCLK2 0	SCX	SD05	+	
SC06	+		SD06		
SC07	CNI FAN FAIL	FAN	SD07	CNI FAN RST	RST
SC08	MSPU3 COM 011	SCY	SD08	MSPU3 COM 011	OS
SC09	MSPU3 COM 011	SCX	SD09	MSPU3 COM 011	RQIP
SC10	MSPU3 COM 011	SCW	SD10	MSPU3 COM 010	OS
SC11	MSPU3 COM 010	SCY	SD11	MSPU3 COM 010	RQIP
SC12	MSPU3 COM 007	SCY	SD12	MSPU3 COM 007	OS
SC13	MSPU3 COM 007	SCX	SD13	MSPU3 COM 007	RQIP
SC14	MSPU3 COM 007	SCW	SD14	MSPU3 COM 006	OS
SC15	MSPU3 COM 006	SCY	SD15	MSPU3 COM 006	RQIP
SC16	MSPU3 COM 005	SCY	SD16	MSPU3 COM 005	OS
SC17	MSPU3 COM 005	SCX	SD17	MSPU3 COM 005	RQIP
SC18	MSPU3 COM 005	SCW	SD18	MSPU3 COM 004	OS
SC19	MSPU3 COM 004	SCY	SD19	MSPU3 COM 004	RQIP
SC20	MSPU3 COM 003	SCY	SD20	MSPU3 COM 003	OS
SC21	MSPU3 COM 003	SCX	SD21	MSPU3 COM 003	RQIP
SC22	MSPU3 COM 003	SCW	SD22	MSPU3 COM 002	OS
SC23	MSPU3 COM 002	SCY	SD23	MSPU3 COM 002	RQIP
SC24	FPC/PPC 0	SCY	SD24	FPC/PPC 0	OS
SC25	FPC/PPC 0	SCX	SD25	FPC/PPC 0	RQIP
SC26	FPC/PPC 0	SCW	SD26	MSCU2 0	OS
SC27	MSCU2 0	SCY	SD27	MSCU2 0	RQIP
SC28	+		SD28	+	
SC29	CMCU 0	SCV	SD29	CMCU 0	DIAG
SC30	CM2 0 FAN FUSE*	SCZ	SD30	CMCU 0	OS
SC31	CMCU 0	SCY	SD31	CMCU 0	RQIP
SC32	PDF-6 FUSE FAIL	MJ			
SC33	PDF-7 FUSE FAIL	MJ			
SC34	CNI B	MN			
SC35	CNI A	MJ			
SC36	MSPU3 COM 010	SCX			
SC37	MSPU3 COM 010	SCW			
SC38	MSPU3 COM 006	SCX			
SC39	MSPU3 COM 006	SCW			
SC40	MSPU3 COM 004	SCX			
SC41	MSPU3 COM 004	SCW			
SC42	MSPU3 COM 002	SCX			
SC43	MSPU3 COM 002	SCW			
SC44	MSCU2 0	SCX			
SC45	MSCU2 0	SCW			
SC46	CMCU 0	SCX			
SC47	CMCU 0	SCW			

0 TELCO ASSIGNED, * REPORTS VIA CMCU 0 SCAN Z, + INACCESSIBLE

NOTE: Scan points for PDF-6 and PDF-7 are accessed via the Office Alarm Unit and are used in US applications only.

9.1.2.1.32 3B21D WITH CM2 IOP 0 SCAN AND SD POINTS - PC13

SCAN POINT	UNIT OR FRAME	LEAD	SD POINT	UNIT OR FRAME	LEAD
SC00	CM2 1 FAN FAIL	FAN	SD00	CM2 1 FAN RST	RST
SC01	MSG 1 MAN OVRD	SCV	SD01	+	
SC02			SD02	MSG 1 DIAG SD	DIA
SC03			SD03	+	
SC04	CM2 0 FAN FAIL	FAN	SD04	CM2 0 FAN RST	RST
SC05	MSG 0 MAN OVRD	SCV	SD05	+	
SC06			SD06	MSG 0 DIAG SD	DIA
SC07			SD07	+	
SC08	MSPU3 COM 110	SCY	SD08	MSPU3 COM 110	OS
SC09	MSPU3 COM 110	SCX	SD09	MSPU3 COM 110	RQIP
SC10	MSPU3 COM 110	SCW	SD10	MSPU3 COM 111	OS
SC11	MSPU3 COM 111	SCY	SD11	MSPU3 COM 111	RQIP
SC12	MSPU3 COM 106	SCY	SD12	MSPU3 COM 106	OS
SC13	MSPU3 COM 106	SCX	SD13	MSPU3 COM 106	RQIP
SC14	MSPU3 COM 106	SCW	SD14	MSPU3 COM 107	OS
SC15	MSPU3 COM 107	SCY	SD15	MSPU3 COM 107	RQIP
SC16	MSPU3 COM 104	SCY	SD16	MSPU3 COM 104	OS
SC17	MSPU3 COM 104	SCX	SD17	MSPU3 COM 104	RQIP
SC18	MSPU3 COM 104	SCW	SD18	MSPU3 COM 105	OS
SC19	MSPU3 COM 105	SCY	SD19	MSPU3 COM 105	RQIP
SC20	MSPU3 COM 102	SCY	SD20	MSPU3 COM 102	OS
SC21	MSPU3 COM 102	SCX	SD21	MSPU3 COM 102	RQIP
SC22	MSPU3 COM 102	SCW	SD22	MSPU3 COM 103	OS
SC23	MSPU3 COM 103	SCY	SD23	MSPU3 COM 103	RQIP
SC24	FPC/PPC 1	SCY	SD24	FPC/PPC 1	OS
SC25	FPC/PPC 1	SCX	SD25	FPC/PPC 1	RQIP
SC26	FPC/PPC 1	SCW	SD26	MSCU2 1	OS
SC27	MSCU2 1	SCY	SD27	MSCU2 1	RQIP
SC28	+		SD28	+	
SC29	CMCU 1	SCV	SD29	CMCU 1	DIAG
SC30	CM2 1 FAN FUSE*	SCZ	SD30	CMCU 1	OS
SC31	CMCU 1	SCY	SD31	CMCU 1	RQIP
SC32					
SC33					
SC34	ESM ALM	CRIT			
SC35	ESM PWR	MJ			
SC36	MSPU3 COM 111	SCX			
SC37	MSPU3 COM 111	SCW			
SC38	MSPU3 COM 107	SCX			
SC39	MSPU3 COM 107	SCW			
SC40	MSPU3 COM 105	SCX			
SC41	MSPU3 COM 105	SCW			
SC42	MSPU3 COM 103	SCX			
SC43	MSPU3 COM 103	SCW			
SC44	MSCU2 1	SCX			
SC45	MSCU2 1	SCW			
SC46	CMCU 1	SCX			
SC47	CMCU 1	SCW			

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9.1.2.1.33 3B21D WITH CM2 IOP 1 SCAN AND SD POINTS - PC02

SCAN POINT	UNIT OR FRAME	LEAD	SD POINT	UNIT OR FRAME	LEAD
SC00			SD00		
SC01			SD01		
SC02			SD02		
SC03			SD03		
SC04			SD04		
SC05			SD05		
SC06			SD06		
SC07			SD07		
SC08	3B FAN	FAN	SD08	3B FAN	RST
SC09	+		SD09	+	
SC10	MISC FAN	FAN	SD10	MISC FAN	RST
SC11			SD11	+	
SC12	+		SD12	ALM CKT	CRIT
SC13	+		SD13	ALM CKT	MJ
SC14	+		SD14	ALM CKT	MN
SC15	+		SD15	ALM CKT	ARET
SC16			SD16		
SC17			SD17		
SC18	SPU 05	SCX	SD18	SPU 05	OS
SC19	SPU 05	SCY	SD19	SPU 05	RQIP
SC20	IOP 3	SCY	SD20	IOP 3	OS
SC21	IOP 3	SCX	SD21	IOP 3	RQIP
SC22	IOP 0	SCY	SD22	IOP 0	OS
SC23	IOP 0	SCX	SD23	IOP 0	RQIP
SC24	SPU 03 (Disk 03)	SCX	SD24	SPU 03 (Disk 03)	OS
SC25	SPU 03 (Disk 03)	SCY	SD25	SPU 03 (Disk 03)	RQIP
SC26	SPU 01 (Disk 01)	SCX	SD26	SPU 01 (Disk 01)	OS
SC27	SPU 01 (Disk 01)	SCY	SD27	SPU 01 (Disk 01)	RQIP
SC28	DFC 1	SCX	SD28	DFC 1	OS
SC29	DFC 1	SCY	SD29	DFC 1	RQIP
SC30	CU 1	SCY	SD30	CU 1	OS
SC31	CU 1	SCX	SD31	CU 1	RQIP
SC32	+				
SC33					
SC34					
SC35					
SC36					
SC37					
SC38	MISC FA 1				
SC39	MISC FA 0				
SC40	PORT SW (ROP)	SCC			
SC41	PORT SW (ROP)	SCB			
SC42	IOP 0	SCZ			
SC43	PORT SW (ROP)	SCA			
SC44	PORT SW (MCRT)	SCC			
SC45	PORT SW (MCRT)	SCB			
SC46	CU 1	SCZ			
SC47	PORT SW (MCRT)	SCA			

9.1.2.1.34 3B21D WITH CM2 IOP 1 SCAN AND SD POINTS - PC10

SCAN POINT	UNIT OR FRAME	LEAD	SD POINT	UNIT OR FRAME	LEAD
SC00	CMP COM 000	SCY	SD00	CMP COM 000	OS
SC01	CMP COM 000	SCX	SD00	CMP COM 000	RQIP
SC02	CMP COM 000	SCW	SD00	QGL COM 008	OS
SC03	QGL COM 008	SCY	SD00	QGL COM 008	RQIP
SC04			SD04		
SC05			SD05		
SC06			SD06		
SC07			SD07		
SC08	CMP COM 100	SCY	SD08	CMP COM 100	OS
SC09	CMP COM 100	SCX	SD09	CMP COM 100	RQIP
SC10	CMP COM 100	SCW	SD10	QGL COM 108	OS
SC11	QGL COM 108	SCY	SD11	QGL COM 108	RQIP
SC12			SD12		
SC13			SD13		
SC14			SD14		
SC15			SD15		
SC16	MSPU3 COM 114	SCY	SD16	MSPU3 COM 114	OS
SC17	MSPU3 COM 114	SCX	SD17	MSPU3 COM 114	RQIP
SC18	MSPU3 COM 114	SCW	SD18	MSPU3 COM 115	OS
SC19	MSPU3 COM 115	SCY	SD19	MSPU3 COM 115	RQIP
SC20	MSPU3 COM 112	SCY	SD20	MSPU3 COM 112	OS
SC21	MSPU3 COM 112	SCX	SD21	MSPU3 COM 112	RQIP
SC22	MSPU3 COM 112	SCW	SD22	MSPU3 COM 113	OS
SC23	MSPU3 COM 113	SCY	SD23	MSPU3 COM 113	RQIP
SC24	MSPU3 COM 015	SCY	SD24	MSPU3 COM 015	OS
SC25	MSPU3 COM 015	SCX	SD25	MSPU3 COM 015	RQIP
SC26	MSPU3 COM 015	SCW	SD26	MSPU3 COM 014	OS
SC27	MSPU3 COM 014	SCY	SD27	MSPU3 COM 014	RQIP
SC28	MSPU3 COM 013	SCY	SD28	MSPU3 COM 013	OS
SC29	MSPU3 COM 013	SCX	SD29	MSPU3 COM 013	RQIP
SC30	MSPU3 COM 013	SCW	SD30	MSPU3 COM 012	OS
SC31	MSPU3 COM 012	SCY	SD31	MSPU3 COM 012	RQIP
SC32	QGL COM 008	SCX			
SC33	QGL COM 008	SCW			
SC34					
SC35					
SC36	QGL COM 108	SCX			
SC37	QGL COM 108	SCW			
SC38					
SC39					
SC40	MSPU3 COM 115	SCX			
SC41	MSPU3 COM 115	SCW			
SC42	MSPU3 COM 113	SCX			
SC43	MSPU3 COM 113	SCW			
SC44	MSPU3 COM 014	SCX			
SC45	MSPU3 COM 014	SCW			
SC46	MSPU3 COM 012	SCX			
SC47	MSPU3 COM 012	SCW			

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9.1.2.1.35 3B21D WITH CM2 IOP 1 SCAN AND SD POINTS - PC12

SCAN POINT	UNIT OR FRAME	LEAD	SD POINT	UNIT OR FRAME	LEAD
SC00	NCLK2 1	SCY	SD00	NCLK2 1	OS
SC01	NCLK2 1	SCX	SD01	+	
SC02	DFC3	SCY	SD02	DFC3	OS
SC03	DFC3	SCX	SD03	DFC3	RQIP
SC04	NCLK2 0	SCY	SD04	NCLK2 0	OS
SC05	NCLK2 0	SCX	SD05	+	
SC06	+		SD06		
SC07	CNI FAN FAIL	FAN	SD07	CNI FAN RST	RST
SC08	MSPU3 COM 011	SCY	SD08	MSPU3 COM 011	OS
SC09	MSPU3 COM 011	SCX	SD09	MSPU3 COM 011	RQIP
SC10	MSPU3 COM 011	SCW	SD10	MSPU3 COM 010	OS
SC11	MSPU3 COM 010	SCY	SD11	MSPU3 COM 010	RQIP
SC12	MSPU3 COM 007	SCY	SD12	MSPU3 COM 007	OS
SC13	MSPU3 COM 007	SCX	SD13	MSPU3 COM 007	RQIP
SC14	MSPU3 COM 007	SCW	SD14	MSPU3 COM 006	OS
SC15	MSPU3 COM 006	SCY	SD15	MSPU3 COM 006	RQIP
SC16	MSPU3 COM 005	SCY	SD16	MSPU3 COM 005	OS
SC17	MSPU3 COM 005	SCX	SD17	MSPU3 COM 005	RQIP
SC18	MSPU3 COM 005	SCW	SD18	MSPU3 COM 004	OS
SC19	MSPU3 COM 004	SCY	SD19	MSPU3 COM 004	RQIP
SC20	MSPU3 COM 003	SCY	SD20	MSPU3 COM 003	OS
SC21	MSPU3 COM 003	SCX	SD21	MSPU3 COM 003	RQIP
SC22	MSPU3 COM 003	SCW	SD22	MSPU3 COM 002	OS
SC23	MSPU3 COM 002	SCY	SD23	MSPU3 COM 002	RQIP
SC24	FPC/PPC 0	SCY	SD24	FPC/PPC 0	OS
SC25	FPC/PPC 0	SCX	SD25	FPC/PPC 0	RQIP
SC26	FPC/PPC 0	SCW	SD26	MSCU2 0	OS
SC27	MSCU2 0	SCY	SD27	MSCU2 0	RQIP
SC28	+		SD28	+	
SC29	CMCU 0	SCV	SD29	CMCU 0	DIAG
SC30	CM2 0 FAN FUSE*	SCZ	SD30	CMCU 0	OS
SC31	CMCU 0	SCY	SD31	CMCU 0	RQIP
SC32	PDF-6 FUSE FAIL	MJ			
SC33	PDF-7 FUSE FAIL	MJ			
SC34	CNI B	MN			
SC35	CNI A	MJ			
SC36	MSPU3 COM 010	SCX			
SC37	MSPU3 COM 010	SCW			
SC38	MSPU3 COM 006	SCX			
SC39	MSPU3 COM 006	SCW			
SC40	MSPU3 COM 004	SCX			
SC41	MSPU3 COM 004	SCW			
SC42	MSPU3 COM 002	SCX			
SC43	MSPU3 COM 002	SCW			
SC44	MSCU2 0	SCX			
SC45	MSCU2 0	SCW			
SC46	CMCU 0	SCX			
SC47	CMCU 0	SCW			

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NOTE: Scan points for PDF-6 and PDF-7 are accessed via the Office Alarm Unit and are used in US applications only.

9.1.2.1.36 3B21D WITH CM2 IOP 1 SCAN AND SD POINTS - PC13

SCAN POINT	UNIT OR FRAME	LEAD	SD POINT	UNIT OR FRAME	LEAD
SC00	CM2 1 FAN FAIL	FAN	SD00	CM2 1 FAN RST	RST
SC01	MSG 1 MAN OVRD	SCV	SD01	+	
SC02			SD02	MSG 1 DIAG SD	DIA
SC03			SD03	+	
SC04	CM2 0 FAN FAIL	FAN	SD04	CM2 0 FAN RST	RST
SC05	MSG 0 MAN OVRD	SCV	SD05	+	
SC06			SD06	MSG 0 DIAG SD	DIA
SC07			SD07	+	
SC08	MSPU3 COM 110	SCY	SD08	MSPU3 COM 110	OS
SC09	MSPU3 COM 110	SCX	SD09	MSPU3 COM 110	RQIP
SC10	MSPU3 COM 110	SCW	SD10	MSPU3 COM 111	OS
SC11	MSPU3 COM 111	SCY	SD11	MSPU3 COM 111	RQIP
SC12	MSPU3 COM 106	SCY	SD12	MSPU3 COM 106	OS
SC13	MSPU3 COM 106	SCX	SD13	MSPU3 COM 106	RQIP
SC14	MSPU3 COM 106	SCW	SD14	MSPU3 COM 107	OS
SC15	MSPU3 COM 107	SCY	SD15	MSPU3 COM 107	RQIP
SC16	MSPU3 COM 104	SCY	SD16	MSPU3 COM 104	OS
SC17	MSPU3 COM 104	SCX	SD17	MSPU3 COM 104	RQIP
SC18	MSPU3 COM 104	SCW	SD18	MSPU3 COM 105	OS
SC19	MSPU3 COM 105	SCY	SD19	MSPU3 COM 105	RQIP
SC20	MSPU3 COM 102	SCY	SD20	MSPU3 COM 102	OS
SC21	MSPU3 COM 102	SCX	SD21	MSPU3 COM 102	RQIP
SC22	MSPU3 COM 102	SCW	SD22	MSPU3 COM 103	OS
SC23	MSPU3 COM 103	SCY	SD23	MSPU3 COM 103	RQIP
SC24	FPC/PPC 1	SCY	SD24	FPC/PPC 1	OS
SC25	FPC/PPC 1	SCX	SD25	FPC/PPC 1	RQIP
SC26	FPC/PPC 1	SCW	SD26	MSCU2 1	OS
SC27	MSCU2 1	SCY	SD27	MSCU2 1	RQIP
SC28	+		SD28	+	
SC29	CMCU 1	SCV	SD29	CMCU 1	DIAG
SC30	CM2 1 FAN FUSE*	SCZ	SD30	CMCU 1	OS
SC31	CMCU 1	SCY	SD31	CMCU 1	RQIP
SC32					
SC33					
SC34	ESM ALM	CRIT			
SC35	ESM PWR	MJ			
SC36	MSPU3 COM 111	SCX			
SC37	MSPU3 COM 111	SCW			
SC38	MSPU3 COM 107	SCX			
SC39	MSPU3 COM 107	SCW			
SC40	MSPU3 COM 105	SCX			
SC41	MSPU3 COM 105	SCW			
SC42	MSPU3 COM 103	SCX			
SC43	MSPU3 COM 103	SCW			
SC44	MSCU2 1	SCX			
SC45	MSCU2 1	SCW			
SC46	CMCU 1	SCX			
SC47	CMCU 1	SCW			

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9.1.3 RSM MMSU SCAN POINT ASSIGNMENTS - BOARD 0

RSM MMSU SCAN POINT ASSIGNMENTS (BOARD 0 - SG0 & SG1)
FOR APPLICATIONS PRIOR TO 5E2(2) GENERIC ONLY

SC #	DESCRIPTION	DESTINATION
00	OFFICE ASSIGNABLE	MAIN DISTRIBUTING FRAME(MDF)
01	OFFICE ASSIGNABLE	MAIN DISTRIBUTING FRAME(MDF)
02	OFFICE ASSIGNABLE	MAIN DISTRIBUTING FRAME(MDF)
03	OFFICE ASSIGNABLE	MAIN DISTRIBUTING FRAME(MDF)
04	OFFICE ASSIGNABLE	MAIN DISTRIBUTING FRAME(MDF)
05	OFFICE ASSIGNABLE	MAIN DISTRIBUTING FRAME(MDF)
06	OFFICE ASSIGNABLE	MAIN DISTRIBUTING FRAME(MDF)
07	OFFICE ASSIGNABLE	MAIN DISTRIBUTING FRAME(MDF)
08	OFFICE ASSIGNABLE	MAIN DISTRIBUTING FRAME(MDF)
09	OFFICE ASSIGNABLE	MAIN DISTRIBUTING FRAME(MDF)
10	OFFICE ASSIGNABLE	MAIN DISTRIBUTING FRAME(MDF)
11	OFFICE ASSIGNABLE	MAIN DISTRIBUTING FRAME(MDF)
12	OFFICE ASSIGNABLE	MAIN DISTRIBUTING FRAME(MDF)
13	OFFICE ASSIGNABLE	MAIN DISTRIBUTING FRAME(MDF)
14	OFFICE ASSIGNABLE	MAIN DISTRIBUTING FRAME(MDF)
15	OFFICE ASSIGNABLE	MAIN DISTRIBUTING FRAME(MDF)
16	OFFICE ASSIGNABLE	MAIN DISTRIBUTING FRAME(MDF)
17	OFFICE ASSIGNABLE	MAIN DISTRIBUTING FRAME(MDF)
18	OFFICE ASSIGNABLE	MAIN DISTRIBUTING FRAME(MDF)
19	OFFICE ASSIGNABLE	MAIN DISTRIBUTING FRAME(MDF)
20	OFFICE ASSIGNABLE	MAIN DISTRIBUTING FRAME(MDF)
21	OFFICE ASSIGNABLE	MAIN DISTRIBUTING FRAME(MDF)
22	OFFICE ASSIGNABLE	MAIN DISTRIBUTING FRAME(MDF)
23	OFFICE ASSIGNABLE	MAIN DISTRIBUTING FRAME(MDF)
24	OFFICE ASSIGNABLE	MAIN DISTRIBUTING FRAME(MDF)
25	OFFICE ASSIGNABLE	MAIN DISTRIBUTING FRAME(MDF)
26	OFFICE ASSIGNABLE	MAIN DISTRIBUTING FRAME(MDF)
27	OFFICE ASSIGNABLE	MAIN DISTRIBUTING FRAME(MDF)
28	OFFICE ASSIGNABLE	MAIN DISTRIBUTING FRAME(MDF)
29	OFFICE ASSIGNABLE	MAIN DISTRIBUTING FRAME(MDF)
30	ALM RETIRE SWITCH	MDF (TO ALARM LAMP PANEL ON ENDGUARD)
31	NOT USED (CURRENT SENSING POINT)	

NOTE: RSM APPLICATIONS PRIOR TO 5E2(2) REQUIRE TWO SCAN BOARDS PER SERVICE GROUP. ALL SCAN ASSIGNMENTS ARE DUPLICATED BETWEEN SERVICE GROUPS. THE BOARD NUMBERS SHOWN ARE FOR REFERENCE ONLY, ACTUAL CIRCUIT PACK LOCATIONS ARE AS FOLLOWS:

SG0 BOARD 0 TO SLOT 066

SG1 BOARD 0 TO SLOT 154

IN 5E2(2) AND LATER GENERIC APPLICATIONS, SCAN ASSIGNMENTS AND PACK LOCATIONS ARE JOB ENGINEERED.

9.1.4 RSM MMSU SCAN POINT ASSIGNMENTS - BOARD 1

RSM MMSU SCAN POINT ASSIGNMENT (BOARD 1 - SG0 & SG1)
FOR APPLICATIONS PRIOR TO 5E2(2) GENERIC ONLY

SC #	DESCRIPTION	DESTINATION
00	FIRE	MAIN DISTRIBUTING FRAME (MDF)
01	FIRE ALARM TROUBLE	MAIN DISTRIBUTING FRAME (MDF)
02	DSCHG FUSE FAIL	MAIN DISTRIBUTING FRAME (MDF)
03	INV FAIL	MAIN DISTRIBUTING FRAME (MDF)
04	MISC PWR	MAIN DISTRIBUTING FRAME (MDF)
05	MISC PWR	MAIN DISTRIBUTING FRAME (MDF)
06	MISC PWR	MAIN DISTRIBUTING FRAME (MDF)
07	RECT FAIL	MAIN DISTRIBUTING FRAME (MDF)
08	ALM BAT	MAIN DISTRIBUTING FRAME (MDF)
09	CO BAT DSCHG	MAIN DISTRIBUTING FRAME (MDF)
10	HIGH VOLTAGE	MAIN DISTRIBUTING FRAME (MDF)
11	COM PWR FAIL	MAIN DISTRIBUTING FRAME (MDF)
12	STBY PLNT LOW FUEL	MAIN DISTRIBUTING FRAME (MDF)
13	STBY PLNT OPER	MAIN DISTRIBUTING FRAME (MDF)
14	STBY PLNT RECT FAIL	MAIN DISTRIBUTING FRAME (MDF)
15	STBY PLNT FAIL	MAIN DISTRIBUTING FRAME (MDF)
16	MISC CAB FUSE ALM-0	MISCELLANEOUS CABINET
17	MISC CAB FUSE ALM-1	MISCELLANEOUS CABINET
18	NOT USED (SPARE)	
19	NOT USED (SPARE)	
20	FUSE FAIL DPF-0	POWER DISTRIBUTING FRAME (PDF)
21	FUSE FAIL PDF-1	POWER DISTRIBUTING FRAME (PDF)
22	SPARE	
23	SPARE	
24	SPARE	
25	SPARE	
26	SPARE	
27	SPARE	
28	TN934 (RAU) ALMACT	REMOTE ALM UNIT
29	TN934 (RAU) TST	REMOTE ALM UNIT
30	TN934 (RAU) ALMPWR	REMOTE ALM UNIT
31	NOT USED (CURRENT SENSING POINT)	

NOTE: RSM APPLICATIONS PRIOR TO 5E2(2) REQUIRE TWO SCAN BOARDS PER SERVICE GROUP. ALL SCAN ASSIGNMENTS ARE DUPLICATED BETWEEN SERVICE GROUPS. THE BOARD NUMBERS SHOWN ARE FOR REFERENCE ONLY, ACTUAL CIRCUIT PACK LOCATIONS ARE AS FOLLOWS:

SG0 BOARD 0 TO SLOT 074

SG1 BOARD 0 TO SLOT 162

IN 5E2(2) AND LATER GENERIC APPLICATIONS, SCAN ASSIGNMENTS AND PACK LOCATIONS ARE JOB ENGINEERED.

9.1.5 RSM MMSU SD POINT ASSIGNMENTS

RSM MMSU DISTRIBUTE POINT ASSIGNMENTS (BOARD 0 - SG0 & SG1)
FOR APPLICATIONS PRIOR TO 5E2(2) GENERIC ONLY

SC #	DESCRIPTION	DESTINATION
00	LAMP -- SYSTEM SANITY	MDF (TO MSU RESISTOR PANEL, THEN TO RSM ALARM PANEL ON END-GUARD
01	LAMP -- OFF-NORMAL	
02	LAMP -- BLDG/PWR/MISC ALM	
03	LAMP -- ALARM TEST IN PROGRESS	
04	SPARE	
05	SPARE	
06	SPARE	
07	SPARE	
08	TN934 (RAU) - CR	REMOTE ALM UNIT
09	TN934 (RAU) - ST	REMOTE ALM UNIT
10	TN934 (RAU) - MJ	REMOTE ALM UNIT
11	TN934 (RAU) - MN	REMOTE ALM UNIT
12	TN934 (RAU) - ATST	REMOTE ALM UNIT
13	NOT ACCESSIBLE	
14	NOT ACCESSIBLE	
15	NOT ACCESSIBLE	
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		
31		

NOTE: RSM APPLICATIONS PRIOR TO 5E2(2) REQUIRE TWO SCAN BOARDS PER SERVICE GROUP. ALL SD ASSIGNMENTS ARE DUPLICATED BETWEEN SERVICE GROUPS. THE BOARD NUMBERS SHOWN ARE FOR REFERENCE ONLY, ACTUAL CIRCUIT PACK LOCATIONS ARE AS FOLLOWS:

SG0 BOARD 0 TO SLOT 084

SG1 BOARD 0 TO SLOT 170

IN 5E2(2) AND LATER GENERIC APPLICATIONS, SD ASSIGNMENTS AND PACK LOCATIONS ARE JOB ENGINEERED.

9.1.6 RSM MMSU SCAN POINT REQUIREMENTS

RSM MMSU SCAN POINT REQUIREMENTS FOR 5E2(2)
OR LATER GENERIC APPLICATIONS

DESCRIPTION	LEAD DESIGNATION	DESTINATION
ALARM ACTIVE	()ALMACT()	ALARM STATUS UNIT VIA MDF
ALARM POWER	" ALMPWR "	ALARM STATUS UNIT VIA MDF
ALARM RETIRE	" ALMRET "	ALARM STATUS UNIT VIA MDF
ALARM TEST	" ALMTST "	ALARM STATUS UNIT VIA MDF
MANUAL MODE CONTROL	()MODE()	ALARM STATUS UNIT VIA MDF
FIRE		DISTRIBUTING FRAME (MDF)
FIRE ALARM TROUBLE		DISTRIBUTING FRAME (MDF)
DISCHARGE FUSE FAIL		DISTRIBUTING FRAME (MDF)
INVERTER FAIL		DISTRIBUTING FRAME (MDF)
RECT FAIL		DISTRIBUTING FRAME (MDF)
ALM BAT SUPPLY FAILURE		DISTRIBUTING FRAME (MDF)
CO BAT DSCHG		DISTRIBUTING FRAME (MDF)
HIGH VOLTAGE		DISTRIBUTING FRAME (MDF)
COM PWR FAIL		DISTRIBUTING FRAME (MDF)
STBY PLNT LOW FUEL		DISTRIBUTING FRAME (MDF)
STBY PLNT OPER		DISTRIBUTING FRAME (MDF)
STBY PLNT RECT FAIL		DISTRIBUTING FRAME (MDF)
STBY PLNT FAIL		DISTRIBUTING FRAME (MDF)
MISC CAB FUSE ALM-0		MISC CABINET VIA MDF
MISC CAB FUSE ALM-1		MISC CABINET VIA MDF
FUSE FAIL PCFD-0		PCFD VIA MDF
FUSE FAIL PCFD-1		PCFD VIA MDF

NOTE: SCAN REQUIREMENTS SHOWN ABOVE MUST BE DUPLICATED BETWEEN TWO MMSU SERVICE GROUPS WITH IDENTICAL HEX SCAN PORT NUMBER ASSIGNMENTS. ACTUAL ASSIGNMENT OF THESE POINTS IS LEFT TO THE LINE ENGINEER AND SHOULD BE CONSIDERED WITH OTHER SCAN ASSIGNMENTS IN DETERMINING SCAN PACK REQUIREMENTS. LOCATION OF SCAN PACKS IS JOB ENGINEERED. 5E2(2) RETROFIT APPLICATIONS RETAINING SINGLE MODULE RSMS MAY CONTINUE TO UTILIZE THE RAU. IN THESE CASES, SCAN ASSIGNMENTS SHOULD FOLLOW TABLES 9.2.1 AND 9.2.2. CIRCUIT PACK LOCATIONS ARE ENGINEERABLE FOR THESE APPLICATIONS, HOWEVER.

9.1.7 RSM MMSU SD POINT REQUIREMENTS

RSM MMSU SD POINT REQUIREMENTS FOR 5E2(2)
OR LATER GENERIC APPLICATIONS

DESCRIPTION	LEAD DESIGNATION	DESTINATION
BUILDING POWER	()BLDPWR()	ALARM STATUS UNIT VIA MDF
TEST IN PROGRESS	" TSTPRG "	ALARM STATUS UNIT VIA MDF
TIMER INHIBIT	" TIMINH "	ALARM STATUS UNIT VIA MDF
SANITY ALARM	" SA "	ALARM STATUS UNIT VIA MDF
SANITY TIMER	" SANTIM "	ALARM STATUS UNIT VIA MDF
SYSTEM TROUBLE	" SMTBL "	ALARM STATUS UNIT VIA MDF
CRITICAL ALARM LAMP	" CRLMP "	ALARM STATUS UNIT VIA MDF
OTHER SM TIMER INHIBIT	" OTHINS "	ALARM STATUS UNIT VIA MDF
MANUAL MODE CONTROL	" MAN "	ALARM STATUS UNIT VIA MDF
MINOR AUDIBLE ALARM	" MNAUD "	ALARM STATUS UNIT VIA MDF
MAJOR ALARM LAMP	" MJLMP "	ALARM STATUS UNIT VIA MDF
CRITICAL AUDIBLE ALARM	" CRAUD "	ALARM STATUS UNIT VIA MDF
MINOR ALARM LAMP	" MNLMP "	ALARM STATUS UNIT VIA MDF
MAJOR AUDIBLE ALARM	()MJAUD()	ALARM STATUS UNIT VIA MDF

NOTE: SD REQUIREMENTS SHOWN ABOVE MUST BE DUPLICATED BETWEEN TWO MMSU SERVICE GROUPS WITH IDENTICAL HEX SD PORT NUMBERS ASSIGNED. ACTUAL ASSIGNMENT OF THESE POINTS IS LEFT TO THE LINE ENGINEER AND SHOULD BE CONSIDERED WITH OTHER SD ASSIGNMENTS IN DETERMINING SD PACK REQUIREMENTS. LOCATION OF SD PACKS IS JOB ENGINEERED. **5E2(2) RETROFIT APPLICATIONS RETAINING SINGLE MODULE RSMS MAY CONTINUE TO UTILIZE THE RAU. IN THESE CASES, SD ASSIGNMENTS SHOULD FOLLOW TABLE 9.2.3. CIRCUIT PACK LOCATIONS ARE ENGINEERABLE FOR THESE APPLICATIONS, HOWEVER.**

9.1.8 EXM2000/ORM/TRM MMSU SCAN POINT REQUIREMENTS

EXM2000 MMSU SCAN POINT REQUIREMENTS
AND
ORM/TRM MMSU SCAN POINT REQUIREMENTS FOR 5E5
OR LATER GENERIC APPLICATIONS

DESCRIPTION	LEAD DESIGNATION	DESTINATION
ALARM ACTIVE (*)	()ALMACT()	ALARM STATUS UNIT VIA MDF
ALARM POWER (*)	" ALMPWR "	ALARM STATUS UNIT VIA MDF
ALARM RETIRE (*)	" ALMRET "	ALARM STATUS UNIT VIA MDF
ALARM TEST (*)	" ALMTST "	ALARM STATUS UNIT VIA MDF
MANUAL MODE CONTROL (*)	()MODE()	ALARM STATUS UNIT VIA MDF
FIRE		DISTRIBUTING FRAME (MDF)
FIRE ALARM TROUBLE		DISTRIBUTING FRAME (MDF)
DISCHARGE FUSE FAIL		DISTRIBUTING FRAME (MDF)
INVERTER FAIL		DISTRIBUTING FRAME (MDF)
RECT FAIL		DISTRIBUTING FRAME (MDF)
ALM BAT SUPPLY FAILURE		DISTRIBUTING FRAME (MDF)
CO BAT DSCHG		DISTRIBUTING FRAME (MDF)
HIGH VOLTAGE		DISTRIBUTING FRAME (MDF)
COM PWR FAIL		DISTRIBUTING FRAME (MDF)
STBY PLNT LOW FUEL		DISTRIBUTING FRAME (MDF)
STBY PLNT OPER		DISTRIBUTING FRAME (MDF)
STBY PLNT RECT FAIL		DISTRIBUTING FRAME (MDF)
STBY PLNT FAIL		DISTRIBUTING FRAME (MDF)
MISC CAB FUSE ALM-0		MISC CABINET VIA MDF
MISC CAB FUSE ALM-1		MISC CABINET VIA MDF
FUSE FAIL PCFD-0		PCFD VIA MDF
FUSE FAIL PCFD-1		PCFD VIA MDF

NOTE: SCAN REQUIREMENTS SHOWN ABOVE MUST BE DUPLICATED BETWEEN TWO MMSU SERVICE GROUPS WITH IDENTICAL HEX SCAN PORT NUMBER ASSIGNMENTS. ACTUAL ASSIGNMENT OF THESE POINTS IS LEFT TO THE LINE ENGINEER AND SHOULD BE CONSIDERED WITH OTHER SCAN ASSIGNMENTS IN DETERMINING SCAN PACK REQUIREMENTS. LOCATION OF SCAN PACKS IS JOB ENGINEERED. AN ASTRIX (*) INDICATES THAT THE SCAN POINT IS OPTIONAL AND SHOULD ONLY BE ASSIGNED WHEN AN "ALARM STATUS UNIT" IS EQUIPPED IN THE ORM/TRM APPLICATION.

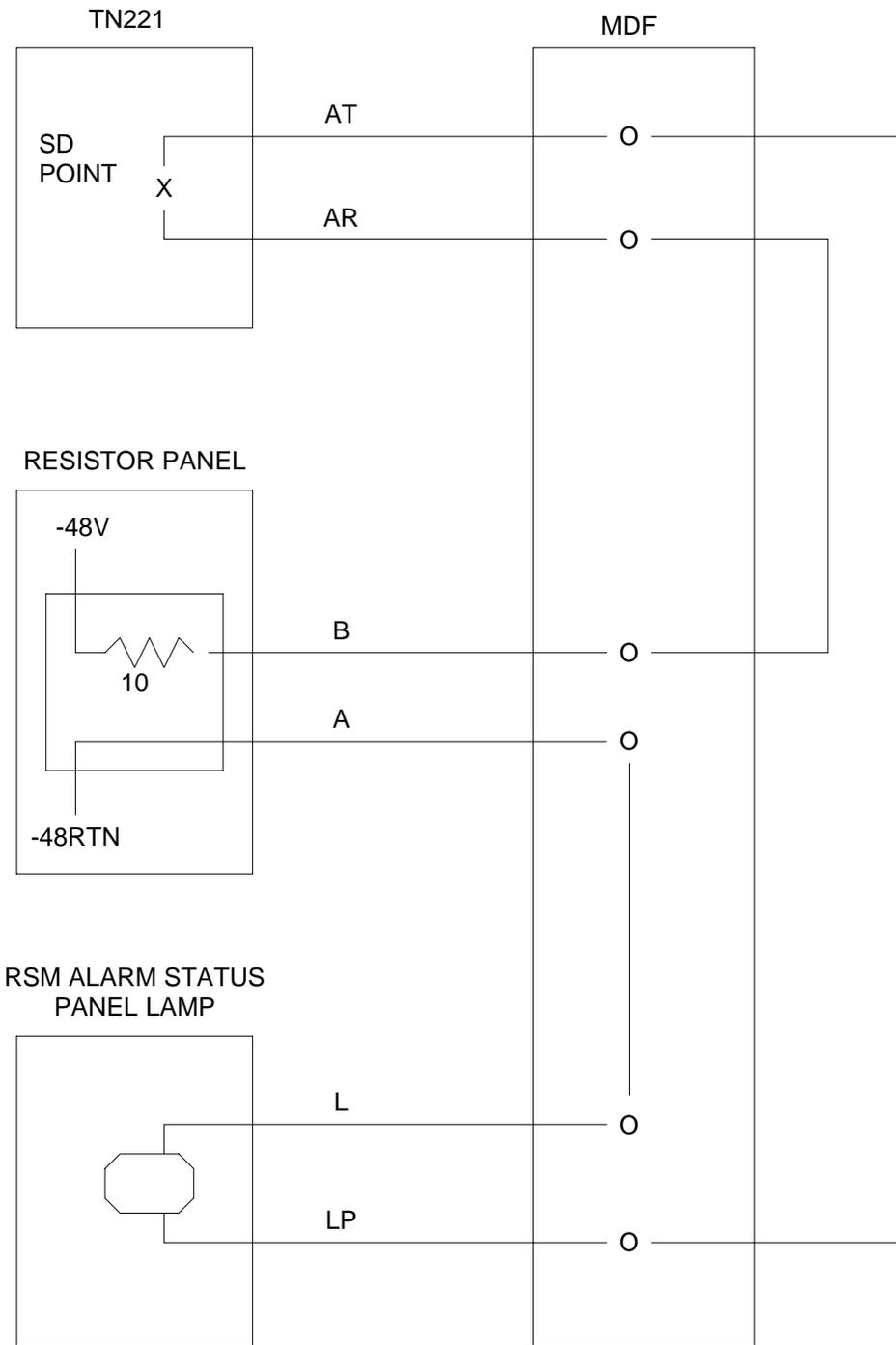
9.1.9 EXM2000/ORM/TRM MMSU SD POINT REQUIREMENTS

EXM2000 MMSU SD POINT REQUIREMENTS
AND
ORM/TRM MMSU SD POINT REQUIREMENTS FOR 5E5
OR LATER GENERIC APPLICATIONS

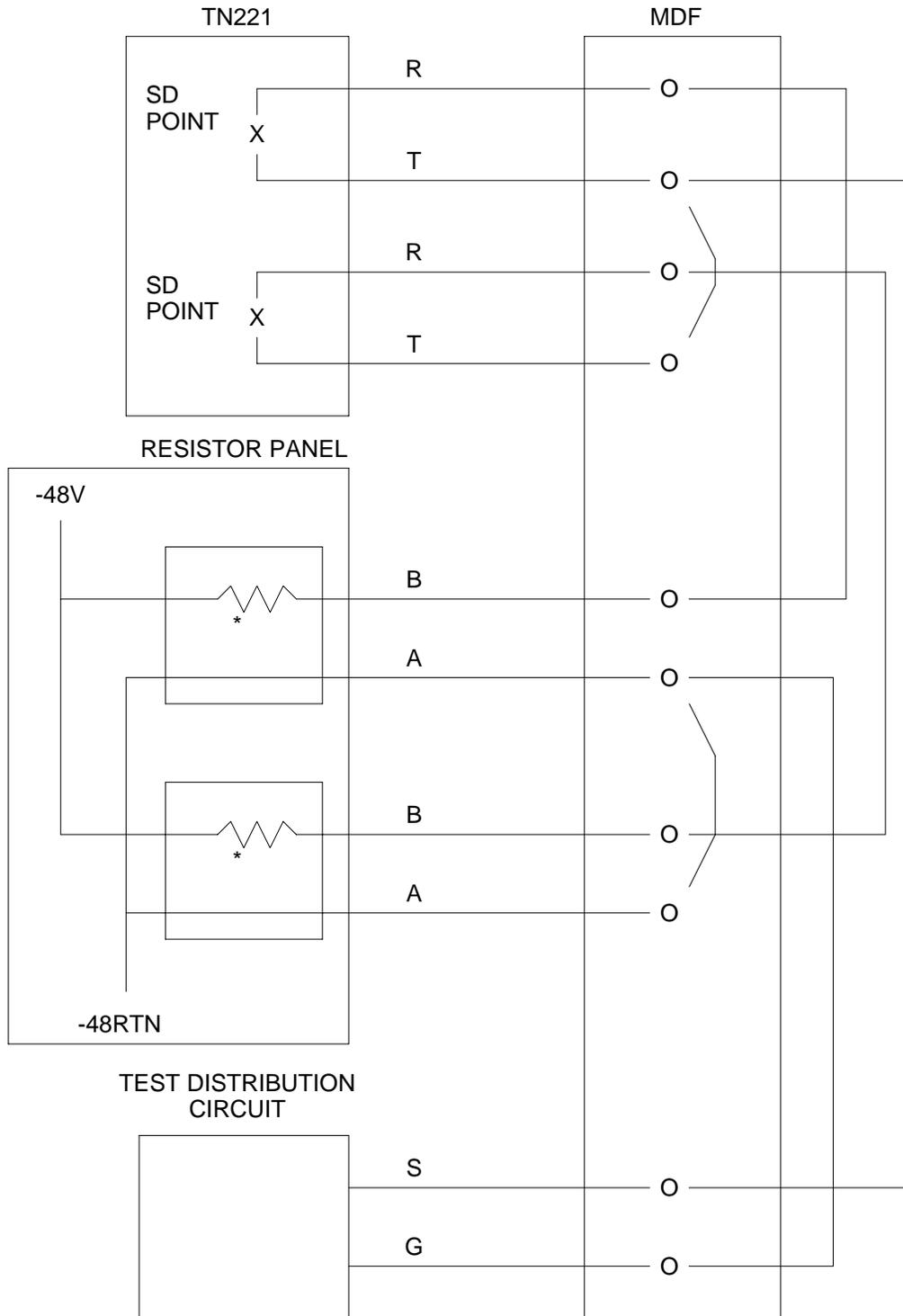
DESCRIPTION	LEAD DESIGNATION	DESTINATION
BUILDING POWER	()BLDPWR()	ALARM STATUS UNIT VIA MDF
TEST IN PROGRESS	" TSTPRG "	ALARM STATUS UNIT VIA MDF
TIMER INHIBIT	" TIMINH "	ALARM STATUS UNIT VIA MDF
STAND ALONE	" SA "	ALARM STATUS UNIT VIA MDF
SANITY TIMER	" SANTIM "	ALARM STATUS UNIT VIA MDF
SM TROUBLE	" SMTBL "	ALARM STATUS UNIT VIA MDF
CRITICAL ALARM LAMP	" CRLMP "	ALARM STATUS UNIT VIA MDF
OTHER INSANE SM	" OTHINS "	ALARM STATUS UNIT VIA MDF
MANUAL ALARM	" MAN "	ALARM STATUS UNIT VIA MDF
MINOR AUDIBLE ALARM	" MNAUD "	ALARM STATUS UNIT VIA MDF
MAJOR ALARM LAMP	" MJLMP "	ALARM STATUS UNIT VIA MDF
CRITICAL AUDIBLE ALARM	" CRAUD "	ALARM STATUS UNIT VIA MDF
MINOR ALARM LAMP	" MNLMP "	ALARM STATUS UNIT VIA MDF
MAJOR AUDIBLE ALARM	()MJAUD()	ALARM STATUS UNIT VIA MDF

NOTE: THE SD REQUIREMENTS SHOWN ABOVE ARE OPTIONAL AND SHOULD ONLY BE ASSIGNED WHEN AN "ALARM STATUS UNIT" IS EQUIPPED IN THE ORM/TRM APPLICATION. WHEN AN "OFFICE ALARM UNIT" IS EQUIPPED, THE SD REQUIREMENTS SHOWN ABOVE MUST BE DUPLICATED BETWEEN TWO MMSU SERVICE GROUPS WITH IDENTICAL HEX SD PORT NUMBERS ASSIGNED. ACTUAL ASSIGNMENT OF THESE POINTS IS LEFT TO THE LINE ENGINEER AND SHOULD BE CONSIDERED WITH OTHER SD ASSIGNMENTS IN DETERMINING SD PACK REQUIREMENTS. LOCATION OF SD PACKS IS JOB ENGINEERED.

9.1.10 RSM STATUS PANEL LAMP RESISTOR PANEL TERMINATION

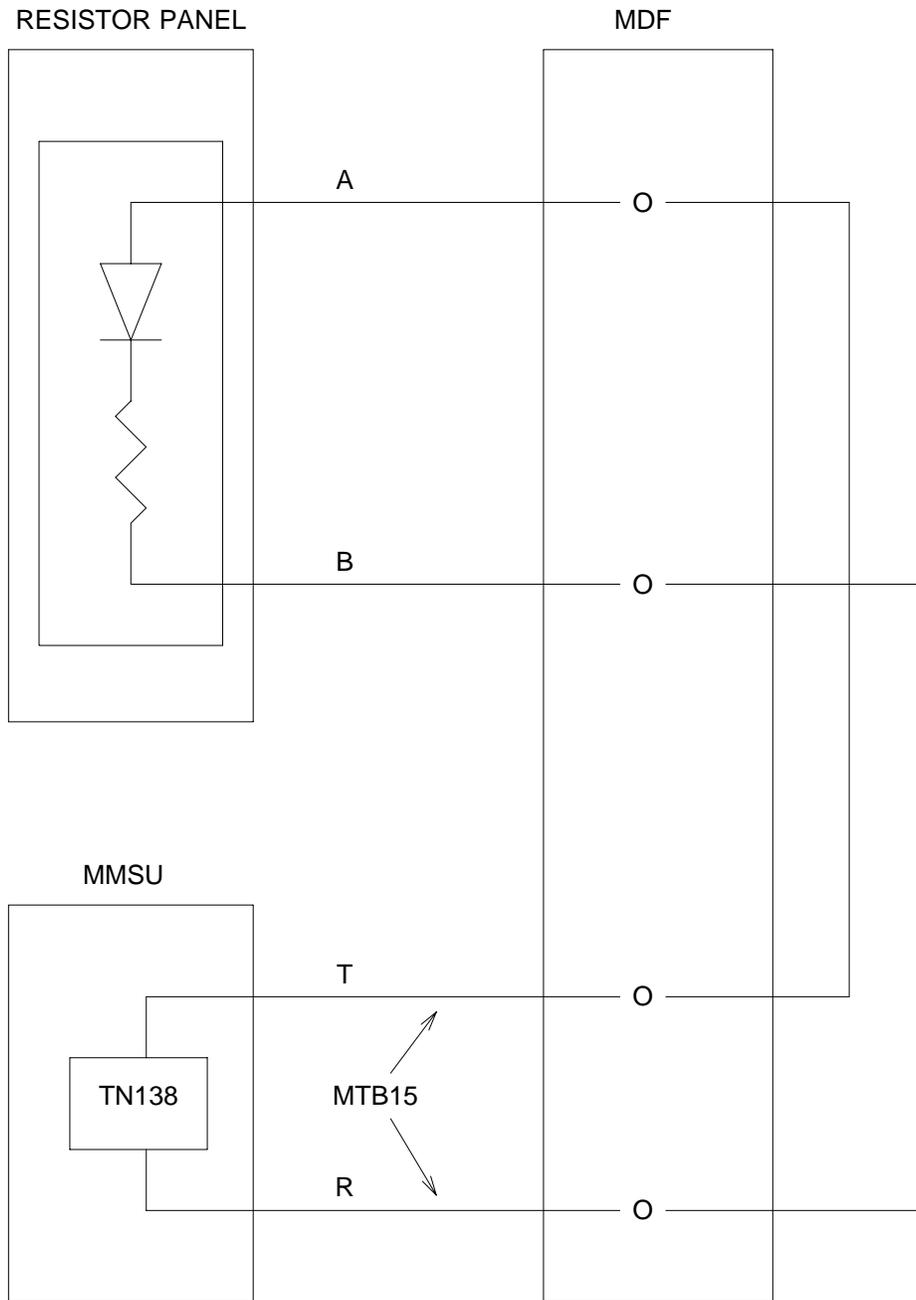


9.2 BOARD TO BOARD TEST CIRCUIT RESISTOR PANEL TERMINATION

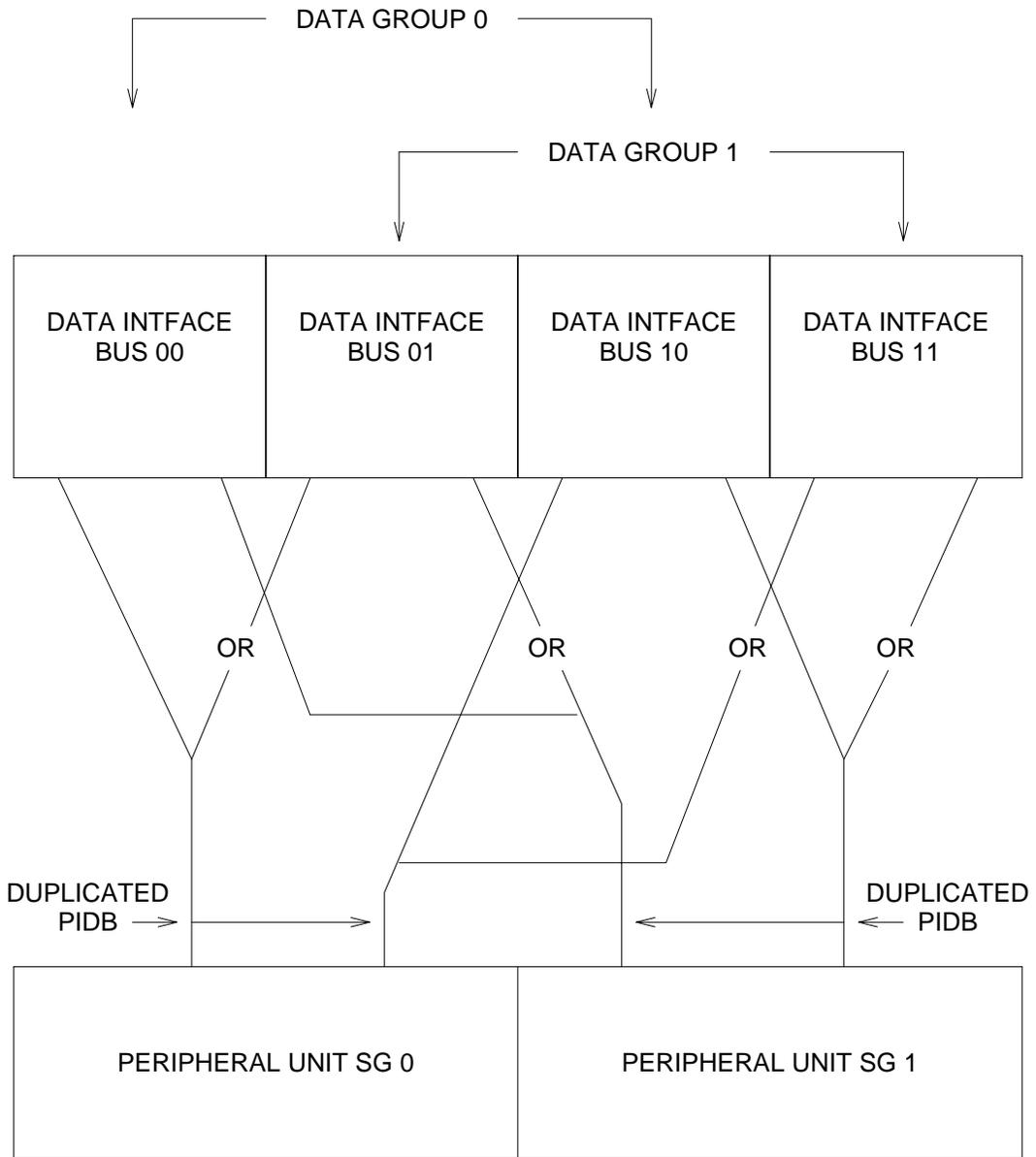


* Resistor values are office engineered. Reference SD-5D014-02 "Application Schematic for 5ESS System (6 Foot Cabinet)".

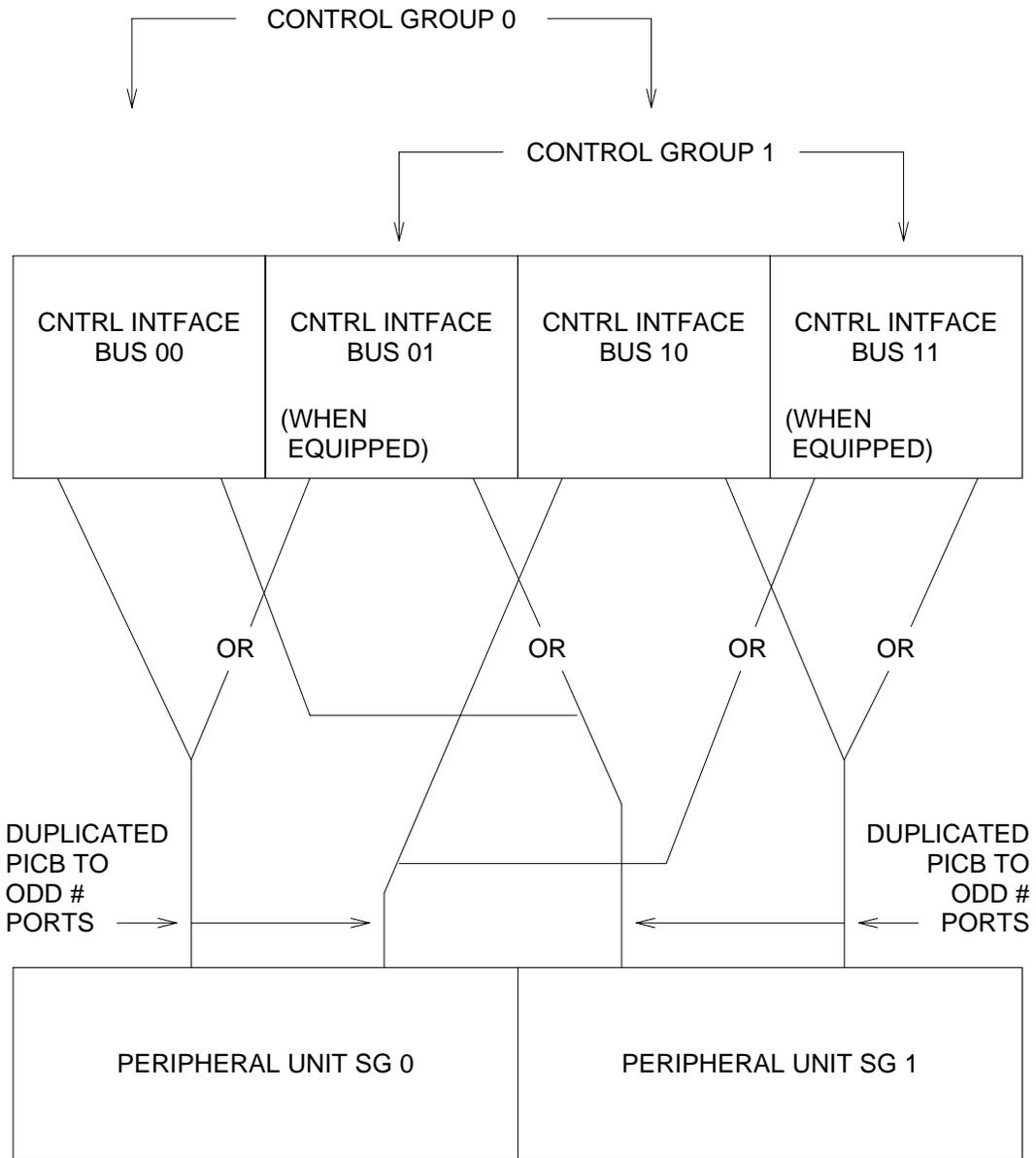
9.3 MMSU PROTOCOL CIRCUIT RESISTOR PANEL TERMINATION



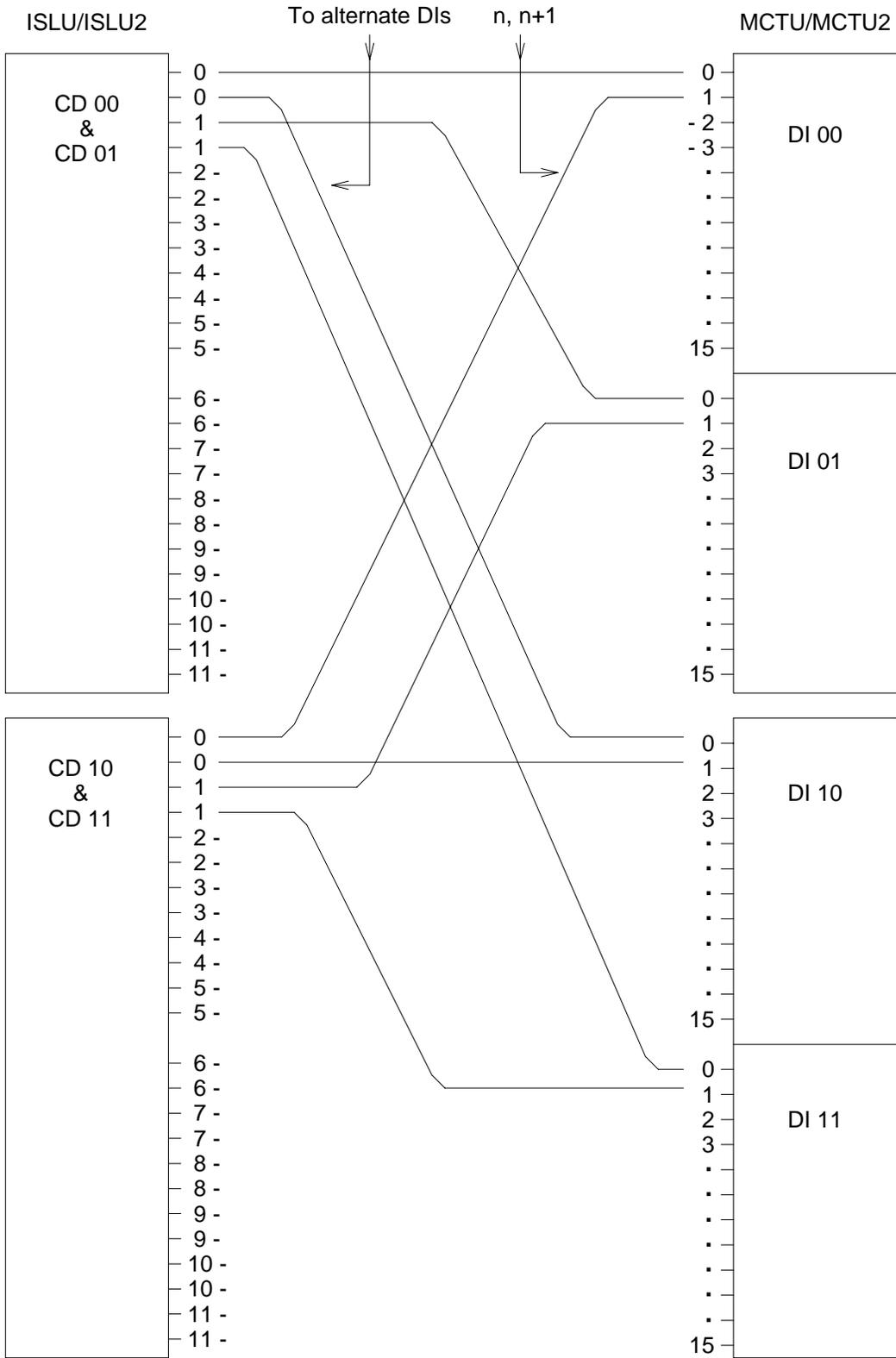
9.3.1 PIDB ASSIGNMENT TO PERIPHERAL UNITS FOR SM APPLICATIONS



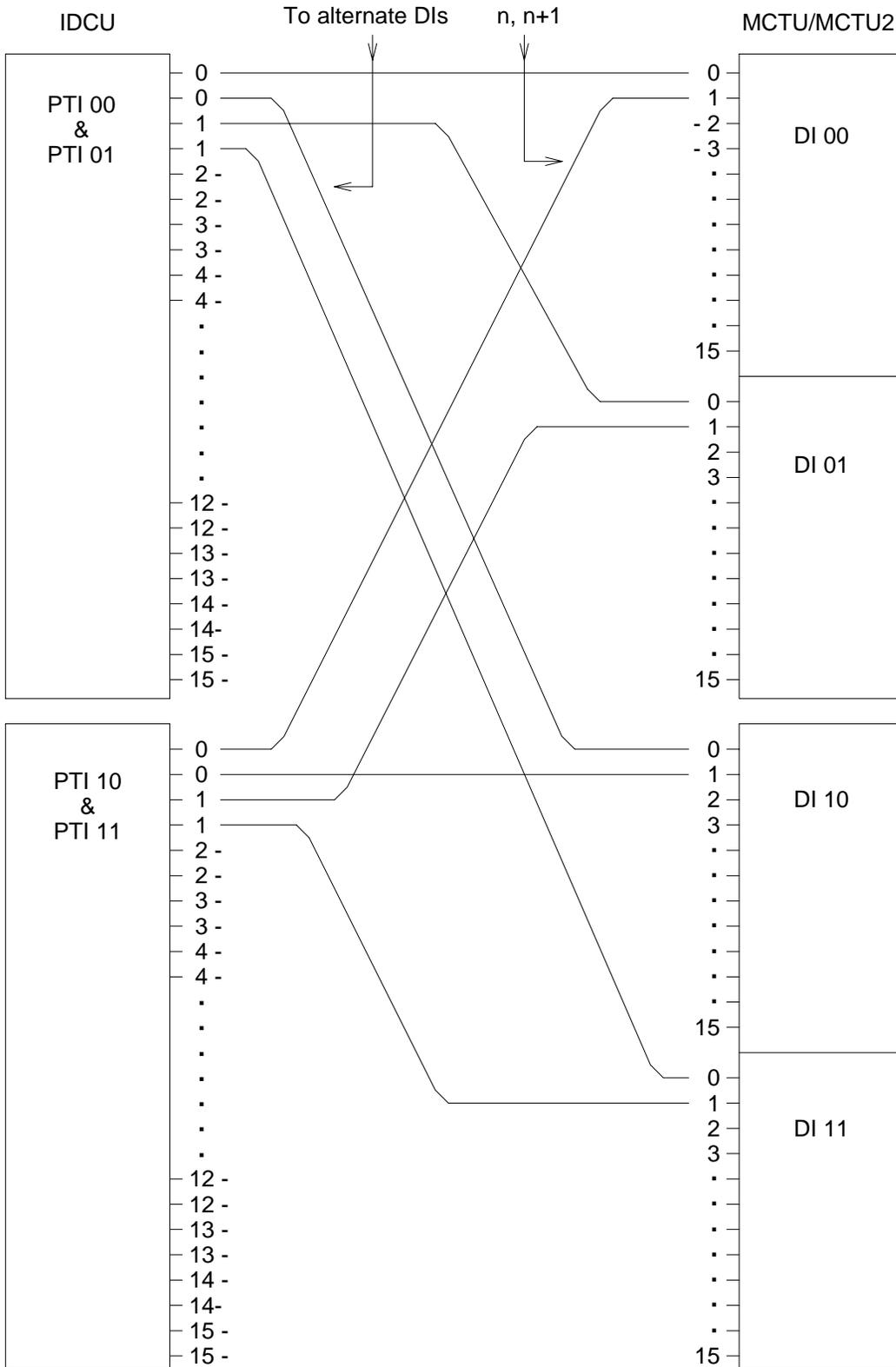
9.3.2 PICB ASSIGNMENT TO PERIPHERAL UNITS FOR SM APPLICATIONS



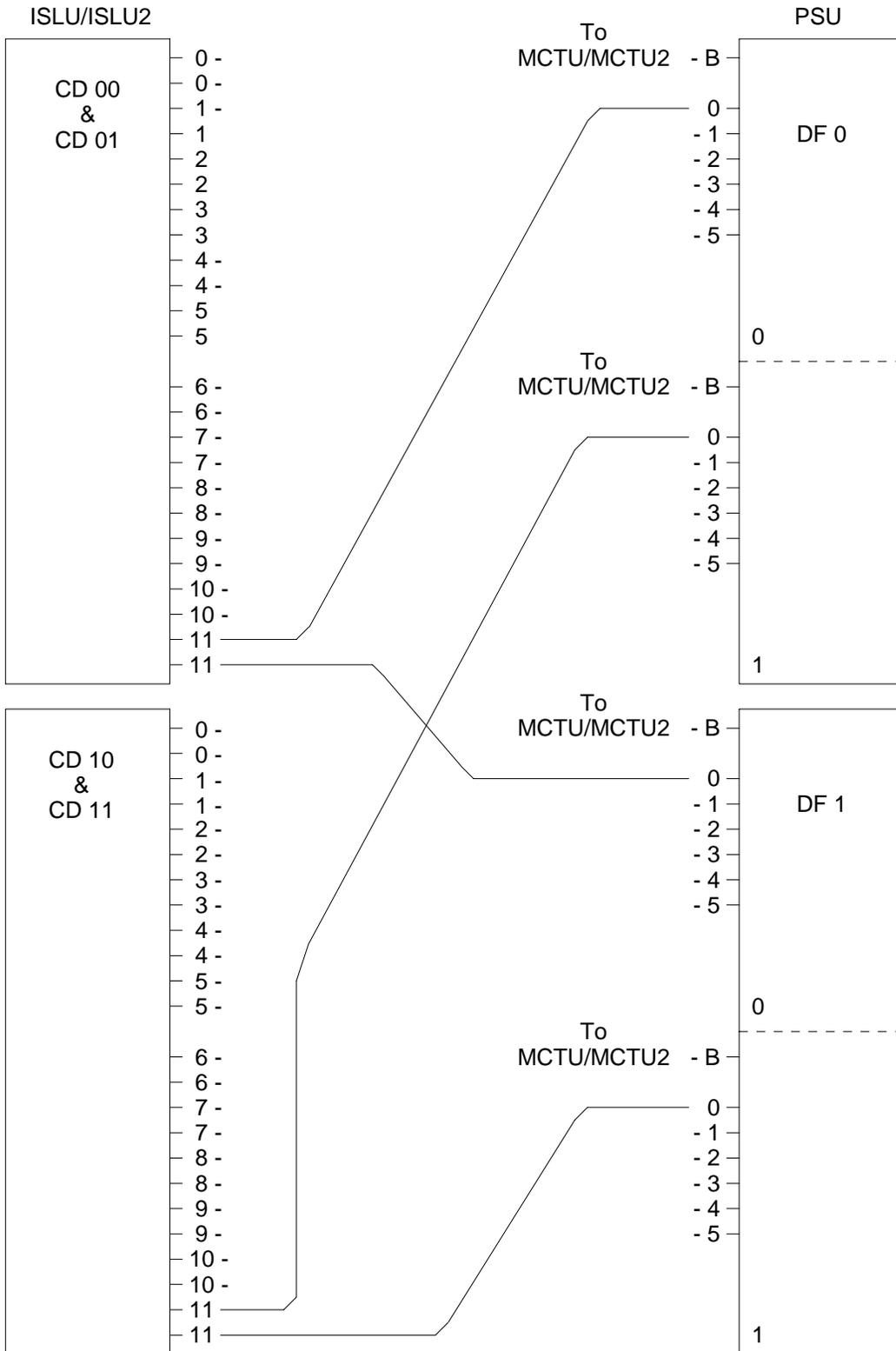
9.3.3 PIDB ASSIGNMENTS ISLU/ISLU2 TO MCTU/MCTU2



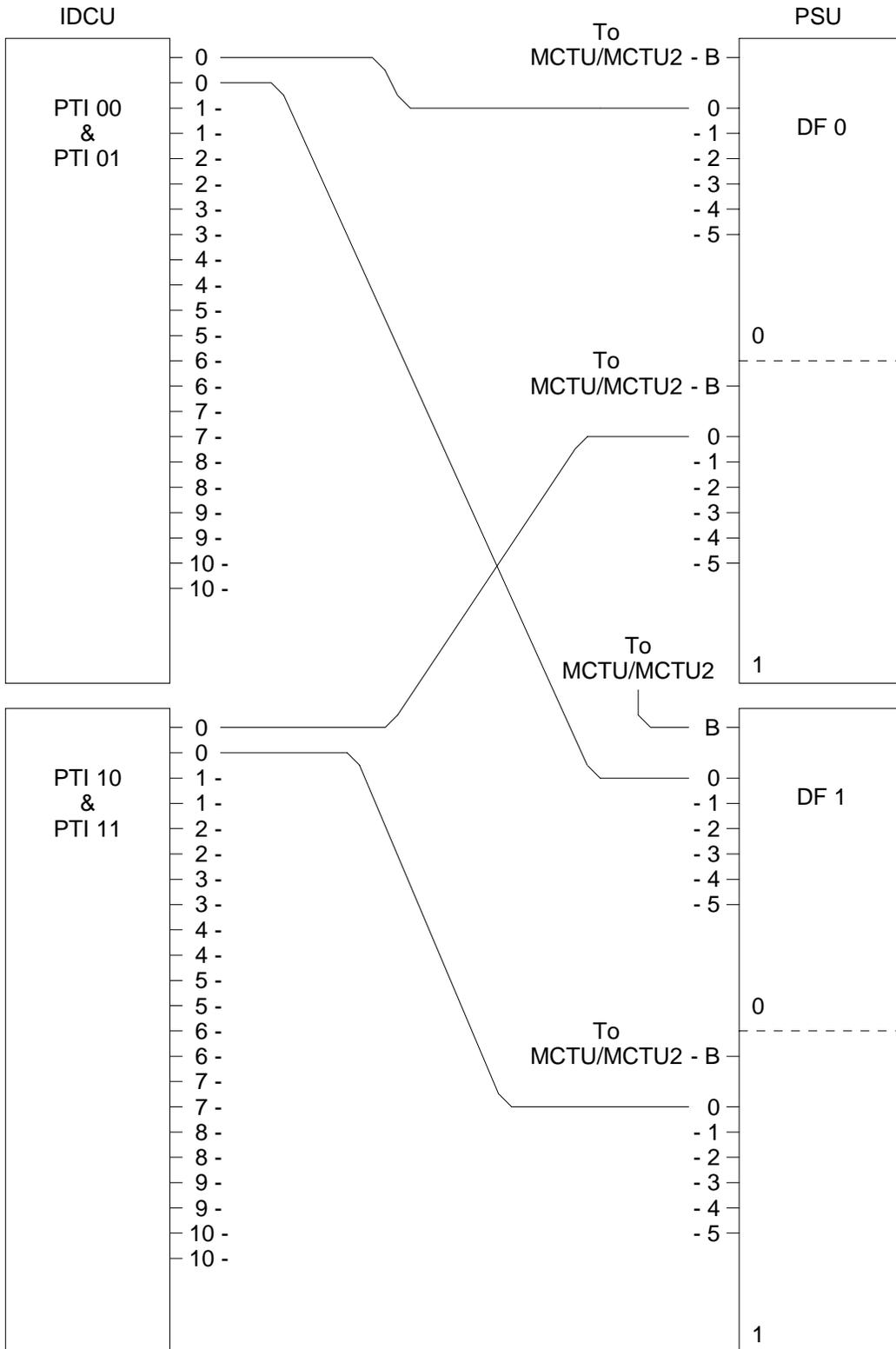
9.3.4 PIDB ASSIGNMENTS IDCU TO MCTU/MCTU2



9.3.5 DPIDB ASSIGNMENTS ISLU/ISLU2 TO PSU



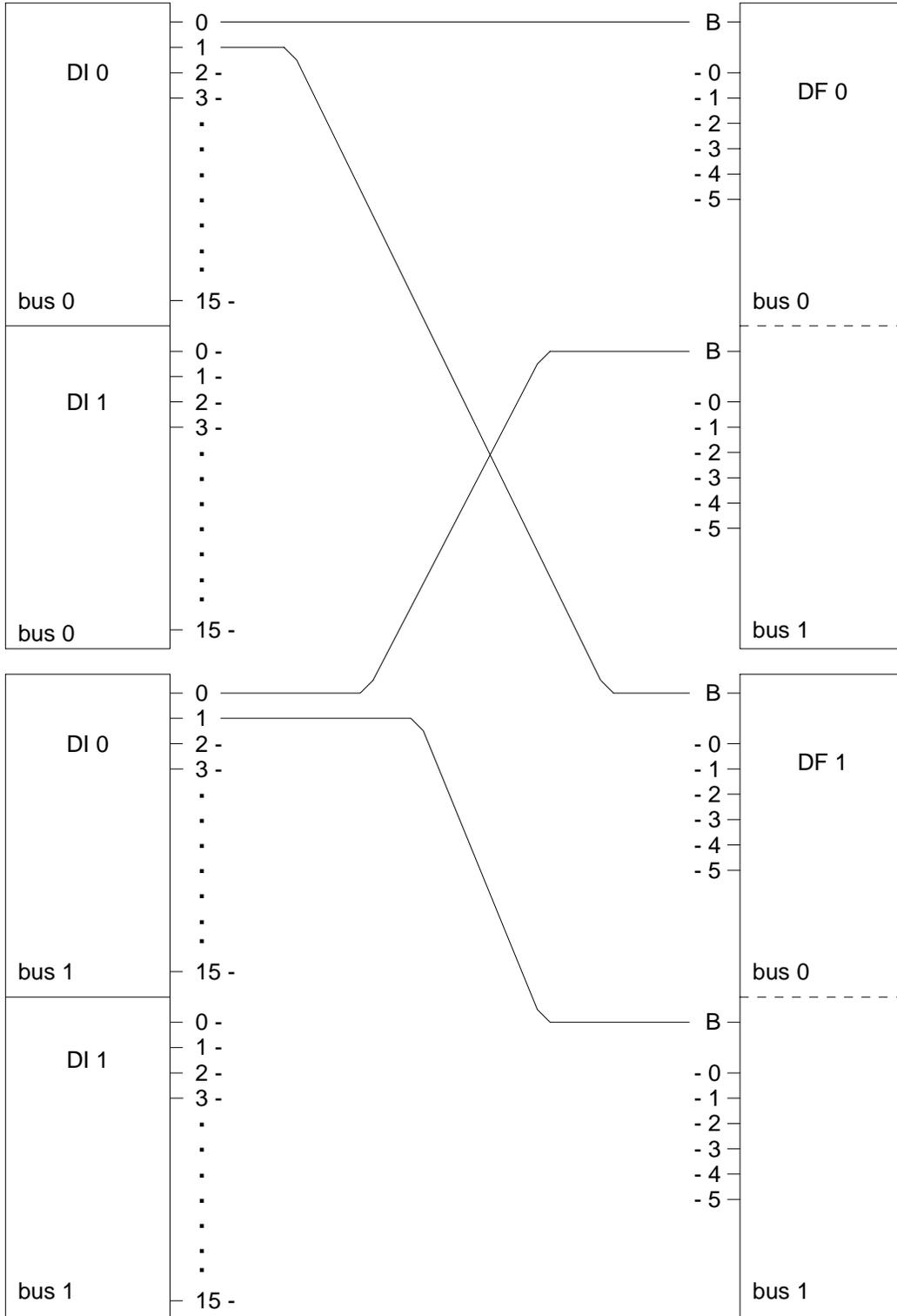
9.3.6 DPIDB ASSIGNMENTS FROM THE IDCU TO THE PSU



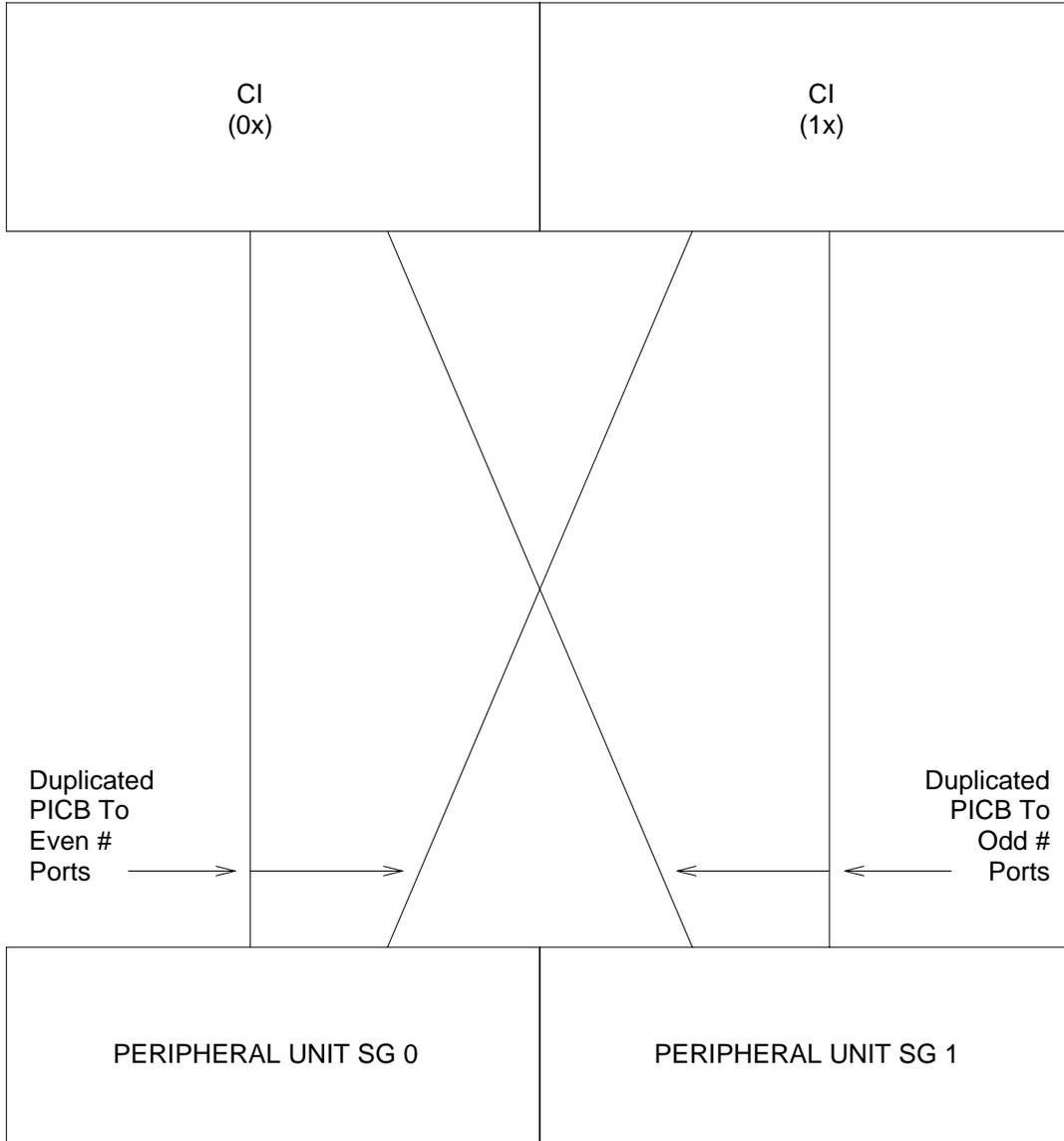
9.3.7 PIDB ASSIGNMENTS PSU TO MCTU/MCTU2

MCTU/MCTU2

PSU

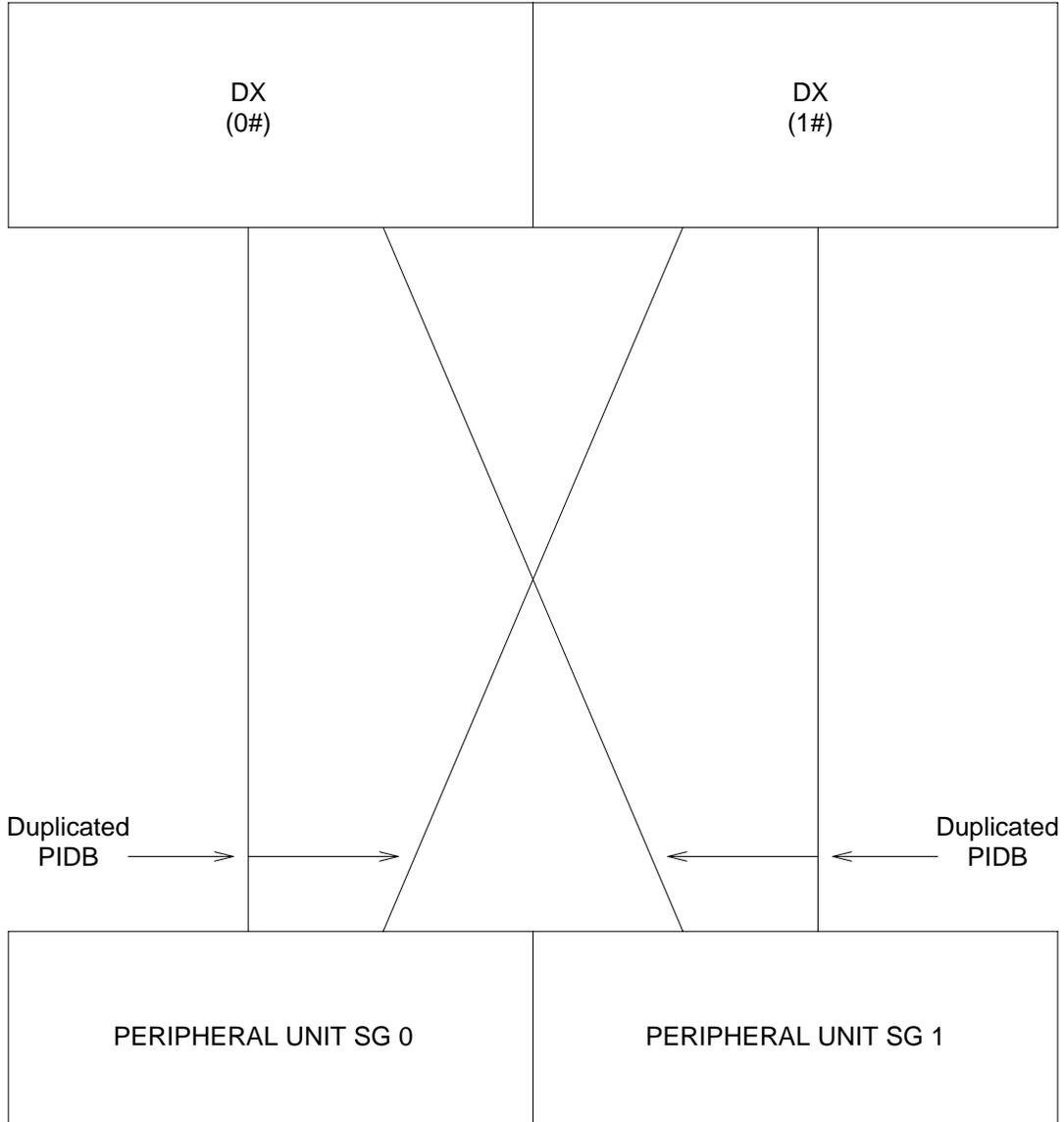


9.3.8 PICB ASSIGNMENT TO PERIPHERAL UNITS FOR SM2000 APPLICATIONS



NOTE: The (x) indicates the same Control Interface (0 - 3).

9.3.9 PIDB ASSIGNMENT TO PERIPHERAL UNITS FOR SM2000 APPLICATIONS



NOTE: The pound sign (#) indicates the same Data Expansion interface (0 - 5).

9.4 SM MEMORY FEATURES FOR VARIOUS SOFTWARE CONFIGURATIONS

CONFIGURATION	FEATURE
Basic	Analog Shared DN [5E5 and later] BRCS C-ACD ETN LASS LEC Trunk to Trunk Services (Tandem)
Standard	All Basic Features DSN Toll (AT&T NOG only) OSPS Trunking
Loaded	ISDN (PSU) OSPS PSM Analog Shared DN [5E4(2)]

10. LIST OF ABBREVIATIONS

DESIGNATION	DEFINITION
ASU	ALARM AND STATUS UNIT
ATU-E	ANALOG TRUNK UNIT - EXPORT
CCS	COMMON CHANNEL SIGNALING
CD	COMMON DATA
CI	CONTROL INTERFACE
CM2	COMMUNICATIONS MODULE, MODEL 2
CM2C	COMMUNICATIONS MODULE, MODEL 2 COMPACT
CMCU	COMMUNICATIONS MODULE CONTROL UNIT
CMPU	COMMUNICATIONS MODULE PROCESSOR UNIT
CMU	COMMUNICATIONS MODULE UNIT
CSU	COMBINED SERVICES UNIT
DAS/C	DIRECTORY ASSISTANCE SERVICES COMPUTER
DCLU	DIGITAL CARRIER LINE UNIT
DCTU	DIRECTLY CONNECTED TEST UNIT
DF	DATA FANOUT
DI	DATA INTERFACE
DLTU	DIGITAL LINE TRUNK UNIT
DLTU2	DIGITAL LINE TRUNK UNIT, MODEL 2
DLTU3	DIGITAL LINE TRUNK UNIT, MODEL 3
DLTU-E	DIGITAL LINE TRUNK UNIT - EXPORT
DLTU-R	DIGITAL LINE TRUNK UNIT - R
DSL	DIGITAL SUBSCRIBER LINE
DSU-GLOBAL	DIGITAL SERVICE CIRCUIT UNIT - GLOBAL
DSU-LOCAL	DIGITAL SERVICE CIRCUIT UNIT - LOCAL
DSU2	DIGITAL SERVICE UNIT, MODEL 2
DSU3	DIGITAL SERVICE UNIT, MODEL 3
DNU-S	DIGITAL NETWORKING UNIT - SONET
ECSU	ECHO CANCELER SIGNALING UNIT
EXM2000	EXTENDED SWITCHING MODULE 2000
FIDB	FACILITY INTERFACE DATA BUS
FIU	FACILITIES INTERFACE UNIT
GDSU-E	GLOBAL DIGITAL SERVICE UNIT - EXPORT
ICL	INTER-RSM COMMUNICATION LINK
IDCU	INTEGRATED DIGITAL CARRIER UNIT
INV	INVERTER
ISLU	INTEGRATED SERVICES LINE UNIT
IWF	INTER-WORKING FUNCTION
ISLU2	INTEGRATED SERVICES LINE UNIT 2
LDSU-E	LOCAL DIGITAL SERVICE UNIT - EXPORT
LTD	LOCAL TEST DESK
LTP	LINE AND TRUNK PERIPHERAL CABINET
LU	LINE UNIT
LU2	LINE UNIT, MODEL 2
LU2-E	LINE UNIT, MODEL 2 - EXPORT
LU3	LINE UNIT, MODEL 3
MCTU	MODULE CONTROLLER/TIME SLOT INTERCHANGE UNIT
MCTU2	MODULE CONTROLLER/TIME SLOT INTERCHANGE UNIT, MODEL 2
MCTU3	MODULE CONTROLLER/TIME SLOT INTERCHANGE UNIT, MODEL 3
MEU	MEMORY EXPANSION UNIT
MICU	MESSAGE INTERFACE CLOCK UNIT

MLT-2	MECHANIZED LOOP TESTING 2
MMSU	MODULAR METALLIC SERVICE UNIT
MSCU	MESSAGE SWITCH CONTROLLER UNIT
MSCU2	MESSAGE SWITCH CONTROL UNIT, MODEL 2
MSG	MESSAGE SWITCH CABINET
MSPU	MESSAGE SWITCH PERIPHERAL UNIT
MSPU2	MESSAGE SWITCH PERIPHERAL UNIT, MODEL 2
MSPU3	MESSAGE SWITCH PERIPHERAL UNIT, MODEL 3
MSU	METALLIC SERVICE UNIT
MTB	METALLIC TEST BUS
MTIB	METALLIC TEST INTERCONNECTION BUS
NLI	NETWORK LINK INTERFACE
OAU	OFFICE ALARM UNIT
OSPS	OPERATOR SERVICES POSITIONS SYSTEM
PLI	PERIPHERAL LINK INTERFACE
PGTC	PAIR GAIN TEST CONTROLLER
PIB	POWER INTERLOCK BOARD
PICB	PERIPHERAL INTERFACE CONTROL BUS
PID	PRODUCT IDENTIFICATION
PIDB	PERIPHERAL INTERFACE DATA BUS
PMU	PRECISION MEASUREMENT UNIT
PPMU	PERIODIC PULSE METERING UNIT
PSU	PACKET SWITCH UNIT
PSU2	PACKET SWITCH UNIT, MODEL 2
PTI	PIDB TRANSMISSION INTERFACE
QGL	QUAD GATE LINK
QLI	QUAD LINK INTERFACE
RAU	REMOTE ALARM UNIT
RCU	REMOTE CLOCK UNIT
RISLU	REMOTE INTEGRATED SERVICES LINE UNIT
RRU	REMOTE RECORD UNIT
RSM	REMOTE SWITCHING MODULE
RTCD	REAL TIME CALL DETAIL
SAS	SERVICE ANNOUNCEMENT SYSTEM
SASDSC	SERVICE ANNOUNCEMENT SYSTEM DIGITAL SERVICE CIRCUIT
SASMEM	SERVICE ANNOUNCEMENT SYSTEM MEMORY
SAS-PSG	SERVICE ANNOUNCEMENT SYSTEM PHYSICAL SERVICE GROUP
SDL	SIGNALING DATA LINKS
SM	SWITCHING MODULE
SMC	SWITCHING MODULE CONTROL CABINET
SMPU	SWITCHING MODULE PROCESSOR UNIT
SMPU2	SWITCHING MODULE PROCESSOR, MODEL 2
SMPU4	SWITCHING MODULE PROCESSOR, MODEL 4
SMPU5	SWITCHING MODULE PROCESSOR, MODEL 5
TAU	TEST ACCESS UNIT
TBCU	TEST BUS CONTROL UNIT
TLWS	TRUNK AND LINE WORK STATION
TMS	TIME MULTIPLEXED SWITCH CABINET
TMCU	TIME MULTIPLEXED SWITCH CONTROL UNIT
TMSU	TIME MULTIPLEXED SWITCH UNIT
TMSU2	TIME MULTIPLEXED SWITCH UNIT, MODEL 2
TMSU3	TIME MULTIPLEXED SWITCH UNIT, MODEL 3
TMSU4	TIME MULTIPLEXED SWITCH UNIT, MODEL 4

TRCU	TRANSMISSION RATE CONVERTER UNIT
TRCU3	TRANSMISSION RATE CONVERTER, UNIT 3
TSIU	TIME SLOT INTERCHANGE UNIT
TSIU2	TIME SLOT INTERCHANGE UNIT, MODEL 2
TSIU4	TIME SLOT INTERCHANGE UNIT, MODEL 4
TU	TRUNK UNIT
VCDX	VERY COMPACT DIGITAL EXCHANGE
XCDU	EXTENDED CONTROL AND CONTROL DATA UNIT

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